PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Spaur 10Q-401**

Surface Location: Spaur 4N67W10LQ Pad Sec.10-T4N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4829.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1360232.91	3173451.72	40.320570	-104.877940	

RKB - 13' WELL @ 4842.0ft (RKB - 13')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50'E/W Hardline (10Q-401)	1.0	2433.0	401.5	Rectangle (Sides: L3986.5 W100.0)
SHL 359'FSL & 2393'FWL	1.0	0.0	0.0	Point
BHL 500'FNL & 2467'FEL	7235.0	4426.3	401.5	Point

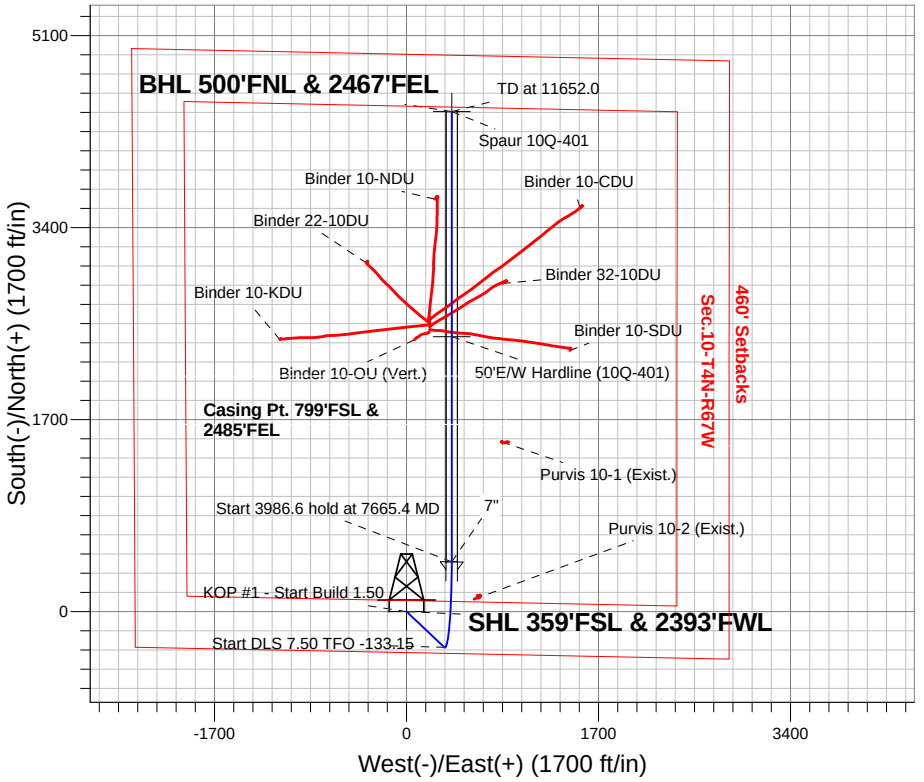
Azimuths to True North
Magnetic North: 8.38°

Magnetic Field
Strength: 52657.7snT
Dip Angle: 66.83°
Date: 6/11/2015
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
2000.0	2000.0	KOP #1 - Start Build 1.50
2419.6	2420.5	Start 3992.7 hold at 2420.5 MD
6388.1	6413.1	Start DLS 7.50 TFO -133.15
7207.0	7665.4	Start 3986.6 hold at 7665.4 MD
7235.0	11652.0	TD at 11652.0

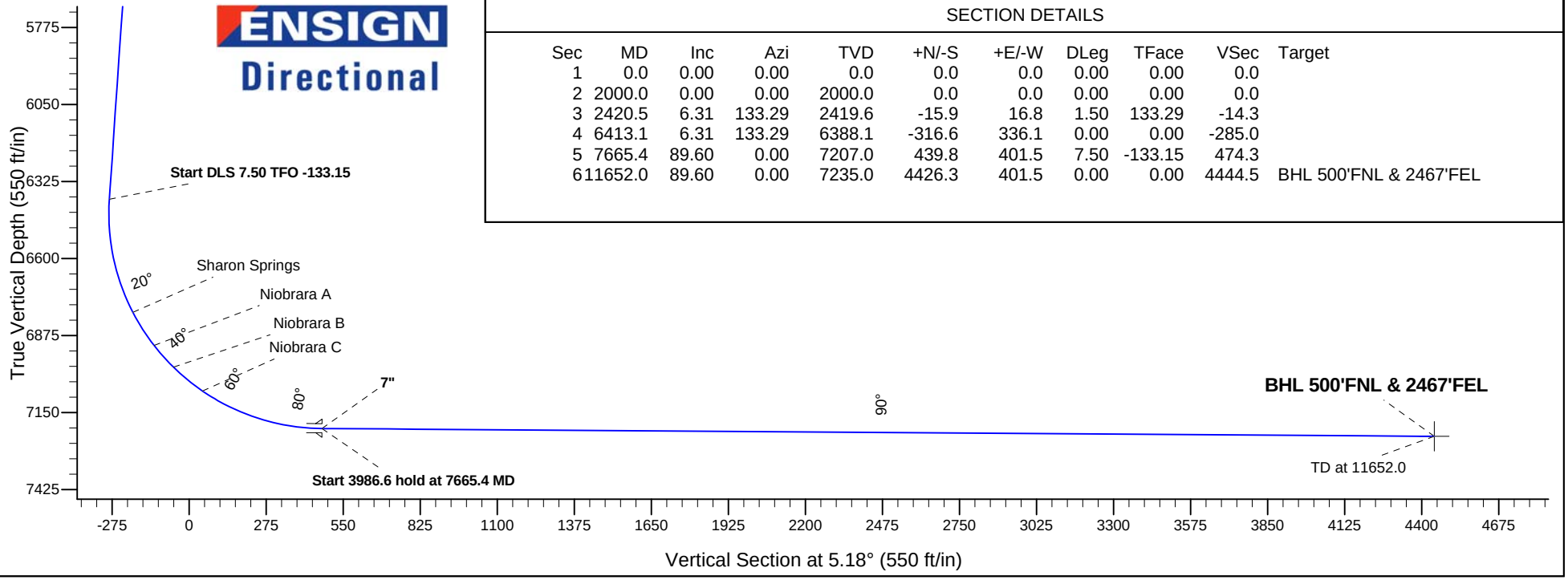
Spaur 4N67W10LQ Pad Sec.10-T4N-R67W
Spaur 10Q-401
Plan #2 (6-11-15)



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	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2420.5	6.31	133.29	2419.6	-15.9	16.8	1.50	133.29	-14.3	
4	6413.1	6.31	133.29	6388.1	-316.6	336.1	0.00	0.00	-285.0	
5	7665.4	89.60	0.00	7207.0	439.8	401.5	7.50	-133.15	474.3	
6	11652.0	89.60	0.00	7235.0	4426.3	401.5	0.00	0.00	4444.5	BHL 500'FNL & 2467'FEL

ENSIGN Directional



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.10-T4N-R67W
Spaur 4N67W10LQ Pad Sec.10-T4N-R67W
Spaur 10Q-401

Wellbore #1

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

Standard Planning Report

16 June, 2015

PDC ENERGY
Growing E&P Value

Database:	EDM 2003.21 Single User Db	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Project:	SEC.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**North Reference:**	True
Well:	Spaur 10Q-401	**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:**	3,173,448.83 ft	**Longitude:**	-104.877950
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.40 °

Well Spaur 10Q-401

Well Position	**+N/-S**	-14.6 ft	**Northing:**	1,360,232.91 ft	**Latitude:**	40.320570
	+E/-W	2.8 ft	**Easting:**	3,173,451.72 ft	**Longitude:**	-104.877940
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,829.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/11/2015	8.38	66.83	52,658

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	5.18

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	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,420.5	6.31	133.29	2,419.6	-15.9	16.8	1.50	1.50	0.00	133.29	
6,413.1	6.31	133.29	6,388.1	-316.6	336.1	0.00	0.00	0.00	0.00	
7,665.4	89.60	0.00	7,207.0	439.8	401.5	7.50	6.65	-10.64	-133.15	
11,652.0	89.60	0.00	7,235.0	4,426.3	401.5	0.00	0.00	0.00	0.00	BHL 500'FNL & 24(

Database:	EDM 2003.21 Single User Db	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
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Project:	SEC.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**North Reference:**	True
Well:	Spaur 10Q-401	**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
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1 - Start Build 1.50									
2,100.0	1.50	133.29	2,100.0	-0.9	1.0	-0.8	1.50	1.50	0.00
2,200.0	3.00	133.29	2,199.9	-3.6	3.8	-3.2	1.50	1.50	0.00
2,300.0	4.50	133.29	2,299.7	-8.1	8.6	-7.3	1.50	1.50	0.00
2,400.0	6.00	133.29	2,399.3	-14.3	15.2	-12.9	1.50	1.50	0.00
2,420.5	6.31	133.29	2,419.6	-15.9	16.8	-14.3	1.50	1.50	0.00
Start 3992.7 hold at 2420.5 MD									
2,500.0	6.31	133.29	2,498.7	-21.8	23.2	-19.7	0.00	0.00	0.00
2,600.0	6.31	133.29	2,598.1	-29.4	31.2	-26.4	0.00	0.00	0.00
2,700.0	6.31	133.29	2,697.5	-36.9	39.2	-33.2	0.00	0.00	0.00
2,800.0	6.31	133.29	2,796.9	-44.4	47.2	-40.0	0.00	0.00	0.00
2,900.0	6.31	133.29	2,896.2	-52.0	55.2	-46.8	0.00	0.00	0.00
3,000.0	6.31	133.29	2,995.6	-59.5	63.2	-53.6	0.00	0.00	0.00
3,100.0	6.31	133.29	3,095.0	-67.0	71.2	-60.3	0.00	0.00	0.00
3,200.0	6.31	133.29	3,194.4	-74.6	79.2	-67.1	0.00	0.00	0.00
3,300.0	6.31	133.29	3,293.8	-82.1	87.1	-73.9	0.00	0.00	0.00
3,400.0	6.31	133.29	3,393.2	-89.6	95.1	-80.7	0.00	0.00	0.00
3,500.0	6.31	133.29	3,492.6	-97.2	103.1	-87.5	0.00	0.00	0.00
3,567.8	6.31	133.29	3,560.0	-102.3	108.6	-92.1	0.00	0.00	0.00
Parkman									
3,600.0	6.31	133.29	3,592.0	-104.7	111.1	-94.2	0.00	0.00	0.00
3,700.0	6.31	133.29	3,691.4	-112.2	119.1	-101.0	0.00	0.00	0.00
3,800.0	6.31	133.29	3,790.8	-119.8	127.1	-107.8	0.00	0.00	0.00
3,900.0	6.31	133.29	3,890.2	-127.3	135.1	-114.6	0.00	0.00	0.00
4,000.0	6.31	133.29	3,989.6	-134.8	143.1	-121.4	0.00	0.00	0.00
4,100.0	6.31	133.29	4,089.0	-142.4	151.1	-128.1	0.00	0.00	0.00
4,111.1	6.31	133.29	4,100.0	-143.2	152.0	-128.9	0.00	0.00	0.00
Sussex									
4,200.0	6.31	133.29	4,188.4	-149.9	159.1	-134.9	0.00	0.00	0.00
4,300.0	6.31	133.29	4,287.8	-157.4	167.1	-141.7	0.00	0.00	0.00
4,400.0	6.31	133.29	4,387.2	-165.0	175.1	-148.5	0.00	0.00	0.00
4,500.0	6.31	133.29	4,486.6	-172.5	183.1	-155.3	0.00	0.00	0.00

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Well:	Spaur 10Q-401	**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)
4,600.0	6.31	133.29	4,586.0	-180.0	191.1	-162.0	0.00	0.00	0.00
4,630.2	6.31	133.29	4,616.0	-182.3	193.5	-164.1	0.00	0.00	0.00
Shannon									
4,700.0	6.31	133.29	4,685.4	-187.6	199.1	-168.8	0.00	0.00	0.00
4,800.0	6.31	133.29	4,784.8	-195.1	207.1	-175.6	0.00	0.00	0.00
4,900.0	6.31	133.29	4,884.1	-202.6	215.1	-182.4	0.00	0.00	0.00
5,000.0	6.31	133.29	4,983.5	-210.2	223.1	-189.2	0.00	0.00	0.00
5,100.0	6.31	133.29	5,082.9	-217.7	231.1	-195.9	0.00	0.00	0.00
5,200.0	6.31	133.29	5,182.3	-225.2	239.1	-202.7	0.00	0.00	0.00
5,300.0	6.31	133.29	5,281.7	-232.8	247.1	-209.5	0.00	0.00	0.00
5,400.0	6.31	133.29	5,381.1	-240.3	255.1	-216.3	0.00	0.00	0.00
5,500.0	6.31	133.29	5,480.5	-247.8	263.1	-223.1	0.00	0.00	0.00
5,600.0	6.31	133.29	5,579.9	-255.4	271.0	-229.8	0.00	0.00	0.00
5,700.0	6.31	133.29	5,679.3	-262.9	279.0	-236.6	0.00	0.00	0.00
5,800.0	6.31	133.29	5,778.7	-270.4	287.0	-243.4	0.00	0.00	0.00
5,900.0	6.31	133.29	5,878.1	-278.0	295.0	-250.2	0.00	0.00	0.00
6,000.0	6.31	133.29	5,977.5	-285.5	303.0	-257.0	0.00	0.00	0.00
6,100.0	6.31	133.29	6,076.9	-293.0	311.0	-263.7	0.00	0.00	0.00
6,200.0	6.31	133.29	6,176.3	-300.6	319.0	-270.5	0.00	0.00	0.00
6,300.0	6.31	133.29	6,275.7	-308.1	327.0	-277.3	0.00	0.00	0.00
6,400.0	6.31	133.29	6,375.1	-315.6	335.0	-284.1	0.00	0.00	0.00
6,413.1	6.31	133.29	6,388.1	-316.6	336.1	-285.0	0.00	0.00	0.00
Start DLS 7.50 TFO -133.15									
6,500.0	5.09	64.45	6,474.6	-318.2	343.0	-286.0	7.50	-1.40	-79.27
6,600.0	10.72	25.11	6,573.7	-307.9	351.0	-274.9	7.50	5.63	-39.34
6,700.0	17.78	14.49	6,670.6	-284.7	358.8	-251.1	7.50	7.06	-10.62
6,800.0	25.09	9.86	6,763.6	-248.9	366.2	-214.8	7.50	7.31	-4.63
6,831.6	27.42	8.88	6,792.0	-235.1	368.5	-200.9	7.50	7.38	-3.08
Sharon Springs									
6,900.0	32.48	7.22	6,851.2	-201.3	373.2	-166.8	7.50	7.40	-2.43
6,971.9	37.82	5.91	6,910.0	-160.2	377.9	-125.4	7.50	7.43	-1.82
Niobrara A									
7,000.0	39.91	5.48	6,931.9	-142.7	379.7	-107.8	7.50	7.44	-1.53
7,076.5	45.61	4.48	6,988.0	-91.0	384.2	-55.9	7.50	7.45	-1.31
Niobrara B									
7,100.0	47.36	4.21	7,004.2	-74.0	385.5	-38.8	7.50	7.45	-1.14
7,200.0	54.82	3.22	7,066.9	3.6	390.5	38.9	7.50	7.46	-1.00
7,210.6	55.61	3.12	7,073.0	12.3	390.9	47.6	7.50	7.46	-0.89
Niobrara C									
7,300.0	62.29	2.39	7,119.1	88.8	394.6	124.1	7.50	7.47	-0.82
7,400.0	69.76	1.67	7,159.7	180.0	397.8	215.2	7.50	7.47	-0.72
7,500.0	77.23	1.01	7,188.1	275.8	400.0	310.8	7.50	7.47	-0.65
7,509.0	77.90	0.95	7,190.0	284.6	400.2	319.6	7.50	7.47	-0.63
Fort Hays									
7,600.0	84.71	0.39	7,203.8	374.5	401.2	409.2	7.50	7.48	-0.62
7,665.4	89.60	0.00	7,207.0	439.8	401.5	474.3	7.50	7.48	-0.60
Start 3986.6 hold at 7665.4 MD - 7"									
7,700.0	89.60	0.00	7,207.2	474.4	401.5	508.7	0.00	0.00	0.00
7,800.0	89.60	0.00	7,207.9	574.4	401.5	608.3	0.00	0.00	0.00
7,900.0	89.60	0.00	7,208.6	674.4	401.5	707.9	0.00	0.00	0.00
8,000.0	89.60	0.00	7,209.4	774.4	401.5	807.5	0.00	0.00	0.00
8,100.0	89.60	0.00	7,210.1	874.4	401.5	907.1	0.00	0.00	0.00

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Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**North Reference:**	True
Well:	Spaur 10Q-401	**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)
8,200.0	89.60	0.00	7,210.8	974.4	401.5	1,006.7	0.00	0.00	0.00
8,300.0	89.60	0.00	7,211.5	1,074.4	401.5	1,106.3	0.00	0.00	0.00
8,377.3	89.60	0.00	7,212.0	1,151.7	401.5	1,183.2	0.00	0.00	0.00
Codell									
8,400.0	89.60	0.00	7,212.2	1,174.4	401.5	1,205.8	0.00	0.00	0.00
8,500.0	89.60	0.00	7,212.9	1,274.4	401.5	1,305.4	0.00	0.00	0.00
8,600.0	89.60	0.00	7,213.6	1,374.4	401.5	1,405.0	0.00	0.00	0.00
8,700.0	89.60	0.00	7,214.3	1,474.4	401.5	1,504.6	0.00	0.00	0.00
8,800.0	89.60	0.00	7,215.0	1,574.4	401.5	1,604.2	0.00	0.00	0.00
8,900.0	89.60	0.00	7,215.7	1,674.4	401.5	1,703.8	0.00	0.00	0.00
9,000.0	89.60	0.00	7,216.4	1,774.4	401.5	1,803.4	0.00	0.00	0.00
9,100.0	89.60	0.00	7,217.1	1,874.4	401.5	1,903.0	0.00	0.00	0.00
9,200.0	89.60	0.00	7,217.8	1,974.4	401.5	2,002.6	0.00	0.00	0.00
9,300.0	89.60	0.00	7,218.5	2,074.4	401.5	2,102.1	0.00	0.00	0.00
9,400.0	89.60	0.00	7,219.2	2,174.4	401.5	2,201.7	0.00	0.00	0.00
9,500.0	89.60	0.00	7,219.9	2,274.4	401.5	2,301.3	0.00	0.00	0.00
9,600.0	89.60	0.00	7,220.6	2,374.3	401.5	2,400.9	0.00	0.00	0.00
9,700.0	89.60	0.00	7,221.3	2,474.3	401.5	2,500.5	0.00	0.00	0.00
9,800.0	89.60	0.00	7,222.0	2,574.3	401.5	2,600.1	0.00	0.00	0.00
9,900.0	89.60	0.00	7,222.7	2,674.3	401.5	2,699.7	0.00	0.00	0.00
10,000.0	89.60	0.00	7,223.4	2,774.3	401.5	2,799.3	0.00	0.00	0.00
10,100.0	89.60	0.00	7,224.1	2,874.3	401.5	2,898.9	0.00	0.00	0.00
10,200.0	89.60	0.00	7,224.8	2,974.3	401.5	2,998.4	0.00	0.00	0.00
10,300.0	89.60	0.00	7,225.5	3,074.3	401.5	3,098.0	0.00	0.00	0.00
10,400.0	89.60	0.00	7,226.2	3,174.3	401.5	3,197.6	0.00	0.00	0.00
10,500.0	89.60	0.00	7,226.9	3,274.3	401.5	3,297.2	0.00	0.00	0.00
10,600.0	89.60	0.00	7,227.6	3,374.3	401.5	3,396.8	0.00	0.00	0.00
10,700.0	89.60	0.00	7,228.3	3,474.3	401.5	3,496.4	0.00	0.00	0.00
10,800.0	89.60	0.00	7,229.0	3,574.3	401.5	3,596.0	0.00	0.00	0.00
10,900.0	89.60	0.00	7,229.7	3,674.3	401.5	3,695.6	0.00	0.00	0.00
11,000.0	89.60	0.00	7,230.4	3,774.3	401.5	3,795.1	0.00	0.00	0.00
11,100.0	89.60	0.00	7,231.1	3,874.3	401.5	3,894.7	0.00	0.00	0.00
11,200.0	89.60	0.00	7,231.8	3,974.3	401.5	3,994.3	0.00	0.00	0.00
11,300.0	89.60	0.00	7,232.5	4,074.3	401.5	4,093.9	0.00	0.00	0.00
11,400.0	89.60	0.00	7,233.2	4,174.3	401.5	4,193.5	0.00	0.00	0.00
11,500.0	89.60	0.00	7,233.9	4,274.3	401.5	4,293.1	0.00	0.00	0.00
11,600.0	89.60	0.00	7,234.6	4,374.3	401.5	4,392.7	0.00	0.00	0.00
11,652.0	89.60	0.00	7,235.0	4,426.3	401.5	4,444.5	0.00	0.00	0.00
TD at 11652.0									

Database:	EDM 2003.21 Single User Db	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Project:	SEC.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**North Reference:**	True
Well:	Spaur 10Q-401	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-11-15)		

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
50'E/W Hardline (10Q - plan misses target center by 2465.9ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Rectangle (sides W3,986.5 H100.0 D0.0)	0.00	0.00	1.0	2,433.0	401.5	1,362,668.59	3,173,836.13	40.327248	-104.876500
SHL 359'FSL & 2393'I - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,360,232.92	3,173,451.72	40.320570	-104.877940
BHL 500'FNL & 2467' - plan hits target center - Point	0.00	0.00	7,235.0	4,426.3	401.5	1,364,661.77	3,173,822.11	40.332720	-104.876500

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,665.4	7,207.0	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,567.8	3,560.0	Parkman		0.00	
4,111.1	4,100.0	Sussex		0.00	
4,630.2	4,616.0	Shannon		0.00	
6,831.6	6,792.0	Sharon Springs		0.00	
6,971.9	6,910.0	Niobrara A		0.00	
7,076.5	6,988.0	Niobrara B		0.00	
7,210.6	7,073.0	Niobrara C		0.00	
7,509.0	7,190.0	Fort Hays		0.00	
8,377.3	7,212.0	Codell		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
2,000.0	2,000.0	0.0	0.0	KOP #1 - Start Build 1.50
2,420.5	2,419.6	-15.9	16.8	Start 3992.7 hold at 2420.5 MD
6,413.1	6,388.1	-316.6	336.1	Start DLS 7.50 TFO -133.15
7,665.4	7,207.0	439.8	401.5	Start 3986.6 hold at 7665.4 MD
11,652.0	7,235.0	4,426.3	401.5	TD at 11652.0

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.10-T4N-R67W
Spaur 4N67W10LQ Pad Sec.10-T4N-R67W
Spaur 10Q-401

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 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	**Error Surface:**	Elliptical Conic

Warning Levels Evaluated at: 2.00 **Sigma**

Survey Tool Program **Date** 6/16/2015

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,652.0	Plan #2 (6-11-15) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Binder 10-NDU Pad Sec.10-T4N-R67W						
Binder 10-CDU - Wellbore #1 - Wellbore #1						Out of range
Binder 10-KDU - Wellbore #1 - Wellbore #1						Out of range
Binder 10-NDU - Wellbore #1 - Wellbore #1	10,877.7	7,328.8	148.3	51.6	1.534	CC, ES, SF
Binder 10-OU (Vert.) - Wellbore #1 - Wellbore #1	9,632.5	7,167.4	328.8	264.0	5.075	CC, ES, SF
Binder 10-SDU - Wellbore #1 - Wellbore #1						Out of range
Binder 22-10DU - Wellbore #1 - Wellbore #1	10,311.4	7,258.6	752.4	672.0	9.353	CC, ES
Binder 22-10DU - Wellbore #1 - Wellbore #1	10,400.0	7,258.4	757.6	675.5	9.229	SF
Binder 32-10DU - Wellbore #1 - Wellbore #1	10,134.0	7,274.8	454.3	378.1	5.967	CC, ES
Binder 32-10DU - Wellbore #1 - Wellbore #1	10,200.0	7,274.5	459.0	381.7	5.935	SF
Existing Wells Sec.10-T4N-R67W						
Purvis 10-2 (Exist.) - Wellbore #1 - Wellbore #1	7,341.2	7,129.0	214.0	184.8	7.315	CC, ES, SF
Purvis 10TD Pad Sec. 10-T4N-R67W						
Purvis 10-1 (Exist.) - Wellbore #1 - Wellbore #1	8,729.6	7,183.3	446.1	397.5	9.180	CC, ES
Purvis 10-1 (Exist.) - Wellbore #1 - Wellbore #1	8,800.0	7,182.3	451.6	401.8	9.070	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 Offset Well - Wellbore - Design	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)	1,443.5	1,443.5	14.8	8.6	2.383	CC
Spaur 10Q-321 - Wellbore #1 - Plan #3 (6-11-15)	1,500.0	1,500.0	14.9	8.4	2.299	ES
Spaur 10Q-321 - Wellbore #1 - Plan #3 (6-11-15)	11,652.0	11,344.2	247.0	101.2	1.694	SF
Spaur 10T-201 - Wellbore #1 - Plan #1 (6-11-15)	766.3	767.3	62.0	58.8	19.415	CC
Spaur 10T-201 - Wellbore #1 - Plan #1 (6-11-15)	900.0	900.8	62.2	58.4	16.455	ES
Spaur 10T-201 - Wellbore #1 - Plan #1 (6-11-15)	1,300.0	1,297.2	73.4	67.8	13.186	SF
Spaur 10T-241 - Wellbore #1 - Plan #2 (6-11-15)	1,166.3	1,167.3	32.9	27.9	6.594	CC
Spaur 10T-241 - Wellbore #1 - Plan #2 (6-11-15)	1,300.0	1,300.8	33.2	27.7	5.962	ES
Spaur 10T-241 - Wellbore #1 - Plan #2 (6-11-15)	11,652.0	11,554.2	749.4	580.7	4.442	SF
Spaur 10T-301 - Wellbore #1 - Plan #2 (6-11-15)	966.3	967.3	47.4	43.4	11.594	CC
Spaur 10T-301 - Wellbore #1 - Plan #2 (6-11-15)	1,100.0	1,100.8	47.7	43.0	10.202	ES
Spaur 10T-301 - Wellbore #1 - Plan #2 (6-11-15)	11,652.0	11,705.9	998.6	823.4	5.701	SF
Spaur 10T-321 - Wellbore #1 - Plan #1 (6-11-15)	366.0	368.0	91.1	89.7	65.284	CC
Spaur 10T-321 - Wellbore #1 - Plan #1 (6-11-15)	600.0	601.6	91.5	89.1	37.838	ES
Spaur 10T-321 - Wellbore #1 - Plan #1 (6-11-15)	1,200.0	1,189.7	126.0	120.5	22.938	SF
Spaur 10T-421 - Wellbore #1 - Plan #1 (6-11-15)	566.0	568.0	76.5	74.2	33.338	CC
Spaur 10T-421 - Wellbore #1 - Plan #1 (6-11-15)	700.0	701.7	76.7	73.8	26.610	ES
Spaur 10T-421 - Wellbore #1 - Plan #1 (6-11-15)	1,200.0	1,195.7	94.6	89.4	18.189	SF
Spaur 10Y-241 - Wellbore #1 - Plan #1 (6-11-15)	166.0	168.0	105.7	105.2	212.788	CC
Spaur 10Y-241 - Wellbore #1 - Plan #1 (6-11-15)	300.0	301.7	105.8	104.7	97.383	ES
Spaur 10Y-241 - Wellbore #1 - Plan #1 (6-11-15)	1,200.0	1,177.6	173.8	167.8	28.960	SF
Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W						
Spaur 10Q-241 - Wellbore #1 - Plan #2 (6-10-15)	5,751.1	5,833.5	373.0	344.3	12.991	CC, ES
Spaur 10Q-241 - Wellbore #1 - Plan #2 (6-10-15)	11,652.0	11,481.2	548.0	392.0	3.513	SF

Offset Design Binder 10-NDU Pad Sec.10-T4N-R67W - Binder 10-NDU - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 452-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,900.0	7,222.7	7,326.6	7,176.3	55.4	23.5	-88.36	3,652.1	253.2	988.9	910.4	78.53	12.592	
10,000.0	7,223.4	7,326.9	7,176.5	57.2	23.5	-88.45	3,652.1	253.2	890.2	809.8	80.38	11.075	
10,100.0	7,224.1	7,327.1	7,176.8	59.0	23.5	-88.53	3,652.1	253.2	791.7	709.5	82.22	9.629	
10,200.0	7,224.8	7,327.3	7,177.0	60.9	23.5	-88.62	3,652.1	253.2	693.8	609.7	84.07	8.252	
10,300.0	7,225.5	7,327.5	7,177.2	62.7	23.5	-88.70	3,652.1	253.2	596.5	510.5	85.93	6.941	
10,400.0	7,226.2	7,327.8	7,177.4	64.6	23.5	-88.79	3,652.1	253.2	500.2	412.4	87.79	5.698	
10,500.0	7,226.9	7,328.0	7,177.6	66.4	23.5	-88.87	3,652.1	253.2	405.8	316.2	89.66	4.526	
10,600.0	7,227.6	7,328.2	7,177.9	68.3	23.5	-88.96	3,652.1	253.2	314.9	223.3	91.52	3.440	
10,700.0	7,228.3	7,328.4	7,178.1	70.1	23.5	-89.04	3,652.1	253.2	231.5	138.1	93.39	2.479	
10,800.0	7,229.0	7,328.6	7,178.3	72.0	23.5	-89.13	3,652.1	253.2	167.5	72.2	95.27	1.758	
10,877.7	7,229.6	7,328.8	7,178.5	73.5	23.5	-89.20	3,652.1	253.2	148.3	51.6	96.72	1.534	CC, ES, SF
10,900.0	7,229.7	7,328.9	7,178.5	73.9	23.5	-89.21	3,652.1	253.2	150.0	52.9	97.14	1.544	
11,000.0	7,230.4	7,329.1	7,178.7	75.7	23.5	-89.30	3,652.1	253.1	192.2	93.2	99.02	1.941	
11,100.0	7,231.1	7,329.3	7,179.0	77.6	23.5	-89.39	3,652.1	253.1	267.2	166.3	100.90	2.648	
11,200.0	7,231.8	7,329.5	7,179.2	79.5	23.5	-89.47	3,652.1	253.1	354.8	252.0	102.78	3.452	
11,300.0	7,232.5	7,329.7	7,179.4	81.4	23.5	-89.56	3,652.1	253.1	447.6	342.9	104.66	4.276	
11,400.0	7,233.2	7,330.0	7,179.6	83.2	23.5	-89.64	3,652.1	253.1	542.9	436.4	106.55	5.096	
11,500.0	7,233.9	7,330.2	7,179.9	85.1	23.5	-89.73	3,652.1	253.1	639.7	531.3	108.43	5.899	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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-NDU - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 452-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,600.0	7,234.6	7,330.4	7,180.1	87.0	23.5	-89.81	3,652.1	253.1	737.3	627.0	110.32	6.684	
11,652.0	7,235.0	7,330.5	7,180.2	88.0	23.5	-89.86	3,652.1	253.1	788.4	677.1	111.31	7.083	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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-OU (Vert.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 500-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,700.0	7,214.3	7,175.8	7,173.7	34.1	14.8	-90.34	2,406.8	72.5	988.7	940.3	48.40	20.430	
8,800.0	7,215.0	7,174.9	7,172.9	35.8	14.8	-90.18	2,406.8	72.6	895.1	845.0	50.09	17.869	
8,900.0	7,215.7	7,174.0	7,172.0	37.5	14.8	-90.03	2,406.8	72.6	802.9	751.1	51.80	15.499	
9,000.0	7,216.4	7,173.1	7,171.1	39.3	14.8	-89.87	2,406.8	72.6	712.8	659.3	53.54	13.315	
9,100.0	7,217.1	7,172.2	7,170.2	41.0	14.8	-89.71	2,406.8	72.6	625.8	570.5	55.28	11.320	
9,200.0	7,217.8	7,171.3	7,169.3	42.8	14.8	-89.56	2,406.8	72.6	543.3	486.2	57.05	9.523	
9,300.0	7,218.5	7,170.4	7,168.4	44.5	14.8	-89.40	2,406.8	72.6	467.6	408.8	58.82	7.950	
9,400.0	7,219.2	7,169.5	7,167.5	46.3	14.8	-89.24	2,406.9	72.7	402.7	342.1	60.61	6.645	
9,500.0	7,219.9	7,168.6	7,166.6	48.1	14.8	-89.09	2,406.9	72.7	354.5	292.1	62.40	5.681	
9,600.0	7,220.6	7,167.7	7,165.7	49.9	14.8	-88.93	2,406.9	72.7	330.4	266.2	64.21	5.146	
9,632.5	7,220.8	7,167.4	7,165.4	50.5	14.8	-88.88	2,406.9	72.7	328.8	264.0	64.79	5.075	CC, ES, SF
9,700.0	7,221.3	7,166.8	7,164.8	51.7	14.8	-88.77	2,406.9	72.7	335.7	269.7	66.02	5.085	
9,800.0	7,222.0	7,165.9	7,163.9	53.5	14.8	-88.61	2,406.9	72.7	369.0	301.2	67.83	5.440	
9,900.0	7,222.7	7,165.0	7,162.9	55.4	14.8	-88.45	2,406.9	72.8	423.9	354.2	69.66	6.085	
10,000.0	7,223.4	7,164.1	7,162.0	57.2	14.8	-88.30	2,406.9	72.8	493.1	421.6	71.48	6.898	
10,100.0	7,224.1	7,163.2	7,161.1	59.0	14.8	-88.14	2,407.0	72.8	571.6	498.2	73.32	7.796	
10,200.0	7,224.8	7,162.3	7,160.2	60.9	14.8	-87.98	2,407.0	72.8	655.9	580.7	75.15	8.727	
10,300.0	7,225.5	7,161.3	7,159.3	62.7	14.8	-87.82	2,407.0	72.8	744.1	667.1	76.99	9.664	
10,400.0	7,226.2	7,160.4	7,158.4	64.6	14.7	-87.66	2,407.0	72.8	835.0	756.1	78.84	10.591	
10,500.0	7,226.9	7,159.5	7,157.5	66.4	14.7	-87.50	2,407.0	72.9	927.7	847.0	80.68	11.498	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 22-10DU - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 457-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,700.0	7,221.3	7,259.6	7,171.1	51.7	20.1	-89.59	3,085.8	-350.9	969.5	900.3	69.20	14.010	
9,800.0	7,222.0	7,259.4	7,171.0	53.5	20.1	-89.57	3,085.8	-350.9	909.8	838.8	71.03	12.809	
9,900.0	7,222.7	7,259.2	7,170.8	55.4	20.1	-89.56	3,085.8	-350.9	857.6	784.7	72.86	11.770	
10,000.0	7,223.4	7,259.1	7,170.6	57.2	20.1	-89.55	3,085.8	-350.9	814.3	739.6	74.69	10.902	
10,100.0	7,224.1	7,258.9	7,170.5	59.0	20.1	-89.53	3,085.8	-350.9	781.6	705.0	76.54	10.212	
10,200.0	7,224.8	7,258.7	7,170.3	60.9	20.1	-89.52	3,085.8	-350.9	760.6	682.2	78.38	9.704	
10,300.0	7,225.5	7,258.6	7,170.1	62.7	20.1	-89.51	3,085.8	-350.9	752.5	672.3	80.24	9.379	
10,311.4	7,225.6	7,258.6	7,170.1	62.9	20.1	-89.51	3,085.8	-350.9	752.4	672.0	80.45	9.353	CC, ES
10,400.0	7,226.2	7,258.4	7,170.0	64.6	20.1	-89.50	3,085.8	-350.9	757.6	675.5	82.09	9.229	SF
10,500.0	7,226.9	7,258.2	7,169.8	66.4	20.1	-89.48	3,085.8	-350.9	775.7	691.7	83.95	9.240	
10,600.0	7,227.6	7,258.1	7,169.6	68.3	20.1	-89.47	3,085.8	-350.9	805.9	720.1	85.81	9.391	
10,700.0	7,228.3	7,257.9	7,169.5	70.1	20.1	-89.46	3,085.8	-350.9	846.8	759.2	87.68	9.658	
10,800.0	7,229.0	7,257.7	7,169.3	72.0	20.1	-89.45	3,085.8	-350.9	897.1	807.6	89.55	10.019	
10,900.0	7,229.7	7,257.6	7,169.1	73.9	20.1	-89.43	3,085.8	-350.9	955.3	863.9	91.42	10.450	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 32-10DU - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 452-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,300.0	7,218.5	7,278.6	7,188.0	44.5	20.0	91.60	2,908.3	855.6	949.7	888.8	60.91	15.592	
9,400.0	7,219.2	7,278.2	7,187.6	46.3	20.0	91.54	2,908.3	855.6	863.2	800.5	62.71	13.766	
9,500.0	7,219.9	7,277.7	7,187.1	48.1	20.0	91.48	2,908.3	855.6	780.0	715.4	64.51	12.090	
9,600.0	7,220.6	7,277.2	7,186.6	49.9	20.0	91.43	2,908.3	855.6	701.1	634.8	66.32	10.571	
9,700.0	7,221.3	7,276.8	7,186.2	51.7	20.0	91.37	2,908.3	855.6	628.3	560.1	68.15	9.220	
9,800.0	7,222.0	7,276.3	7,185.7	53.5	20.0	91.31	2,908.3	855.6	563.8	493.9	69.97	8.058	
9,900.0	7,222.7	7,275.9	7,185.3	55.4	20.0	91.25	2,908.3	855.6	511.0	439.2	71.81	7.116	
10,000.0	7,223.4	7,275.4	7,184.8	57.2	20.0	91.19	2,908.3	855.6	473.6	400.0	73.65	6.431	
10,100.0	7,224.1	7,274.9	7,184.3	59.0	20.0	91.14	2,908.3	855.6	455.5	380.0	75.50	6.034	
10,134.0	7,224.3	7,274.8	7,184.2	59.7	20.0	91.12	2,908.3	855.6	454.3	378.1	76.13	5.967	CC, ES
10,200.0	7,224.8	7,274.5	7,183.9	60.9	20.0	91.08	2,908.3	855.6	459.0	381.7	77.35	5.935	SF
10,300.0	7,225.5	7,274.0	7,183.4	62.7	20.0	91.02	2,908.3	855.7	483.6	404.4	79.20	6.106	
10,400.0	7,226.2	7,273.6	7,183.0	64.6	20.0	90.96	2,908.3	855.7	526.4	445.3	81.06	6.494	
10,500.0	7,226.9	7,273.1	7,182.5	66.4	20.0	90.91	2,908.3	855.7	583.3	500.4	82.92	7.035	
10,600.0	7,227.6	7,272.6	7,182.1	68.3	20.0	90.85	2,908.3	855.7	650.7	566.0	84.79	7.675	
10,700.0	7,228.3	7,272.2	7,181.6	70.1	20.0	90.79	2,908.3	855.7	725.7	639.1	86.66	8.375	
10,800.0	7,229.0	7,271.7	7,181.1	72.0	20.0	90.73	2,908.3	855.7	806.1	717.6	88.53	9.106	
10,900.0	7,229.7	7,271.3	7,180.7	73.9	20.0	90.67	2,908.3	855.7	890.5	800.1	90.40	9.851	
11,000.0	7,230.4	7,270.8	7,180.2	75.7	20.0	90.62	2,908.4	855.7	977.9	885.6	92.28	10.597	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	77.36	145.7	649.7	666.2				
100.0	100.0	76.1	76.1	0.1	0.1	77.36	145.8	649.9	666.1	665.9	0.20	3,350.197	
200.0	200.0	174.6	174.6	0.3	0.3	77.35	146.0	650.7	666.9	666.2	0.65	1,024.665	
300.0	300.0	275.9	275.9	0.5	0.6	77.37	146.0	651.4	667.6	666.5	1.14	584.520	
400.0	400.0	376.2	376.2	0.8	0.8	77.40	145.8	652.1	668.2	666.6	1.61	415.269	
500.0	500.0	477.7	477.7	1.0	1.1	77.49	144.8	652.8	668.7	666.6	2.05	325.408	
600.0	600.0	575.4	575.4	1.2	1.3	77.59	143.8	653.4	669.1	666.6	2.50	267.263	
700.0	700.0	675.6	675.6	1.4	1.5	77.67	143.0	654.4	669.9	666.9	2.98	224.690	
800.0	800.0	777.7	777.6	1.7	1.8	77.71	142.7	655.0	670.4	666.9	3.47	193.397	
900.0	900.0	877.3	877.3	1.9	2.0	77.75	142.3	655.4	670.7	666.8	3.94	170.066	
1,000.0	1,000.0	974.4	974.3	2.1	2.3	77.78	142.1	656.1	671.3	666.9	4.42	151.824	
1,100.0	1,100.0	1,079.0	1,079.0	2.3	2.6	77.84	141.5	656.9	672.0	667.1	4.90	137.211	
1,200.0	1,200.0	1,179.5	1,179.4	2.6	2.8	77.94	140.4	657.1	672.0	666.6	5.34	125.786	
1,300.0	1,300.0	1,279.7	1,279.6	2.8	3.0	78.03	139.4	657.5	672.1	666.3	5.80	115.940	
1,400.0	1,400.0	1,378.3	1,378.2	3.0	3.2	78.06	139.0	657.7	672.2	665.9	6.26	107.300	
1,500.0	1,500.0	1,482.2	1,482.1	3.2	3.5	78.13	138.3	657.9	672.3	665.5	6.73	99.859	
1,600.0	1,600.0	1,584.6	1,584.5	3.5	3.6	78.21	137.2	657.6	671.7	664.6	7.12	94.396	
1,700.0	1,700.0	1,690.8	1,690.7	3.7	3.8	78.28	136.3	656.6	670.7	663.2	7.47	89.768	
1,800.0	1,800.0	1,791.3	1,791.2	3.9	3.9	78.40	134.5	655.2	669.0	661.1	7.85	85.171	
1,900.0	1,900.0	1,888.1	1,888.0	4.1	4.1	78.51	133.0	654.1	667.5	659.3	8.24	81.001	
2,000.0	2,000.0	1,990.6	1,990.5	4.4	4.2	78.56	132.1	652.9	666.2	657.6	8.62	77.320	
2,100.0	2,100.0	2,092.4	2,092.3	4.6	4.4	-54.81	131.2	651.3	663.7	654.7	8.96	74.036	
2,200.0	2,199.9	2,188.7	2,188.6	4.8	4.6	-55.03	129.8	650.0	659.8	650.5	9.32	70.790	
2,300.0	2,299.7	2,283.2	2,283.0	4.9	4.8	-55.41	128.3	649.4	655.2	645.5	9.72	67.432	
2,400.0	2,399.3	2,387.3	2,387.1	5.1	5.0	-56.02	126.4	649.0	649.3	639.1	10.15	63.968	
2,500.0	2,498.7	2,486.8	2,486.6	5.3	5.3	-56.70	124.5	648.2	641.9	631.3	10.58	60.660	
2,600.0	2,598.1	2,585.9	2,585.7	5.6	5.5	-57.39	122.8	647.3	634.7	623.7	11.02	57.579	
2,700.0	2,697.5	2,687.8	2,687.6	5.8	5.7	-58.14	121.2	646.3	627.4	616.0	11.47	54.705	
2,800.0	2,796.9	2,788.2	2,787.9	6.0	5.9	-58.96	120.3	644.7	620.0	608.1	11.87	52.227	
2,900.0	2,896.2	2,887.9	2,887.6	6.3	6.0	-59.89	120.4	642.8	612.5	600.3	12.24	50.052	
3,000.0	2,995.6	2,986.1	2,985.8	6.5	6.2	-60.82	120.3	641.0	605.3	592.6	12.62	47.954	
3,100.0	3,095.0	3,086.6	3,086.2	6.8	6.3	-61.77	120.1	639.2	598.2	585.2	13.03	45.919	
3,200.0	3,194.4	3,184.7	3,184.3	7.0	6.5	-62.72	119.7	637.5	591.3	577.8	13.45	43.950	
3,300.0	3,293.8	3,280.4	3,280.1	7.3	6.7	-63.67	119.7	636.1	584.9	571.0	13.86	42.209	
3,400.0	3,393.2	3,379.1	3,378.7	7.6	6.8	-64.77	120.6	634.8	579.1	564.9	14.23	40.686	
3,500.0	3,492.6	3,480.4	3,480.0	7.8	6.9	-65.88	121.1	633.3	573.4	558.8	14.64	39.170	
3,600.0	3,592.0	3,579.7	3,579.4	8.1	7.1	-66.96	121.3	631.8	567.7	552.6	15.07	37.664	
3,700.0	3,691.4	3,674.4	3,674.0	8.4	7.2	-68.03	121.8	630.6	562.5	547.0	15.48	36.339	
3,800.0	3,790.8	3,770.5	3,770.1	8.6	7.3	-69.15	122.8	630.0	558.4	542.5	15.85	35.221	
3,900.0	3,890.2	3,867.0	3,866.6	8.9	7.4	-70.27	123.8	629.9	554.9	538.7	16.21	34.223	
4,000.0	3,989.6	3,967.3	3,966.8	9.2	7.5	-71.48	125.2	630.0	552.0	535.4	16.58	33.288	
4,100.0	4,089.0	4,067.0	4,066.6	9.5	7.6	-72.62	125.8	630.1	549.0	532.0	16.96	32.373	
4,200.0	4,188.4	4,166.4	4,166.0	9.8	7.7	-73.79	126.7	630.1	546.2	528.9	17.35	31.489	
4,300.0	4,287.8	4,264.3	4,263.8	10.1	7.8	-75.05	128.4	629.7	543.8	526.1	17.75	30.634	
4,400.0	4,387.2	4,364.5	4,364.0	10.3	7.9	-76.37	130.4	629.4	541.9	523.7	18.17	29.822	
4,500.0	4,486.6	4,462.2	4,461.7	10.6	8.0	-77.60	131.7	629.2	540.0	521.4	18.59	29.047	
4,600.0	4,586.0	4,561.0	4,560.5	10.9	8.1	-78.87	133.4	629.3	538.8	519.8	19.01	28.338	
4,700.0	4,685.4	4,661.1	4,660.6	11.2	8.3	-80.14	134.8	629.4	537.7	518.3	19.44	27.653	
4,800.0	4,784.8	4,759.0	4,758.5	11.5	8.4	-81.38	136.2	629.5	536.9	517.0	19.88	27.009	
4,900.0	4,884.1	4,858.9	4,858.4	11.8	8.5	-82.65	137.8	629.8	536.6	516.3	20.32	26.405	
5,000.0	4,983.5	4,960.0	4,959.5	12.1	8.7	-83.96	139.3	629.7	536.2	515.4	20.78	25.807	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,082.9	5,060.2	5,059.6	12.4	8.9	-85.26	140.6	629.5	535.9	514.6	21.24	25.227	
5,200.0	5,182.3	5,161.5	5,161.0	12.7	9.0	-86.53	141.6	629.2	535.6	513.8	21.71	24.665	
5,300.0	5,281.7	5,261.1	5,260.6	13.0	9.2	-87.75	142.0	629.1	535.1	512.9	22.19	24.116	
5,400.0	5,381.1	5,361.6	5,361.0	13.3	9.4	-89.05	143.0	628.4	535.1	512.4	22.68	23.591	
5,500.0	5,480.5	5,463.6	5,463.0	13.6	9.6	-90.29	143.1	627.9	534.8	511.6	23.18	23.070	
5,600.0	5,579.9	5,565.5	5,565.0	13.9	9.8	-91.47	142.4	627.6	534.2	510.5	23.67	22.569	
5,700.0	5,679.3	5,665.7	5,665.2	14.2	10.0	-92.54	140.9	627.7	533.5	509.4	24.14	22.098	
5,800.0	5,778.7	5,766.3	5,765.7	14.5	10.2	-93.54	138.9	628.3	532.9	508.3	24.61	21.654	
5,900.0	5,878.1	5,866.4	5,865.8	14.8	10.3	-94.51	136.5	628.9	532.3	507.2	25.08	21.225	
6,000.0	5,977.5	5,964.5	5,963.9	15.1	10.5	-95.41	134.0	630.0	531.9	506.3	25.54	20.822	
6,027.8	6,005.2	5,991.6	5,990.9	15.2	10.5	-95.68	133.5	630.1	531.8	506.2	25.67	20.716	
6,100.0	6,076.9	6,063.4	6,062.7	15.4	10.7	-96.39	132.1	630.6	531.9	505.9	26.01	20.450	
6,200.0	6,176.3	6,163.4	6,162.7	15.7	10.9	-97.30	129.7	632.0	532.1	505.6	26.48	20.092	
6,300.0	6,275.7	6,266.4	6,265.6	16.0	11.1	-98.38	127.8	632.1	532.1	505.2	26.97	19.732	
6,400.0	6,375.1	6,365.9	6,365.1	16.3	11.3	-99.51	126.0	631.1	531.8	504.3	27.46	19.369	
6,500.0	6,474.6	6,462.4	6,461.6	16.5	11.5	-31.56	124.4	630.7	527.9	500.1	27.81	18.986	
6,600.0	6,573.7	6,563.0	6,562.2	16.7	11.7	8.00	123.1	630.2	513.6	485.8	27.83	18.454	
6,700.0	6,670.6	6,662.5	6,661.7	16.8	11.9	20.18	121.5	629.0	488.0	460.4	27.56	17.704	
6,800.0	6,763.6	6,758.3	6,757.4	16.8	12.1	28.02	120.0	626.8	451.9	424.8	27.09	16.684	
6,900.0	6,851.2	6,849.2	6,848.3	16.8	12.3	36.12	118.5	623.4	406.4	379.8	26.62	15.268	
7,000.0	6,931.9	6,929.9	6,928.9	16.8	12.5	46.23	117.0	619.4	353.8	327.3	26.52	13.341	
7,100.0	7,004.2	7,000.5	6,999.4	16.8	12.6	59.27	115.6	615.9	298.8	271.6	27.16	11.002	
7,200.0	7,066.9	7,061.5	7,060.2	16.7	12.8	74.45	114.4	612.8	248.8	220.5	28.30	8.792	
7,300.0	7,119.1	7,111.7	7,110.4	16.7	12.9	88.49	113.5	610.3	217.4	188.3	29.10	7.472	
7,341.2	7,137.2	7,129.0	7,127.7	16.7	12.9	93.09	113.2	609.4	214.0	184.8	29.26	7.315	CC, ES, SF
7,400.0	7,159.7	7,150.3	7,149.0	16.9	13.0	98.01	112.7	608.4	221.2	191.9	29.37	7.533	
7,500.0	7,188.1	7,176.7	7,175.3	17.7	13.0	101.43	112.2	607.0	263.9	234.1	29.80	8.858	
7,600.0	7,203.8	7,190.4	7,189.0	18.6	13.0	98.07	112.0	606.4	333.2	302.3	30.92	10.777	
7,700.0	7,207.2	7,192.0	7,190.6	19.6	13.0	91.65	111.9	606.3	416.3	384.1	32.25	12.911	
7,800.0	7,207.9	7,190.8	7,189.4	20.8	13.0	91.31	112.0	606.3	505.8	472.4	33.36	15.162	
7,900.0	7,208.6	7,189.6	7,188.2	22.0	13.0	90.98	112.0	606.4	598.6	564.0	34.59	17.306	
8,000.0	7,209.4	7,188.4	7,187.0	23.3	13.0	90.64	112.0	606.5	693.4	657.5	35.91	19.308	
8,100.0	7,210.1	7,187.2	7,185.8	24.7	13.0	90.30	112.0	606.5	789.5	752.1	37.31	21.157	
8,200.0	7,210.8	7,186.0	7,184.6	26.2	13.0	89.96	112.1	606.6	886.4	847.6	38.78	22.855	
8,300.0	7,211.5	7,184.8	7,183.4	27.7	13.0	89.62	112.1	606.6	984.0	943.6	40.31	24.411	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,900.0	7,208.6	7,195.5	7,194.7	22.0	14.4	91.96	1,503.7	847.5	941.8	906.0	35.87	26.256	
8,000.0	7,209.4	7,194.0	7,193.3	23.3	14.4	91.77	1,503.7	847.5	855.1	817.9	37.19	22.992	
8,100.0	7,210.1	7,192.6	7,191.8	24.7	14.4	91.59	1,503.7	847.5	771.6	733.0	38.59	19.992	
8,200.0	7,210.8	7,191.1	7,190.4	26.2	14.4	91.40	1,503.8	847.5	692.4	652.3	40.06	17.284	
8,300.0	7,211.5	7,189.7	7,188.9	27.7	14.4	91.22	1,503.8	847.5	619.3	577.7	41.59	14.892	
8,400.0	7,212.2	7,188.1	7,187.4	29.2	14.3	91.02	1,503.8	847.5	554.6	511.5	43.16	12.851	
8,500.0	7,212.9	7,186.7	7,185.9	30.8	14.3	90.83	1,503.9	847.5	501.7	456.9	44.77	11.206	
8,600.0	7,213.6	7,185.2	7,184.5	32.5	14.3	90.64	1,503.9	847.5	464.5	418.1	46.42	10.008	
8,700.0	7,214.3	7,183.7	7,183.0	34.1	14.3	90.46	1,503.9	847.6	447.1	399.0	48.09	9.296	
8,729.6	7,214.5	7,183.3	7,182.6	34.6	14.3	90.40	1,503.9	847.6	446.1	397.5	48.60	9.180	CC, ES
8,800.0	7,215.0	7,182.3	7,181.6	35.8	14.3	90.27	1,504.0	847.6	451.6	401.8	49.79	9.070	SF
8,900.0	7,215.7	7,180.9	7,180.2	37.5	14.3	90.10	1,504.0	847.6	477.5	426.0	51.51	9.270	
9,000.0	7,216.4	7,179.6	7,178.8	39.3	14.3	89.92	1,504.0	847.6	521.7	468.4	53.25	9.796	
9,100.0	7,217.1	7,178.2	7,177.5	41.0	14.3	89.75	1,504.0	847.6	579.8	524.8	55.01	10.541	
9,200.0	7,217.8	7,176.9	7,176.2	42.8	14.3	89.58	1,504.1	847.6	648.3	591.5	56.78	11.418	
9,300.0	7,218.5	7,175.6	7,174.9	44.5	14.3	89.41	1,504.1	847.6	724.1	665.5	58.56	12.365	
9,400.0	7,219.2	7,174.3	7,173.6	46.3	14.3	89.25	1,504.1	847.6	805.2	744.9	60.35	13.342	
9,500.0	7,219.9	7,173.1	7,172.4	48.1	14.3	89.09	1,504.1	847.6	890.2	828.0	62.15	14.323	
9,600.0	7,220.6	7,171.9	7,171.1	49.9	14.3	88.93	1,504.2	847.6	978.0	914.0	63.96	15.291	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-169.17	-14.6	-2.8	14.8				
100.0	100.0	100.0	100.0	0.1	0.1	-169.17	-14.6	-2.8	14.8	14.6	0.20	75.914	
200.0	200.0	200.0	200.0	0.3	0.3	-169.17	-14.6	-2.8	14.8	14.2	0.65	23.012	
300.0	300.0	300.0	300.0	0.5	0.5	-169.17	-14.6	-2.8	14.8	13.8	1.09	13.562	
400.0	400.0	400.0	400.0	0.8	0.8	-169.17	-14.6	-2.8	14.8	13.3	1.54	9.614	
500.0	500.0	500.0	500.0	1.0	1.0	-169.17	-14.6	-2.8	14.8	12.9	1.99	7.446	
600.0	600.0	600.0	600.0	1.2	1.2	-169.17	-14.6	-2.8	14.8	12.4	2.44	6.076	
700.0	700.0	700.0	700.0	1.4	1.4	-169.17	-14.6	-2.8	14.8	12.0	2.89	5.132	
800.0	800.0	800.0	800.0	1.7	1.7	-169.17	-14.6	-2.8	14.8	11.5	3.34	4.442	
900.0	900.0	900.0	900.0	1.9	1.9	-169.17	-14.6	-2.8	14.8	11.1	3.79	3.915	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-169.17	-14.6	-2.8	14.8	10.6	4.24	3.500	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-169.17	-14.6	-2.8	14.8	10.2	4.69	3.165	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-169.17	-14.6	-2.8	14.8	9.7	5.14	2.888	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-169.17	-14.6	-2.8	14.8	9.3	5.59	2.656	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-169.17	-14.6	-2.8	14.8	8.8	6.04	2.458	
1,443.5	1,443.5	1,443.5	1,443.5	3.1	3.1	-170.13	-14.6	-2.5	14.8	8.6	6.23	2.383	CC
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.2	-174.22	-14.8	-1.5	14.9	8.4	6.47	2.299	ES
1,600.0	1,600.0	1,599.8	1,599.7	3.5	3.4	171.33	-15.5	2.4	15.7	8.8	6.89	2.271	
1,700.0	1,700.0	1,699.4	1,699.1	3.7	3.6	152.15	-16.6	8.8	18.8	11.5	7.33	2.564	
1,800.0	1,800.0	1,798.6	1,797.9	3.9	3.8	135.74	-18.1	17.7	25.4	17.7	7.77	3.273	
1,900.0	1,900.0	1,897.9	1,896.5	4.1	4.1	125.19	-20.0	28.4	34.9	26.7	8.22	4.244	
2,000.0	2,000.0	1,997.2	1,995.3	4.4	4.3	119.21	-21.9	39.1	45.1	36.4	8.67	5.196	
2,100.0	2,100.0	2,096.8	2,094.2	4.6	4.6	-18.22	-23.7	49.9	54.3	45.3	9.02	6.021	
2,200.0	2,199.9	2,196.4	2,193.3	4.8	4.8	-22.02	-25.6	60.7	61.3	51.9	9.40	6.523	
2,300.0	2,299.7	2,296.2	2,292.5	4.9	5.1	-25.98	-27.5	71.5	66.2	56.4	9.79	6.764	
2,400.0	2,399.3	2,396.0	2,391.7	5.1	5.3	-30.46	-29.4	82.2	69.1	58.9	10.18	6.788	
2,500.0	2,498.7	2,495.8	2,490.9	5.3	5.6	-35.38	-31.3	93.0	70.9	60.3	10.60	6.692	
2,600.0	2,598.1	2,595.6	2,590.1	5.6	5.9	-40.06	-33.1	103.8	73.2	62.2	11.04	6.632	
2,700.0	2,697.5	2,695.4	2,689.3	5.8	6.2	-44.43	-35.0	114.6	75.9	64.4	11.49	6.608	
2,800.0	2,796.9	2,795.2	2,788.5	6.0	6.4	-48.48	-36.9	125.4	79.1	67.1	11.96	6.609	
2,900.0	2,896.2	2,895.0	2,887.7	6.3	6.7	-52.20	-38.8	136.2	82.6	70.1	12.45	6.631	
3,000.0	2,995.6	2,994.8	2,986.9	6.5	7.0	-55.60	-40.6	147.0	86.4	73.4	12.96	6.668	
3,100.0	3,095.0	3,094.6	3,086.1	6.8	7.3	-58.71	-42.5	157.8	90.5	77.0	13.48	6.716	
3,200.0	3,194.4	3,194.4	3,185.3	7.0	7.6	-61.54	-44.4	168.6	94.9	80.9	14.01	6.772	
3,300.0	3,293.8	3,294.2	3,284.5	7.3	7.9	-64.11	-46.3	179.4	99.4	84.9	14.55	6.834	
3,400.0	3,393.2	3,394.0	3,383.7	7.6	8.2	-66.46	-48.2	190.2	104.2	89.1	15.10	6.899	
3,500.0	3,492.6	3,493.8	3,482.9	7.8	8.5	-68.60	-50.0	201.0	109.1	93.4	15.65	6.967	
3,600.0	3,592.0	3,593.6	3,582.1	8.1	8.7	-70.55	-51.9	211.8	114.1	97.9	16.22	7.036	
3,700.0	3,691.4	3,693.4	3,681.3	8.4	9.0	-72.34	-53.8	222.6	119.3	102.5	16.79	7.105	
3,800.0	3,790.8	3,793.2	3,780.5	8.6	9.3	-73.98	-55.7	233.4	124.5	107.2	17.36	7.174	
3,900.0	3,890.2	3,893.0	3,879.6	8.9	9.6	-75.48	-57.6	244.2	129.9	112.0	17.93	7.243	
4,000.0	3,989.6	3,992.8	3,978.8	9.2	9.9	-76.86	-59.4	255.0	135.3	116.8	18.51	7.310	
4,100.0	4,089.0	4,092.6	4,078.0	9.5	10.2	-78.14	-61.3	265.8	140.9	121.8	19.10	7.376	
4,200.0	4,188.4	4,192.4	4,177.2	9.8	10.5	-79.32	-63.2	276.6	146.4	126.8	19.68	7.441	
4,300.0	4,287.8	4,292.2	4,276.4	10.1	10.8	-80.41	-65.1	287.4	152.1	131.8	20.27	7.504	
4,400.0	4,387.2	4,392.0	4,375.6	10.3	11.1	-81.42	-66.9	298.2	157.8	136.9	20.85	7.565	
4,500.0	4,486.6	4,491.8	4,474.8	10.6	11.4	-82.37	-68.8	309.0	163.5	142.1	21.44	7.624	
4,600.0	4,586.0	4,591.6	4,574.0	10.9	11.7	-83.25	-70.7	319.8	169.3	147.2	22.04	7.682	
4,700.0	4,685.4	4,691.4	4,673.2	11.2	12.0	-84.07	-72.6	330.6	175.1	152.5	22.63	7.738	
4,800.0	4,784.8	4,791.2	4,772.4	11.5	12.3	-84.83	-74.5	341.4	180.9	157.7	23.22	7.792	
4,900.0	4,884.1	4,891.0	4,871.6	11.8	12.6	-85.55	-76.3	352.2	186.8	163.0	23.81	7.845	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,983.5	4,990.8	4,970.8	12.1	12.9	-86.23	-78.2	362.9	192.7	168.3	24.41	7.895	
5,100.0	5,082.9	5,090.6	5,070.0	12.4	13.2	-86.87	-80.1	373.7	198.6	173.6	25.00	7.945	
5,200.0	5,182.3	5,190.4	5,169.2	12.7	13.5	-87.46	-82.0	384.5	204.6	179.0	25.60	7.992	
5,300.0	5,281.7	5,290.2	5,268.4	13.0	13.8	-88.03	-83.9	395.3	210.6	184.4	26.20	8.038	
5,400.0	5,381.1	5,390.0	5,367.6	13.3	14.1	-88.56	-85.7	406.1	216.6	189.8	26.79	8.083	
5,500.0	5,480.5	5,489.8	5,466.8	13.6	14.4	-89.07	-87.6	416.9	222.6	195.2	27.39	8.126	
5,600.0	5,579.9	5,589.6	5,566.0	13.9	14.7	-89.54	-89.5	427.7	228.6	200.6	27.99	8.168	
5,700.0	5,679.3	5,689.4	5,665.2	14.2	15.0	-90.00	-91.4	438.5	234.6	206.1	28.59	8.208	
5,800.0	5,778.7	5,789.2	5,764.4	14.5	15.3	-90.43	-93.2	449.3	240.7	211.5	29.19	8.247	
5,900.0	5,878.1	5,889.0	5,863.6	14.8	15.6	-90.84	-95.1	460.1	246.8	217.0	29.79	8.285	
6,000.0	5,977.5	5,988.8	5,962.8	15.1	15.9	-91.23	-97.0	470.9	252.8	222.5	30.38	8.322	
6,100.0	6,076.9	6,088.6	6,062.0	15.4	16.2	-91.60	-98.9	481.7	258.9	228.0	30.98	8.357	
6,200.0	6,176.3	6,188.4	6,161.2	15.7	16.5	-91.96	-100.8	492.5	265.0	233.5	31.58	8.392	
6,300.0	6,275.7	6,288.2	6,260.4	16.0	16.8	-92.29	-102.6	503.3	271.2	239.0	32.18	8.425	
6,400.0	6,375.1	6,383.4	6,355.0	16.3	17.1	-92.63	-104.2	513.6	277.5	244.7	32.77	8.467	
6,500.0	6,474.6	6,461.1	6,432.1	16.5	17.3	-24.85	-100.1	522.0	285.4	252.2	33.17	8.603	
6,600.0	6,573.7	6,538.4	6,508.0	16.7	17.5	13.74	-88.1	530.3	291.2	258.0	33.16	8.780	
6,700.0	6,670.6	6,615.5	6,582.1	16.8	17.7	24.00	-68.5	538.3	294.6	261.8	32.75	8.995	
6,800.0	6,763.6	6,692.6	6,653.9	16.8	17.8	28.66	-41.6	546.2	295.7	263.7	32.00	9.241	
6,900.0	6,851.2	6,769.8	6,722.7	16.8	18.0	31.70	-7.4	553.7	294.4	263.5	30.98	9.505	
7,000.0	6,931.9	6,850.0	6,790.1	16.8	18.2	34.27	35.2	561.1	290.9	261.1	29.85	9.748	
7,100.0	7,004.2	6,925.3	6,849.1	16.8	18.3	36.71	81.6	567.5	285.3	256.5	28.78	9.913	
7,200.0	7,066.9	7,000.0	6,902.8	16.7	18.5	39.27	133.1	573.4	277.8	249.8	27.99	9.925	
7,300.0	7,119.1	7,083.4	6,956.6	16.7	18.8	42.36	196.5	579.3	268.6	240.8	27.83	9.653	
7,400.0	7,159.7	7,164.0	7,001.7	16.9	19.1	45.81	263.0	584.3	258.1	229.7	28.45	9.073	
7,500.0	7,188.1	7,245.8	7,040.1	17.7	19.5	49.84	335.1	588.5	246.9	216.9	30.01	8.226	
7,600.0	7,203.8	7,329.2	7,071.1	18.6	20.0	54.54	412.4	592.0	235.4	202.9	32.46	7.252	
7,700.0	7,207.2	7,414.6	7,094.1	19.6	20.7	59.59	494.5	594.5	224.7	189.3	35.36	6.354	
7,800.0	7,207.9	7,503.4	7,108.1	20.8	21.5	62.84	582.2	596.1	218.9	181.0	37.93	5.772	
7,876.0	7,208.5	7,572.4	7,112.0	21.7	22.3	63.69	651.1	596.6	217.7	178.0	39.70	5.484	
7,900.0	7,208.6	7,595.0	7,111.9	22.0	22.5	63.64	673.7	596.6	217.8	177.6	40.21	5.417	
8,000.0	7,209.4	7,695.0	7,111.2	23.3	23.7	63.30	773.6	596.6	218.5	176.0	42.50	5.140	
8,100.0	7,210.1	7,795.0	7,110.4	24.7	25.0	62.96	873.6	596.6	219.1	174.2	44.93	4.877	
8,200.0	7,210.8	7,895.0	7,109.7	26.2	26.3	62.62	973.6	596.6	219.8	172.3	47.46	4.631	
8,300.0	7,211.5	7,995.0	7,108.9	27.7	27.7	62.28	1,073.6	596.6	220.5	170.4	50.09	4.402	
8,400.0	7,212.2	8,095.0	7,108.2	29.2	29.2	61.95	1,173.6	596.6	221.1	168.4	52.78	4.190	
8,500.0	7,212.9	8,195.0	7,107.4	30.8	30.7	61.62	1,273.6	596.6	221.8	166.3	55.54	3.994	
8,600.0	7,213.6	8,295.0	7,106.7	32.5	32.3	61.29	1,373.6	596.6	222.5	164.2	58.34	3.814	
8,700.0	7,214.3	8,394.9	7,105.9	34.1	33.9	60.96	1,473.6	596.6	223.2	162.0	61.18	3.648	
8,800.0	7,215.0	8,494.9	7,105.2	35.8	35.5	60.64	1,573.5	596.6	223.9	159.9	64.05	3.496	
8,900.0	7,215.7	8,594.9	7,104.4	37.5	37.2	60.31	1,673.5	596.6	224.7	157.7	66.95	3.356	
9,000.0	7,216.4	8,694.9	7,103.6	39.3	38.9	59.99	1,773.5	596.6	225.4	155.5	69.86	3.226	
9,100.0	7,217.1	8,794.9	7,102.9	41.0	40.6	59.67	1,873.5	596.6	226.1	153.3	72.79	3.106	
9,200.0	7,217.8	8,894.9	7,102.1	42.8	42.3	59.35	1,973.5	596.6	226.8	151.1	75.72	2.996	
9,300.0	7,218.5	8,994.9	7,101.4	44.5	44.0	59.04	2,073.5	596.6	227.6	148.9	78.66	2.893	
9,400.0	7,219.2	9,094.9	7,100.6	46.3	45.8	58.72	2,173.5	596.6	228.3	146.7	81.61	2.798	
9,500.0	7,219.9	9,194.9	7,099.9	48.1	47.6	58.41	2,273.4	596.6	229.1	144.6	84.55	2.710	
9,600.0	7,220.6	9,294.8	7,099.1	49.9	49.3	58.10	2,373.4	596.6	229.9	142.4	87.49	2.627	
9,700.0	7,221.3	9,394.8	7,098.4	51.7	51.1	57.80	2,473.4	596.6	230.6	140.2	90.43	2.551	
9,800.0	7,222.0	9,494.8	7,097.6	53.5	52.9	57.49	2,573.4	596.6	231.4	138.1	93.37	2.479	
9,900.0	7,222.7	9,594.8	7,096.9	55.4	54.7	57.19	2,673.4	596.6	232.2	135.9	96.29	2.411	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,223.4	9,694.8	7,096.1	57.2	56.5	56.89	2,773.4	596.6	233.0	133.8	99.22	2.348	
10,100.0	7,224.1	9,794.8	7,095.4	59.0	58.4	56.59	2,873.4	596.6	233.8	131.7	102.13	2.289	
10,200.0	7,224.8	9,894.8	7,094.6	60.9	60.2	56.29	2,973.4	596.6	234.6	129.6	105.03	2.234	
10,300.0	7,225.5	9,994.8	7,093.8	62.7	62.0	56.00	3,073.3	596.6	235.4	127.5	107.93	2.181	
10,400.0	7,226.2	10,094.8	7,093.1	64.6	63.9	55.70	3,173.3	596.6	236.2	125.4	110.81	2.132	
10,500.0	7,226.9	10,194.7	7,092.3	66.4	65.7	55.41	3,273.3	596.6	237.1	123.4	113.68	2.085	
10,600.0	7,227.6	10,294.7	7,091.6	68.3	67.5	55.12	3,373.3	596.6	237.9	121.3	116.54	2.041	
10,700.0	7,228.3	10,394.7	7,090.8	70.1	69.4	54.84	3,473.3	596.6	238.7	119.3	119.39	2.000	
10,800.0	7,229.0	10,494.7	7,090.1	72.0	71.2	54.55	3,573.3	596.6	239.6	117.3	122.23	1.960	
10,900.0	7,229.7	10,594.7	7,089.3	73.9	73.1	54.27	3,673.3	596.6	240.4	115.4	125.05	1.923	
11,000.0	7,230.4	10,694.7	7,088.6	75.7	75.0	53.99	3,773.2	596.6	241.3	113.4	127.86	1.887	
11,100.0	7,231.1	10,794.7	7,087.8	77.6	76.8	53.71	3,873.2	596.6	242.1	111.5	130.65	1.853	
11,200.0	7,231.8	10,894.7	7,087.1	79.5	78.7	53.43	3,973.2	596.6	243.0	109.6	133.43	1.821	
11,300.0	7,232.5	10,994.7	7,086.3	81.4	80.6	53.16	4,073.2	596.6	243.9	107.7	136.20	1.790	
11,400.0	7,233.2	11,094.7	7,085.6	83.2	82.4	52.89	4,173.2	596.6	244.7	105.8	138.96	1.761	
11,500.0	7,233.9	11,194.6	7,084.8	85.1	84.3	52.62	4,273.2	596.6	245.6	103.9	141.70	1.733	
11,600.0	7,234.6	11,294.6	7,084.0	87.0	86.2	52.35	4,373.2	596.6	246.5	102.1	144.42	1.707	
11,652.0	7,235.0	11,344.2	7,083.7	88.0	87.1	52.21	4,422.7	596.6	247.0	101.2	145.81	1.694	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-177.42	-61.9	-2.8	62.0				
100.0	100.0	101.0	101.0	0.1	0.1	-177.42	-61.9	-2.8	62.0	61.8	0.20	313.431	
200.0	200.0	201.0	201.0	0.3	0.3	-177.42	-61.9	-2.8	62.0	61.3	0.65	95.771	
300.0	300.0	301.0	301.0	0.5	0.5	-177.42	-61.9	-2.8	62.0	60.9	1.10	56.520	
400.0	400.0	401.0	401.0	0.8	0.8	-177.42	-61.9	-2.8	62.0	60.4	1.55	40.090	
500.0	500.0	501.0	501.0	1.0	1.0	-177.42	-61.9	-2.8	62.0	60.0	2.00	31.061	
600.0	600.0	601.0	601.0	1.2	1.2	-177.42	-61.9	-2.8	62.0	59.5	2.45	25.351	
700.0	700.0	701.0	701.0	1.4	1.4	-177.42	-61.9	-2.8	62.0	59.1	2.89	21.415	
766.3	766.3	767.3	767.3	1.6	1.6	-177.42	-61.9	-2.8	62.0	58.8	3.19	19.415	CC
800.0	800.0	801.0	801.0	1.7	1.7	-177.42	-61.9	-2.8	62.0	58.7	3.34	18.537	
900.0	900.0	900.8	900.8	1.9	1.9	-178.64	-62.1	-1.5	62.2	58.4	3.78	16.455	ES
1,000.0	1,000.0	1,000.4	1,000.3	2.1	2.1	177.81	-62.8	2.4	62.8	58.6	4.20	14.948	
1,100.0	1,100.0	1,100.0	1,099.7	2.3	2.3	172.12	-63.8	8.8	64.4	59.8	4.64	13.892	
1,200.0	1,200.0	1,198.8	1,198.1	2.6	2.5	164.80	-65.3	17.7	67.7	62.6	5.09	13.302	
1,300.0	1,300.0	1,297.2	1,295.8	2.8	2.8	156.56	-67.1	29.1	73.4	67.8	5.56	13.186	SF
1,400.0	1,400.0	1,395.0	1,392.6	3.0	3.0	148.29	-69.4	42.9	82.0	75.9	6.06	13.525	
1,500.0	1,500.0	1,492.0	1,488.2	3.2	3.3	140.70	-72.0	58.9	93.9	87.3	6.59	14.257	
1,600.0	1,600.0	1,588.1	1,582.5	3.5	3.7	134.17	-75.0	77.2	109.2	102.0	7.13	15.300	
1,700.0	1,700.0	1,683.2	1,675.4	3.7	4.0	128.75	-78.3	97.5	127.7	120.0	7.71	16.567	
1,800.0	1,800.0	1,777.2	1,766.6	3.9	4.4	124.34	-81.9	119.9	149.3	141.0	8.30	17.983	
1,900.0	1,900.0	1,870.0	1,856.1	4.1	4.9	120.78	-85.9	144.2	173.7	164.8	8.91	19.489	
2,000.0	2,000.0	1,963.0	1,945.2	4.4	5.4	117.87	-90.2	170.5	200.8	191.2	9.55	21.026	
2,100.0	2,100.0	2,059.0	2,037.0	4.6	5.9	-17.73	-94.7	198.2	227.6	218.3	9.22	24.694	
2,200.0	2,199.9	2,155.5	2,129.3	4.8	6.4	-19.73	-99.2	226.0	252.3	242.6	9.64	26.176	
2,300.0	2,299.7	2,252.5	2,222.0	4.9	7.0	-21.56	-103.8	253.9	274.9	264.8	10.06	27.314	
2,400.0	2,399.3	2,350.0	2,315.2	5.1	7.6	-23.29	-108.3	282.0	295.4	284.9	10.49	28.149	
2,500.0	2,498.7	2,447.7	2,408.7	5.3	8.1	-25.01	-112.9	310.2	314.6	303.6	10.94	28.758	
2,600.0	2,598.1	2,545.4	2,502.2	5.6	8.7	-26.57	-117.5	338.4	333.9	322.5	11.39	29.310	
2,700.0	2,697.5	2,643.1	2,595.6	5.8	9.3	-27.95	-122.1	366.5	353.5	341.7	11.86	29.812	
2,800.0	2,796.9	2,740.8	2,689.1	6.0	9.9	-29.19	-126.7	394.7	373.3	361.0	12.33	30.269	
2,900.0	2,896.2	2,838.6	2,782.5	6.3	10.5	-30.30	-131.3	422.9	393.2	380.4	12.82	30.681	
3,000.0	2,995.6	2,936.3	2,876.0	6.5	11.1	-31.31	-135.9	451.0	413.3	400.0	13.31	31.054	
3,100.0	3,095.0	3,034.0	2,969.5	6.8	11.7	-32.22	-140.5	479.2	433.5	419.7	13.81	31.390	
3,200.0	3,194.4	3,131.7	3,062.9	7.0	12.3	-33.06	-145.1	507.4	453.7	439.4	14.32	31.692	
3,300.0	3,293.8	3,229.4	3,156.4	7.3	12.9	-33.82	-149.7	535.5	474.1	459.3	14.83	31.965	
3,400.0	3,393.2	3,327.2	3,249.8	7.6	13.4	-34.52	-154.2	563.7	494.5	479.2	15.35	32.210	
3,500.0	3,492.6	3,424.9	3,343.3	7.8	14.0	-35.16	-158.8	591.9	515.0	499.1	15.88	32.431	
3,600.0	3,592.0	3,522.6	3,436.8	8.1	14.7	-35.75	-163.4	620.0	535.6	519.1	16.41	32.630	
3,700.0	3,691.4	3,620.3	3,530.2	8.4	15.3	-36.30	-168.0	648.2	556.2	539.2	16.95	32.809	
3,800.0	3,790.8	3,718.0	3,623.7	8.6	15.9	-36.82	-172.6	676.4	576.8	559.3	17.49	32.971	
3,900.0	3,890.2	3,815.8	3,717.1	8.9	16.5	-37.29	-177.2	704.5	597.5	579.4	18.04	33.117	
4,000.0	3,989.6	3,913.5	3,810.6	9.2	17.1	-37.74	-181.8	732.7	618.2	599.6	18.59	33.250	
4,100.0	4,089.0	4,011.2	3,904.1	9.5	17.7	-38.15	-186.4	760.9	639.0	619.8	19.15	33.369	
4,200.0	4,188.4	4,108.9	3,997.5	9.8	18.3	-38.54	-191.0	789.0	659.8	640.0	19.71	33.478	
4,300.0	4,287.8	4,206.6	4,091.0	10.1	18.9	-38.91	-195.6	817.2	680.6	660.3	20.27	33.576	
4,400.0	4,387.2	4,304.4	4,184.5	10.3	19.5	-39.25	-200.1	845.3	701.4	680.6	20.83	33.666	
4,500.0	4,486.6	4,402.1	4,277.9	10.6	20.1	-39.57	-204.7	873.5	722.3	700.9	21.40	33.747	
4,600.0	4,586.0	4,499.8	4,371.4	10.9	20.7	-39.88	-209.3	901.7	743.2	721.2	21.97	33.821	
4,700.0	4,685.4	4,597.5	4,464.8	11.2	21.3	-40.17	-213.9	929.8	764.1	741.5	22.55	33.888	
4,800.0	4,784.8	4,695.2	4,558.3	11.5	21.9	-40.44	-218.5	958.0	785.0	761.9	23.12	33.949	
4,900.0	4,884.1	4,793.0	4,651.8	11.8	22.5	-40.70	-223.1	986.2	805.9	782.2	23.70	34.005	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,983.5	4,890.7	4,745.2	12.1	23.1	-40.95	-227.7	1,014.3	826.9	802.6	24.28	34.057	
5,100.0	5,082.9	4,988.4	4,838.7	12.4	23.7	-41.18	-232.3	1,042.5	847.8	823.0	24.86	34.103	
5,200.0	5,182.3	5,086.1	4,932.1	12.7	24.3	-41.41	-236.9	1,070.7	868.8	843.4	25.44	34.146	
5,300.0	5,281.7	5,183.8	5,025.6	13.0	25.0	-41.62	-241.5	1,098.8	889.8	863.8	26.03	34.185	
5,400.0	5,381.1	5,281.6	5,119.1	13.3	25.6	-41.82	-246.0	1,127.0	910.8	884.2	26.62	34.221	
5,500.0	5,480.5	5,379.3	5,212.5	13.6	26.2	-42.01	-250.6	1,155.2	931.8	904.6	27.20	34.254	
5,600.0	5,579.9	5,477.0	5,306.0	13.9	26.8	-42.20	-255.2	1,183.3	952.8	925.0	27.79	34.284	
5,700.0	5,679.3	5,574.7	5,399.4	14.2	27.4	-42.38	-259.8	1,211.5	973.9	945.5	28.38	34.311	
5,800.0	5,778.7	5,672.5	5,492.9	14.5	28.0	-42.55	-264.4	1,239.7	994.9	965.9	28.97	34.336	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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-241 - Wellbore #1 - Plan #2 (6-11-15)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-175.14	-32.8	-2.8	32.9				
100.0	100.0	101.0	101.0	0.1	0.1	-175.14	-32.8	-2.8	32.9	32.7	0.20	166.385	
200.0	200.0	201.0	201.0	0.3	0.3	-175.14	-32.8	-2.8	32.9	32.3	0.65	50.840	
300.0	300.0	301.0	301.0	0.5	0.5	-175.14	-32.8	-2.8	32.9	31.8	1.10	30.004	
400.0	400.0	401.0	401.0	0.8	0.8	-175.14	-32.8	-2.8	32.9	31.4	1.55	21.282	
500.0	500.0	501.0	501.0	1.0	1.0	-175.14	-32.8	-2.8	32.9	30.9	2.00	16.489	
600.0	600.0	601.0	601.0	1.2	1.2	-175.14	-32.8	-2.8	32.9	30.5	2.45	13.458	
700.0	700.0	701.0	701.0	1.4	1.4	-175.14	-32.8	-2.8	32.9	30.0	2.89	11.368	
800.0	800.0	801.0	801.0	1.7	1.7	-175.14	-32.8	-2.8	32.9	29.6	3.34	9.840	
900.0	900.0	901.0	901.0	1.9	1.9	-175.14	-32.8	-2.8	32.9	29.1	3.79	8.674	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-175.14	-32.8	-2.8	32.9	28.7	4.24	7.755	
1,100.0	1,100.0	1,101.0	1,101.0	2.3	2.3	-175.14	-32.8	-2.8	32.9	28.2	4.69	7.012	
1,166.3	1,166.3	1,167.3	1,167.3	2.5	2.5	-175.14	-32.8	-2.8	32.9	27.9	4.99	6.594	CC
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-175.14	-32.8	-2.8	32.9	27.8	5.14	6.400	
1,300.0	1,300.0	1,300.8	1,300.8	2.8	2.8	-177.38	-33.2	-1.5	33.2	27.7	5.57	5.962	ES
1,400.0	1,400.0	1,400.4	1,400.3	3.0	3.0	176.30	-34.4	2.2	34.5	28.5	5.99	5.751	
1,500.0	1,500.0	1,500.0	1,499.7	3.2	3.2	166.94	-36.4	8.4	37.3	30.9	6.42	5.816	
1,600.0	1,600.0	1,598.8	1,598.1	3.5	3.4	156.45	-39.1	17.0	42.7	35.9	6.86	6.228	
1,700.0	1,700.0	1,697.2	1,695.8	3.7	3.6	146.65	-42.6	28.0	51.2	43.9	7.32	6.997	
1,800.0	1,800.0	1,795.0	1,792.6	3.9	3.9	138.56	-46.8	41.3	63.0	55.2	7.79	8.077	
1,900.0	1,900.0	1,892.0	1,888.2	4.1	4.2	132.31	-51.7	56.8	77.9	69.6	8.29	9.396	
2,000.0	2,000.0	1,988.1	1,982.5	4.4	4.5	127.59	-57.3	74.4	95.7	86.9	8.80	10.883	
2,100.0	2,100.0	2,085.6	2,077.9	4.6	4.8	-9.30	-63.5	93.9	114.4	105.4	9.02	12.682	
2,200.0	2,199.9	2,184.0	2,174.1	4.8	5.2	-12.12	-69.7	113.6	131.0	121.6	9.42	13.911	
2,300.0	2,299.7	2,282.8	2,270.7	4.9	5.6	-14.55	-76.0	133.4	145.3	135.5	9.81	14.805	
2,400.0	2,399.3	2,381.9	2,367.5	5.1	6.0	-16.80	-82.3	153.3	157.3	147.1	10.21	15.402	
2,500.0	2,498.7	2,481.2	2,464.6	5.3	6.4	-18.96	-88.6	173.2	167.9	157.3	10.64	15.786	
2,600.0	2,598.1	2,580.4	2,561.6	5.6	6.8	-20.88	-94.9	193.1	178.6	167.6	11.07	16.137	
2,700.0	2,697.5	2,679.7	2,658.6	5.8	7.2	-22.58	-101.3	213.0	189.6	178.0	11.51	16.464	
2,800.0	2,796.9	2,778.9	2,755.7	6.0	7.6	-24.10	-107.6	232.9	200.6	188.6	11.96	16.767	
2,900.0	2,896.2	2,878.2	2,852.7	6.3	8.0	-25.45	-113.9	252.8	211.8	199.4	12.42	17.046	
3,000.0	2,995.6	2,977.4	2,949.8	6.5	8.5	-26.67	-120.2	272.6	223.1	210.2	12.89	17.302	
3,100.0	3,095.0	3,076.7	3,046.8	6.8	8.9	-27.77	-126.5	292.5	234.5	221.1	13.37	17.537	
3,200.0	3,194.4	3,175.9	3,143.8	7.0	9.3	-28.77	-132.8	312.4	245.9	232.1	13.85	17.752	
3,300.0	3,293.8	3,275.2	3,240.9	7.3	9.8	-29.68	-139.1	332.3	257.4	243.1	14.34	17.949	
3,400.0	3,393.2	3,374.5	3,337.9	7.6	10.2	-30.51	-145.4	352.2	269.0	254.2	14.84	18.129	
3,500.0	3,492.6	3,473.7	3,434.9	7.8	10.7	-31.28	-151.8	372.1	280.6	265.3	15.34	18.294	
3,600.0	3,592.0	3,573.0	3,532.0	8.1	11.1	-31.98	-158.1	392.0	292.3	276.5	15.85	18.445	
3,700.0	3,691.4	3,672.2	3,629.0	8.4	11.6	-32.63	-164.4	411.9	304.0	287.7	16.36	18.583	
3,800.0	3,790.8	3,771.5	3,726.0	8.6	12.0	-33.23	-170.7	431.8	315.8	298.9	16.88	18.709	
3,900.0	3,890.2	3,870.7	3,823.1	8.9	12.5	-33.79	-177.0	451.7	327.6	310.2	17.40	18.826	
4,000.0	3,989.6	3,970.0	3,920.1	9.2	12.9	-34.31	-183.3	471.6	339.4	321.5	17.93	18.933	
4,100.0	4,089.0	4,069.2	4,017.1	9.5	13.4	-34.79	-189.6	491.4	351.2	332.8	18.46	19.031	
4,200.0	4,188.4	4,168.5	4,114.2	9.8	13.8	-35.24	-195.9	511.3	363.1	344.1	18.99	19.122	
4,300.0	4,287.8	4,267.7	4,211.2	10.1	14.3	-35.67	-202.2	531.2	375.0	355.5	19.52	19.206	
4,400.0	4,387.2	4,367.0	4,308.3	10.3	14.7	-36.06	-208.6	551.1	386.9	366.8	20.06	19.283	
4,500.0	4,486.6	4,466.3	4,405.3	10.6	15.2	-36.44	-214.9	571.0	398.8	378.2	20.61	19.354	
4,600.0	4,586.0	4,565.5	4,502.3	10.9	15.6	-36.79	-221.2	590.9	410.7	389.6	21.15	19.421	
4,700.0	4,685.4	4,664.8	4,599.4	11.2	16.1	-37.12	-227.5	610.8	422.7	401.0	21.70	19.482	
4,800.0	4,784.8	4,764.0	4,696.4	11.5	16.6	-37.44	-233.8	630.7	434.7	412.4	22.25	19.539	
4,900.0	4,884.1	4,863.3	4,793.4	11.8	17.0	-37.73	-240.1	650.6	446.6	423.8	22.80	19.592	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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-241 - Wellbore #1 - Plan #2 (6-11-15)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,983.5	4,962.5	4,890.5	12.1	17.5	-38.02	-246.4	670.5	458.6	435.3	23.35	19.642	
5,100.0	5,082.9	5,061.8	4,987.5	12.4	17.9	-38.28	-252.7	690.4	470.6	446.7	23.90	19.688	
5,200.0	5,182.3	5,161.0	5,084.5	12.7	18.4	-38.54	-259.1	710.3	482.6	458.2	24.46	19.731	
5,300.0	5,281.7	5,260.3	5,181.6	13.0	18.8	-38.78	-265.4	730.1	494.6	469.6	25.02	19.771	
5,400.0	5,381.1	5,359.5	5,278.6	13.3	19.3	-39.01	-271.7	750.0	506.7	481.1	25.58	19.809	
5,500.0	5,480.5	5,458.8	5,375.6	13.6	19.8	-39.23	-278.0	769.9	518.7	492.6	26.14	19.844	
5,600.0	5,579.9	5,558.1	5,472.7	13.9	20.2	-39.44	-284.3	789.8	530.7	504.0	26.70	19.877	
5,700.0	5,679.3	5,657.3	5,569.7	14.2	20.7	-39.64	-290.6	809.7	542.8	515.5	27.26	19.908	
5,800.0	5,778.7	5,756.6	5,666.8	14.5	21.1	-39.83	-296.9	829.6	554.8	527.0	27.83	19.937	
5,900.0	5,878.1	5,855.8	5,763.8	14.8	21.6	-40.01	-303.2	849.5	566.9	538.5	28.39	19.965	
6,000.0	5,977.5	5,955.1	5,860.8	15.1	22.1	-40.19	-309.5	869.4	578.9	550.0	28.96	19.991	
6,100.0	6,076.9	6,054.3	5,957.9	15.4	22.5	-40.36	-315.9	889.3	591.0	561.5	29.53	20.015	
6,200.0	6,176.3	6,153.6	6,054.9	15.7	23.0	-40.52	-322.2	909.2	603.1	573.0	30.10	20.038	
6,300.0	6,275.7	6,252.8	6,151.9	16.0	23.4	-40.68	-328.5	929.1	615.2	584.5	30.67	20.060	
6,400.0	6,375.1	6,352.9	6,249.8	16.3	23.9	-40.89	-334.1	949.1	627.2	596.0	31.24	20.078	
6,500.0	6,474.6	6,453.7	6,348.4	16.5	24.2	26.22	-329.5	969.3	639.2	607.4	31.86	20.064	
6,600.0	6,573.7	6,553.6	6,444.6	16.7	24.5	63.68	-311.9	989.1	651.3	618.9	32.35	20.133	
6,700.0	6,670.6	6,652.6	6,537.0	16.8	24.8	72.48	-282.0	1,008.1	663.2	630.5	32.69	20.284	
6,800.0	6,763.6	6,750.7	6,624.0	16.8	25.0	75.36	-240.5	1,026.0	674.7	641.8	32.91	20.501	
6,900.0	6,851.2	6,848.2	6,704.6	16.8	25.1	76.34	-188.5	1,042.6	685.6	652.6	33.03	20.756	
7,000.0	6,931.9	6,944.9	6,777.6	16.8	25.3	76.52	-126.8	1,057.7	695.7	662.6	33.13	21.002	
7,100.0	7,004.2	7,041.1	6,841.9	16.8	25.4	76.34	-56.7	1,071.0	704.9	671.6	33.28	21.181	
7,200.0	7,066.9	7,136.7	6,896.9	16.7	25.5	76.00	20.7	1,082.4	713.0	679.4	33.59	21.227	
7,300.0	7,119.1	7,231.9	6,941.7	16.7	25.6	75.61	104.0	1,091.7	719.7	685.6	34.15	21.072	
7,400.0	7,159.7	7,326.7	6,976.0	16.9	25.8	75.24	192.1	1,098.9	725.1	690.0	35.04	20.691	
7,500.0	7,188.1	7,421.1	6,999.2	17.7	26.1	74.92	283.4	1,103.8	728.9	692.6	36.32	20.071	
7,600.0	7,203.8	7,515.3	7,011.2	18.6	26.4	74.67	376.7	1,106.4	731.2	693.2	37.98	19.252	
7,700.0	7,207.2	7,611.6	7,012.7	19.6	26.8	74.51	472.9	1,106.8	732.0	692.0	39.95	18.322	
7,800.0	7,207.9	7,711.5	7,012.0	20.8	27.5	74.40	572.9	1,106.8	732.4	690.3	42.06	17.413	
7,900.0	7,208.6	7,811.5	7,011.2	22.0	28.2	74.29	672.9	1,106.8	732.7	688.4	44.38	16.512	
8,000.0	7,209.4	7,911.5	7,010.5	23.3	29.1	74.18	772.9	1,106.8	733.1	686.3	46.87	15.641	
8,100.0	7,210.1	8,011.5	7,009.7	24.7	30.1	74.07	872.9	1,106.8	733.5	684.0	49.52	14.813	
8,200.0	7,210.8	8,111.5	7,008.9	26.2	31.3	73.96	972.9	1,106.8	733.9	681.6	52.29	14.035	
8,300.0	7,211.5	8,211.5	7,008.2	27.7	32.5	73.85	1,072.8	1,106.8	734.3	679.2	55.17	13.310	
8,400.0	7,212.2	8,311.5	7,007.4	29.2	33.8	73.74	1,172.8	1,106.8	734.8	676.6	58.14	12.638	
8,500.0	7,212.9	8,411.5	7,006.7	30.8	35.1	73.63	1,272.8	1,106.8	735.2	674.0	61.19	12.015	
8,600.0	7,213.6	8,511.5	7,005.9	32.5	36.6	73.52	1,372.8	1,106.8	735.6	671.3	64.30	11.440	
8,700.0	7,214.3	8,611.5	7,005.2	34.1	38.0	73.42	1,472.8	1,106.8	736.0	668.5	67.46	10.910	
8,800.0	7,215.0	8,711.4	7,004.4	35.8	39.5	73.31	1,572.8	1,106.8	736.4	665.7	70.67	10.420	
8,900.0	7,215.7	8,811.4	7,003.7	37.5	41.1	73.20	1,672.8	1,106.8	736.8	662.9	73.93	9.967	
9,000.0	7,216.4	8,911.4	7,002.9	39.3	42.7	73.09	1,772.7	1,106.8	737.2	660.0	77.21	9.548	
9,100.0	7,217.1	9,011.4	7,002.2	41.0	44.3	72.98	1,872.7	1,106.8	737.7	657.1	80.53	9.160	
9,200.0	7,217.8	9,111.4	7,001.4	42.8	45.9	72.87	1,972.7	1,106.8	738.1	654.2	83.88	8.800	
9,300.0	7,218.5	9,211.4	7,000.7	44.5	47.6	72.77	2,072.7	1,106.8	738.5	651.3	87.24	8.465	
9,400.0	7,219.2	9,311.4	6,999.9	46.3	49.3	72.66	2,172.7	1,106.8	739.0	648.3	90.63	8.154	
9,500.0	7,219.9	9,411.4	6,999.1	48.1	50.9	72.55	2,272.7	1,106.8	739.4	645.4	94.03	7.863	
9,600.0	7,220.6	9,511.4	6,998.4	49.9	52.7	72.44	2,372.7	1,106.8	739.8	642.4	97.45	7.592	
9,700.0	7,221.3	9,611.3	6,997.6	51.7	54.4	72.34	2,472.7	1,106.8	740.3	639.4	100.88	7.338	
9,800.0	7,222.0	9,711.3	6,996.9	53.5	56.1	72.23	2,572.6	1,106.8	740.7	636.4	104.32	7.100	
9,900.0	7,222.7	9,811.3	6,996.1	55.4	57.9	72.12	2,672.6	1,106.8	741.2	633.4	107.77	6.877	
10,000.0	7,223.4	9,911.3	6,995.4	57.2	59.6	72.01	2,772.6	1,106.8	741.6	630.4	111.23	6.667	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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-241 - Wellbore #1 - Plan #2 (6-11-15)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	7,224.1	10,011.3	6,994.6	59.0	61.4	71.91	2,872.6	1,106.8	742.1	627.4	114.70	6.470	
10,200.0	7,224.8	10,111.3	6,993.9	60.9	63.2	71.80	2,972.6	1,106.8	742.5	624.3	118.17	6.283	
10,300.0	7,225.5	10,211.3	6,993.1	62.7	64.9	71.69	3,072.6	1,106.8	743.0	621.3	121.65	6.108	
10,400.0	7,226.2	10,311.3	6,992.4	64.6	66.7	71.59	3,172.6	1,106.8	743.4	618.3	125.13	5.941	
10,500.0	7,226.9	10,411.3	6,991.6	66.4	68.5	71.48	3,272.5	1,106.8	743.9	615.3	128.61	5.784	
10,600.0	7,227.6	10,511.3	6,990.9	68.3	70.3	71.37	3,372.5	1,106.8	744.4	612.3	132.10	5.635	
10,700.0	7,228.3	10,611.2	6,990.1	70.1	72.2	71.27	3,472.5	1,106.8	744.8	609.2	135.59	5.493	
10,800.0	7,229.0	10,711.2	6,989.3	72.0	74.0	71.16	3,572.5	1,106.8	745.3	606.2	139.09	5.358	
10,900.0	7,229.7	10,811.2	6,988.6	73.9	75.8	71.06	3,672.5	1,106.8	745.8	603.2	142.58	5.230	
11,000.0	7,230.4	10,911.2	6,987.8	75.7	77.6	70.95	3,772.5	1,106.8	746.2	600.2	146.08	5.108	
11,100.0	7,231.1	11,011.2	6,987.1	77.6	79.5	70.84	3,872.5	1,106.8	746.7	597.1	149.57	4.992	
11,200.0	7,231.8	11,111.2	6,986.3	79.5	81.3	70.74	3,972.5	1,106.8	747.2	594.1	153.07	4.881	
11,300.0	7,232.5	11,211.2	6,985.6	81.4	83.1	70.63	4,072.4	1,106.8	747.7	591.1	156.57	4.775	
11,400.0	7,233.2	11,311.2	6,984.8	83.2	85.0	70.53	4,172.4	1,106.8	748.2	588.1	160.06	4.674	
11,500.0	7,233.9	11,411.2	6,984.1	85.1	86.8	70.42	4,272.4	1,106.8	748.6	585.1	163.56	4.577	
11,600.0	7,234.6	11,511.1	6,983.3	87.0	88.7	70.32	4,372.4	1,106.8	749.1	582.1	167.05	4.484	
11,652.0	7,235.0	11,554.2	6,983.0	88.0	89.5	70.27	4,415.4	1,106.8	749.4	580.7	168.72	4.442	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-176.63	-47.4	-2.8	47.4				
100.0	100.0	101.0	101.0	0.1	0.1	-176.63	-47.4	-2.8	47.4	47.2	0.20	239.876	
200.0	200.0	201.0	201.0	0.3	0.3	-176.63	-47.4	-2.8	47.4	46.8	0.65	73.295	
300.0	300.0	301.0	301.0	0.5	0.5	-176.63	-47.4	-2.8	47.4	46.3	1.10	43.256	
400.0	400.0	401.0	401.0	0.8	0.8	-176.63	-47.4	-2.8	47.4	45.9	1.55	30.682	
500.0	500.0	501.0	501.0	1.0	1.0	-176.63	-47.4	-2.8	47.4	45.5	2.00	23.771	
600.0	600.0	601.0	601.0	1.2	1.2	-176.63	-47.4	-2.8	47.4	45.0	2.45	19.402	
700.0	700.0	701.0	701.0	1.4	1.4	-176.63	-47.4	-2.8	47.4	44.6	2.89	16.389	
800.0	800.0	801.0	801.0	1.7	1.7	-176.63	-47.4	-2.8	47.4	44.1	3.34	14.186	
900.0	900.0	901.0	901.0	1.9	1.9	-176.63	-47.4	-2.8	47.4	43.7	3.79	12.505	
966.3	966.3	967.3	967.3	2.0	2.0	-176.63	-47.4	-2.8	47.4	43.4	4.09	11.594	CC
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-176.63	-47.4	-2.8	47.4	43.2	4.24	11.181	
1,100.0	1,100.0	1,100.8	1,100.7	2.3	2.3	-178.20	-47.7	-1.5	47.7	43.0	4.68	10.202	ES
1,200.0	1,200.0	1,200.4	1,200.3	2.6	2.5	177.27	-48.6	2.3	48.7	43.6	5.10	9.547	
1,300.0	1,300.0	1,299.7	1,299.4	2.8	2.7	170.23	-50.1	8.6	50.9	45.4	5.53	9.205	
1,400.0	1,400.0	1,398.7	1,397.9	3.0	3.0	161.57	-52.2	17.4	55.2	49.2	5.97	9.232	
1,500.0	1,500.0	1,497.1	1,495.7	3.2	3.2	152.50	-55.0	28.6	62.2	55.7	6.44	9.655	
1,600.0	1,600.0	1,594.8	1,592.4	3.5	3.5	144.11	-58.2	42.1	72.4	65.5	6.93	10.450	
1,700.0	1,700.0	1,691.8	1,688.0	3.7	3.7	136.96	-62.0	57.9	85.9	78.4	7.43	11.551	
1,800.0	1,800.0	1,787.9	1,782.3	3.9	4.1	131.17	-66.4	75.9	102.6	94.6	7.96	12.881	
1,900.0	1,900.0	1,882.9	1,875.1	4.1	4.4	126.59	-71.2	96.0	122.3	113.8	8.51	14.367	
2,000.0	2,000.0	1,977.9	1,967.3	4.4	4.8	122.96	-76.6	118.1	144.8	135.7	9.08	15.941	
2,100.0	2,100.0	2,075.1	2,061.5	4.6	5.2	-13.14	-82.2	141.3	167.0	157.9	9.09	18.365	
2,200.0	2,199.9	2,172.8	2,156.2	4.8	5.7	-15.47	-87.9	164.7	187.0	177.5	9.50	19.690	
2,300.0	2,299.7	2,271.0	2,251.3	4.9	6.1	-17.56	-93.5	188.1	204.9	195.0	9.91	20.676	
2,400.0	2,399.3	2,369.4	2,346.8	5.1	6.6	-19.53	-99.2	211.7	220.6	210.2	10.32	21.363	
2,500.0	2,498.7	2,468.1	2,442.5	5.3	7.1	-21.44	-104.9	235.2	234.8	224.1	10.76	21.830	
2,600.0	2,598.1	2,566.8	2,538.1	5.6	7.6	-23.15	-110.6	258.8	249.3	238.1	11.20	22.254	
2,700.0	2,697.5	2,665.5	2,633.8	5.8	8.1	-24.68	-116.3	282.4	263.9	252.2	11.65	22.645	
2,800.0	2,796.9	2,764.2	2,729.4	6.0	8.6	-26.05	-122.0	306.0	278.7	266.6	12.12	23.004	
2,900.0	2,896.2	2,862.9	2,825.1	6.3	9.1	-27.27	-127.7	329.5	293.6	281.1	12.59	23.331	
3,000.0	2,995.6	2,961.6	2,920.8	6.5	9.6	-28.38	-133.4	353.1	308.7	295.6	13.06	23.629	
3,100.0	3,095.0	3,060.3	3,016.4	6.8	10.1	-29.39	-139.1	376.7	323.9	310.3	13.55	23.900	
3,200.0	3,194.4	3,158.9	3,112.1	7.0	10.6	-30.30	-144.8	400.3	339.1	325.1	14.04	24.146	
3,300.0	3,293.8	3,257.6	3,207.8	7.3	11.1	-31.14	-150.5	423.9	354.5	339.9	14.55	24.369	
3,400.0	3,393.2	3,356.3	3,303.4	7.6	11.6	-31.90	-156.2	447.4	369.9	354.8	15.05	24.572	
3,500.0	3,492.6	3,455.0	3,399.1	7.8	12.1	-32.61	-161.9	471.0	385.3	369.7	15.56	24.756	
3,600.0	3,592.0	3,553.7	3,494.7	8.1	12.6	-33.26	-167.6	494.6	400.8	384.7	16.08	24.922	
3,700.0	3,691.4	3,652.4	3,590.4	8.4	13.1	-33.86	-173.3	518.2	416.4	399.8	16.61	25.074	
3,800.0	3,790.8	3,751.1	3,686.1	8.6	13.6	-34.42	-179.0	541.8	432.0	414.8	17.13	25.212	
3,900.0	3,890.2	3,849.8	3,781.7	8.9	14.2	-34.94	-184.7	565.3	447.6	429.9	17.67	25.338	
4,000.0	3,989.6	3,948.5	3,877.4	9.2	14.7	-35.43	-190.4	588.9	463.3	445.1	18.20	25.452	
4,100.0	4,089.0	4,047.2	3,973.1	9.5	15.2	-35.88	-196.1	612.5	479.0	460.2	18.74	25.556	
4,200.0	4,188.4	4,145.9	4,068.7	9.8	15.7	-36.31	-201.8	636.1	494.7	475.4	19.29	25.652	
4,300.0	4,287.8	4,244.5	4,164.4	10.1	16.2	-36.71	-207.5	659.6	510.5	490.6	19.83	25.739	
4,400.0	4,387.2	4,343.2	4,260.1	10.3	16.8	-37.08	-213.2	683.2	526.2	505.9	20.38	25.819	
4,500.0	4,486.6	4,441.9	4,355.7	10.6	17.3	-37.43	-218.9	706.8	542.0	521.1	20.93	25.892	
4,600.0	4,586.0	4,540.6	4,451.4	10.9	17.8	-37.77	-224.6	730.4	557.9	536.4	21.49	25.959	
4,700.0	4,685.4	4,639.3	4,547.0	11.2	18.3	-38.08	-230.3	754.0	573.7	551.6	22.05	26.021	
4,800.0	4,784.8	4,738.0	4,642.7	11.5	18.8	-38.38	-236.0	777.5	589.5	566.9	22.61	26.078	
4,900.0	4,884.1	4,836.7	4,738.4	11.8	19.4	-38.66	-241.7	801.1	605.4	582.2	23.17	26.130	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,983.5	4,935.4	4,834.0	12.1	19.9	-38.93	-247.4	824.7	621.3	597.6	23.73	26.178	
5,100.0	5,082.9	5,034.1	4,929.7	12.4	20.4	-39.18	-253.1	848.3	637.2	612.9	24.30	26.223	
5,200.0	5,182.3	5,132.8	5,025.4	12.7	20.9	-39.43	-258.8	871.9	653.1	628.2	24.87	26.264	
5,300.0	5,281.7	5,231.5	5,121.0	13.0	21.4	-39.66	-264.5	895.4	669.0	643.6	25.43	26.302	
5,400.0	5,381.1	5,330.1	5,216.7	13.3	22.0	-39.88	-270.2	919.0	684.9	658.9	26.01	26.337	
5,500.0	5,480.5	5,428.8	5,312.3	13.6	22.5	-40.09	-275.9	942.6	700.8	674.3	26.58	26.370	
5,600.0	5,579.9	5,527.5	5,408.0	13.9	23.0	-40.29	-281.6	966.2	716.8	689.6	27.15	26.400	
5,700.0	5,679.3	5,626.2	5,503.7	14.2	23.5	-40.48	-287.3	989.7	732.7	705.0	27.73	26.428	
5,800.0	5,778.7	5,724.9	5,599.3	14.5	24.1	-40.66	-293.0	1,013.3	748.7	720.4	28.30	26.455	
5,900.0	5,878.1	5,823.6	5,695.0	14.8	24.6	-40.84	-298.7	1,036.9	764.7	735.8	28.88	26.479	
6,000.0	5,977.5	5,922.3	5,790.7	15.1	25.1	-41.01	-304.4	1,060.5	780.6	751.2	29.46	26.501	
6,100.0	6,076.9	6,021.0	5,886.3	15.4	25.6	-41.17	-310.1	1,084.1	796.6	766.6	30.04	26.522	
6,200.0	6,176.3	6,119.7	5,982.0	15.7	26.2	-41.33	-315.8	1,107.6	812.6	782.0	30.62	26.542	
6,300.0	6,275.7	6,218.4	6,077.7	16.0	26.7	-41.47	-321.5	1,131.2	828.6	797.4	31.20	26.560	
6,400.0	6,375.1	6,317.1	6,173.3	16.3	27.2	-41.62	-327.2	1,154.8	844.6	812.8	31.78	26.577	
6,500.0	6,474.6	6,415.6	6,268.9	16.5	27.7	26.10	-332.9	1,178.4	860.7	828.3	32.42	26.547	
6,600.0	6,573.7	6,514.3	6,364.5	16.7	28.2	64.88	-337.9	1,201.9	877.0	844.2	32.88	26.677	
6,700.0	6,670.6	6,616.4	6,463.4	16.8	28.7	75.12	-332.3	1,226.3	893.5	860.3	33.17	26.934	
6,800.0	6,763.6	6,721.2	6,563.3	16.8	29.0	79.36	-312.5	1,251.0	909.6	876.3	33.37	27.262	
6,900.0	6,851.2	6,829.0	6,662.2	16.8	29.4	81.59	-277.7	1,275.5	925.2	891.7	33.50	27.619	
7,000.0	6,931.9	6,939.8	6,757.9	16.8	29.7	82.90	-227.4	1,299.1	939.8	906.1	33.63	27.945	
7,100.0	7,004.2	7,053.6	6,847.8	16.8	29.9	83.73	-161.4	1,321.4	953.1	919.3	33.84	28.163	
7,200.0	7,066.9	7,170.3	6,929.0	16.7	30.1	84.25	-80.2	1,341.6	964.9	930.6	34.24	28.181	
7,300.0	7,119.1	7,289.5	6,998.6	16.7	30.4	84.57	14.9	1,358.9	974.8	939.9	34.91	27.924	
7,400.0	7,159.7	7,411.0	7,053.9	16.9	30.6	84.74	122.0	1,372.8	982.5	946.6	35.93	27.342	
7,500.0	7,188.1	7,533.9	7,092.3	17.7	30.9	84.78	238.2	1,382.5	987.9	950.5	37.36	26.442	
7,600.0	7,203.8	7,657.6	7,112.3	18.6	31.2	84.71	360.0	1,387.6	990.8	951.6	39.19	25.284	
7,700.0	7,207.2	7,771.3	7,114.7	19.6	31.6	84.59	473.7	1,388.4	991.4	950.1	41.25	24.033	
7,800.0	7,207.9	7,871.3	7,113.9	20.8	32.1	84.50	573.7	1,388.4	991.5	948.1	43.39	22.852	
7,900.0	7,208.6	7,971.3	7,113.2	22.0	32.6	84.42	673.7	1,388.4	991.7	945.9	45.73	21.683	
8,000.0	7,209.4	8,071.3	7,112.4	23.3	33.3	84.33	773.6	1,388.4	991.8	943.5	48.27	20.548	
8,100.0	7,210.1	8,171.3	7,111.7	24.7	34.2	84.25	873.6	1,388.4	991.9	941.0	50.96	19.464	
8,200.0	7,210.8	8,271.3	7,110.9	26.2	35.1	84.17	973.6	1,388.4	992.1	938.3	53.79	18.442	
8,300.0	7,211.5	8,371.3	7,110.2	27.7	36.1	84.08	1,073.6	1,388.4	992.2	935.5	56.74	17.487	
8,400.0	7,212.2	8,471.2	7,109.4	29.2	37.2	84.00	1,173.6	1,388.4	992.4	932.6	59.79	16.599	
8,500.0	7,212.9	8,571.2	7,108.6	30.8	38.4	83.92	1,273.6	1,388.4	992.5	929.6	62.92	15.776	
8,600.0	7,213.6	8,671.2	7,107.9	32.5	39.7	83.83	1,373.6	1,388.4	992.7	926.6	66.12	15.015	
8,700.0	7,214.3	8,771.2	7,107.1	34.1	41.0	83.75	1,473.6	1,388.4	992.9	923.5	69.38	14.311	
8,800.0	7,215.0	8,871.2	7,106.4	35.8	42.4	83.66	1,573.5	1,388.4	993.0	920.3	72.69	13.660	
8,900.0	7,215.7	8,971.2	7,105.6	37.5	43.8	83.58	1,673.5	1,388.4	993.2	917.1	76.05	13.059	
9,000.0	7,216.4	9,071.2	7,104.9	39.3	45.3	83.50	1,773.5	1,388.4	993.3	913.9	79.46	12.502	
9,100.0	7,217.1	9,171.2	7,104.1	41.0	46.8	83.41	1,873.5	1,388.4	993.5	910.6	82.89	11.986	
9,200.0	7,217.8	9,271.2	7,103.4	42.8	48.3	83.33	1,973.5	1,388.4	993.7	907.3	86.36	11.506	
9,300.0	7,218.5	9,371.1	7,102.6	44.5	49.9	83.25	2,073.5	1,388.4	993.8	904.0	89.85	11.061	
9,400.0	7,219.2	9,471.1	7,101.8	46.3	51.5	83.16	2,173.5	1,388.4	994.0	900.6	93.37	10.646	
9,500.0	7,219.9	9,571.1	7,101.1	48.1	53.1	83.08	2,273.4	1,388.4	994.2	897.3	96.91	10.259	
9,600.0	7,220.6	9,671.1	7,100.3	49.9	54.7	83.00	2,373.4	1,388.4	994.4	893.9	100.46	9.898	
9,700.0	7,221.3	9,771.1	7,099.6	51.7	56.4	82.91	2,473.4	1,388.4	994.5	890.5	104.04	9.559	
9,800.0	7,222.0	9,871.1	7,098.8	53.5	58.0	82.83	2,573.4	1,388.4	994.7	887.1	107.63	9.242	
9,900.0	7,222.7	9,971.1	7,098.1	55.4	59.7	82.75	2,673.4	1,388.4	994.9	883.7	111.23	8.945	
10,000.0	7,223.4	10,071.1	7,097.3	57.2	61.4	82.66	2,773.4	1,388.4	995.1	880.3	114.84	8.665	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	7,224.1	10,171.1	7,096.6	59.0	63.2	82.58	2,873.4	1,388.4	995.3	876.8	118.46	8.402	
10,200.0	7,224.8	10,271.0	7,095.8	60.9	64.9	82.50	2,973.4	1,388.4	995.5	873.4	122.10	8.153	
10,300.0	7,225.5	10,371.0	7,095.1	62.7	66.6	82.41	3,073.3	1,388.4	995.7	869.9	125.74	7.919	
10,400.0	7,226.2	10,471.0	7,094.3	64.6	68.4	82.33	3,173.3	1,388.4	995.9	866.5	129.39	7.697	
10,500.0	7,226.9	10,571.0	7,093.5	66.4	70.1	82.25	3,273.3	1,388.4	996.1	863.0	133.04	7.487	
10,600.0	7,227.6	10,671.0	7,092.8	68.3	71.9	82.16	3,373.3	1,388.4	996.3	859.5	136.70	7.288	
10,700.0	7,228.3	10,771.0	7,092.0	70.1	73.7	82.08	3,473.3	1,388.4	996.5	856.1	140.37	7.099	
10,800.0	7,229.0	10,871.0	7,091.3	72.0	75.5	82.00	3,573.3	1,388.4	996.7	852.6	144.04	6.919	
10,900.0	7,229.7	10,971.0	7,090.5	73.9	77.3	81.92	3,673.3	1,388.4	996.9	849.1	147.72	6.748	
11,000.0	7,230.4	11,071.0	7,089.8	75.7	79.0	81.83	3,773.2	1,388.4	997.1	845.7	151.40	6.586	
11,100.0	7,231.1	11,171.0	7,089.0	77.6	80.8	81.75	3,873.2	1,388.4	997.3	842.2	155.09	6.430	
11,200.0	7,231.8	11,270.9	7,088.3	79.5	82.7	81.67	3,973.2	1,388.4	997.5	838.7	158.77	6.282	
11,300.0	7,232.5	11,370.9	7,087.5	81.4	84.5	81.58	4,073.2	1,388.4	997.7	835.2	162.47	6.141	
11,400.0	7,233.2	11,470.9	7,086.7	83.2	86.3	81.50	4,173.2	1,388.4	997.9	831.8	166.16	6.006	
11,500.0	7,233.9	11,570.9	7,086.0	85.1	88.1	81.42	4,273.2	1,388.4	998.1	828.3	169.85	5.876	
11,600.0	7,234.6	11,670.9	7,085.2	87.0	89.9	81.34	4,373.2	1,388.4	998.3	824.8	173.55	5.752	
11,652.0	7,235.0	11,705.9	7,085.0	88.0	90.6	81.31	4,408.2	1,388.4	998.6	823.4	175.16	5.701	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	2.0	2.0	0.0	0.0	-178.25	-91.1	-2.8	91.1				
100.0	100.0	102.0	102.0	0.1	0.1	-178.25	-91.1	-2.8	91.1	90.9	0.20	455.502	
200.0	200.0	202.0	202.0	0.3	0.3	-178.25	-91.1	-2.8	91.1	90.5	0.65	140.276	
300.0	300.0	302.0	302.0	0.5	0.6	-178.25	-91.1	-2.8	91.1	90.0	1.10	82.903	
366.0	366.0	368.0	368.0	0.7	0.7	-178.25	-91.1	-2.8	91.1	89.7	1.40	65.284	CC
400.0	400.0	402.0	402.0	0.8	0.8	-178.25	-91.1	-2.8	91.1	89.6	1.55	58.849	
500.0	500.0	501.9	501.9	1.0	1.0	-179.10	-91.2	-1.4	91.2	89.2	1.98	45.952	
600.0	600.0	601.6	601.5	1.2	1.2	178.42	-91.5	2.5	91.5	89.1	2.42	37.838	ES
700.0	700.0	701.1	700.8	1.4	1.4	174.39	-92.0	9.0	92.4	89.5	2.87	32.244	
800.0	800.0	800.0	799.3	1.7	1.7	168.96	-92.6	18.1	94.4	91.1	3.33	28.347	
900.0	900.0	898.6	897.2	1.9	1.9	162.42	-93.5	29.6	98.2	94.4	3.82	25.695	
1,000.0	1,000.0	996.5	994.1	2.1	2.2	155.25	-94.5	43.6	104.4	100.0	4.34	24.030	
1,100.0	1,100.0	1,093.6	1,089.7	2.3	2.6	147.99	-95.7	59.8	113.5	108.6	4.90	23.163	
1,200.0	1,200.0	1,189.7	1,184.1	2.6	2.9	141.10	-97.1	78.3	126.0	120.5	5.49	22.938	SF
1,300.0	1,300.0	1,284.9	1,277.0	2.8	3.3	134.90	-98.6	99.0	141.9	135.8	6.12	23.207	
1,400.0	1,400.0	1,379.0	1,368.3	3.0	3.8	129.51	-100.3	121.6	161.2	154.5	6.76	23.841	
1,500.0	1,500.0	1,471.8	1,457.8	3.2	4.2	124.94	-102.1	146.2	183.7	176.3	7.43	24.730	
1,600.0	1,600.0	1,563.4	1,545.5	3.5	4.8	121.10	-104.1	172.5	209.3	201.2	8.11	25.788	
1,700.0	1,700.0	1,653.6	1,631.2	3.7	5.3	117.90	-106.2	200.5	237.7	228.9	8.82	26.952	
1,800.0	1,800.0	1,742.5	1,715.0	3.9	5.9	115.22	-108.3	230.1	268.8	259.2	9.53	28.192	
1,900.0	1,900.0	1,836.4	1,803.2	4.1	6.5	112.89	-110.7	262.3	301.4	291.1	10.30	29.269	
2,000.0	2,000.0	1,930.3	1,891.3	4.4	7.2	111.01	-113.1	294.5	334.3	323.3	11.06	30.237	
2,100.0	2,100.0	2,024.5	1,979.8	4.6	7.8	-23.71	-115.5	326.8	366.4	356.8	9.63	38.037	
2,200.0	2,199.9	2,119.4	2,068.9	4.8	8.5	-25.04	-117.9	359.4	396.5	386.4	10.08	39.317	
2,300.0	2,299.7	2,214.8	2,158.5	4.9	9.2	-26.33	-120.4	392.1	424.5	414.0	10.54	40.286	
2,400.0	2,399.3	2,310.7	2,248.6	5.1	9.9	-27.60	-122.8	425.0	450.6	439.6	10.99	40.981	
2,500.0	2,498.7	2,407.0	2,339.0	5.3	10.6	-28.96	-125.3	458.1	475.4	463.9	11.45	41.499	
2,600.0	2,598.1	2,503.3	2,429.4	5.6	11.3	-30.22	-127.7	491.1	500.3	488.4	11.92	41.962	
2,700.0	2,697.5	2,599.5	2,519.7	5.8	12.0	-31.37	-130.2	524.1	525.5	513.1	12.40	42.375	
2,800.0	2,796.9	2,695.8	2,610.1	6.0	12.7	-32.41	-132.6	557.1	550.9	538.0	12.89	42.740	
2,900.0	2,896.2	2,792.0	2,700.5	6.3	13.4	-33.36	-135.1	590.2	576.4	563.0	13.39	43.062	
3,000.0	2,995.6	2,888.3	2,790.9	6.5	14.1	-34.23	-137.5	623.2	602.0	588.2	13.89	43.344	
3,100.0	3,095.0	2,984.6	2,881.3	6.8	14.8	-35.03	-140.0	656.2	627.8	613.4	14.40	43.591	
3,200.0	3,194.4	3,080.8	2,971.7	7.0	15.5	-35.77	-142.4	689.2	653.7	638.8	14.92	43.805	
3,300.0	3,293.8	3,177.1	3,062.1	7.3	16.2	-36.45	-144.9	722.3	679.7	664.2	15.45	43.991	
3,400.0	3,393.2	3,273.4	3,152.4	7.6	16.9	-37.08	-147.3	755.3	705.7	689.8	15.98	44.152	
3,500.0	3,492.6	3,369.6	3,242.8	7.8	17.6	-37.66	-149.8	788.3	731.9	715.4	16.52	44.290	
3,600.0	3,592.0	3,465.9	3,333.2	8.1	18.3	-38.21	-152.2	821.4	758.1	741.0	17.07	44.408	
3,700.0	3,691.4	3,562.1	3,423.6	8.4	19.0	-38.72	-154.7	854.4	784.3	766.7	17.62	44.510	
3,800.0	3,790.8	3,658.4	3,514.0	8.6	19.7	-39.19	-157.1	887.4	810.7	792.5	18.18	44.595	
3,900.0	3,890.2	3,754.7	3,604.4	8.9	20.4	-39.64	-159.6	920.4	837.0	818.3	18.74	44.667	
4,000.0	3,989.6	3,850.9	3,694.8	9.2	21.1	-40.06	-162.0	953.5	863.4	844.1	19.30	44.728	
4,100.0	4,089.0	3,947.2	3,785.1	9.5	21.8	-40.45	-164.5	986.5	889.9	870.0	19.87	44.778	
4,200.0	4,188.4	4,043.5	3,875.5	9.8	22.5	-40.83	-166.9	1,019.5	916.4	895.9	20.45	44.819	
4,300.0	4,287.8	4,139.7	3,965.9	10.1	23.2	-41.18	-169.4	1,052.5	942.9	921.9	21.02	44.851	
4,400.0	4,387.2	4,236.0	4,056.3	10.3	23.9	-41.51	-171.8	1,085.6	969.4	947.8	21.60	44.877	
4,500.0	4,486.6	4,332.2	4,146.7	10.6	24.6	-41.82	-174.3	1,118.6	996.0	973.8	22.18	44.897	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	2.0	2.0	0.0	0.0	-180.00	-76.5	0.0	76.5				
100.0	100.0	102.0	102.0	0.1	0.1	-180.00	-76.5	0.0	76.5	76.3	0.20	382.442	
200.0	200.0	202.0	202.0	0.3	0.3	-180.00	-76.5	0.0	76.5	75.9	0.65	117.776	
300.0	300.0	302.0	302.0	0.5	0.6	-180.00	-76.5	0.0	76.5	75.4	1.10	69.606	
400.0	400.0	402.0	402.0	0.8	0.8	-180.00	-76.5	0.0	76.5	75.0	1.55	49.401	
500.0	500.0	502.0	502.0	1.0	1.0	-180.00	-76.5	0.0	76.5	74.5	2.00	38.287	
566.0	566.0	568.0	568.0	1.1	1.1	-180.00	-76.5	0.0	76.5	74.2	2.29	33.338	CC
600.0	600.0	602.0	602.0	1.2	1.2	180.00	-76.5	0.0	76.5	74.1	2.45	31.260	
700.0	700.0	701.7	701.7	1.4	1.4	179.00	-76.7	1.3	76.7	73.8	2.88	26.610	ES
800.0	800.0	801.3	801.2	1.7	1.6	176.10	-77.1	5.3	77.3	74.0	3.31	23.362	
900.0	900.0	900.6	900.3	1.9	1.9	171.44	-77.9	11.7	78.8	75.1	3.75	21.019	
1,000.0	1,000.0	999.6	998.8	2.1	2.1	165.31	-79.0	20.7	81.8	77.6	4.21	19.433	
1,100.0	1,100.0	1,097.9	1,096.5	2.3	2.3	158.20	-80.4	32.2	86.8	82.1	4.69	18.515	
1,200.0	1,200.0	1,195.7	1,193.3	2.6	2.6	150.75	-82.1	46.0	94.6	89.4	5.20	18.189	SF
1,300.0	1,300.0	1,292.6	1,288.8	2.8	2.9	143.54	-84.1	62.2	105.4	99.7	5.74	18.370	
1,400.0	1,400.0	1,388.7	1,383.1	3.0	3.3	137.01	-86.4	80.5	119.6	113.3	6.31	18.961	
1,500.0	1,500.0	1,483.7	1,475.8	3.2	3.7	131.34	-88.9	101.0	137.1	130.2	6.90	19.859	
1,600.0	1,600.0	1,577.6	1,567.0	3.5	4.1	126.57	-91.6	123.5	157.7	150.2	7.52	20.976	
1,700.0	1,700.0	1,670.4	1,656.4	3.7	4.6	122.61	-94.6	147.9	181.4	173.2	8.16	22.236	
1,800.0	1,800.0	1,761.9	1,744.0	3.9	5.0	119.34	-97.8	174.0	207.9	199.1	8.82	23.583	
1,900.0	1,900.0	1,854.2	1,831.9	4.1	5.6	116.59	-101.3	202.4	236.9	227.4	9.50	24.942	
2,000.0	2,000.0	1,949.2	1,922.1	4.4	6.2	114.35	-104.9	231.8	266.7	256.5	10.20	26.136	
2,100.0	2,100.0	2,044.6	2,012.7	4.6	6.8	-20.68	-108.5	261.4	295.6	286.2	9.39	31.488	
2,200.0	2,199.9	2,140.5	2,103.8	4.8	7.4	-22.26	-112.2	291.1	322.4	312.6	9.82	32.820	
2,300.0	2,299.7	2,236.9	2,195.4	4.9	8.0	-23.75	-115.8	321.0	347.2	336.9	10.26	33.826	
2,400.0	2,399.3	2,333.8	2,287.4	5.1	8.6	-25.20	-119.5	351.1	369.9	359.2	10.71	34.544	
2,500.0	2,498.7	2,431.0	2,379.8	5.3	9.2	-26.71	-123.2	381.2	391.2	380.1	11.16	35.058	
2,600.0	2,598.1	2,528.2	2,472.1	5.6	9.8	-28.08	-126.9	411.3	412.8	401.2	11.62	35.519	
2,700.0	2,697.5	2,625.3	2,564.4	5.8	10.5	-29.33	-130.6	441.5	434.6	422.5	12.09	35.934	
2,800.0	2,796.9	2,722.5	2,656.7	6.0	11.1	-30.45	-134.3	471.6	456.5	443.9	12.57	36.306	
2,900.0	2,896.2	2,819.7	2,749.0	6.3	11.7	-31.47	-138.0	501.7	478.6	465.6	13.06	36.638	
3,000.0	2,995.6	2,916.9	2,841.4	6.5	12.4	-32.40	-141.7	531.9	500.9	487.3	13.56	36.933	
3,100.0	3,095.0	3,014.1	2,933.7	6.8	13.0	-33.25	-145.4	562.0	523.2	509.1	14.07	37.194	
3,200.0	3,194.4	3,111.3	3,026.0	7.0	13.6	-34.04	-149.0	592.1	545.7	531.1	14.58	37.425	
3,300.0	3,293.8	3,208.5	3,118.3	7.3	14.3	-34.76	-152.7	622.3	568.2	553.1	15.10	37.629	
3,400.0	3,393.2	3,305.6	3,210.6	7.6	14.9	-35.42	-156.4	652.4	590.8	575.2	15.63	37.809	
3,500.0	3,492.6	3,402.8	3,303.0	7.8	15.6	-36.04	-160.1	682.6	613.5	597.4	16.16	37.968	
3,600.0	3,592.0	3,500.0	3,395.3	8.1	16.2	-36.61	-163.8	712.7	636.3	619.6	16.70	38.107	
3,700.0	3,691.4	3,597.2	3,487.6	8.4	16.9	-37.15	-167.5	742.8	659.1	641.9	17.24	38.229	
3,800.0	3,790.8	3,694.4	3,579.9	8.6	17.5	-37.64	-171.2	773.0	682.0	664.2	17.79	38.336	
3,900.0	3,890.2	3,791.6	3,672.3	8.9	18.1	-38.11	-174.9	803.1	704.9	686.5	18.34	38.430	
4,000.0	3,989.6	3,888.8	3,764.6	9.2	18.8	-38.55	-178.6	833.2	727.8	708.9	18.90	38.512	
4,100.0	4,089.0	3,985.9	3,856.9	9.5	19.4	-38.96	-182.3	863.4	750.8	731.3	19.46	38.584	
4,200.0	4,188.4	4,083.1	3,949.2	9.8	20.1	-39.34	-186.0	893.5	773.8	753.8	20.02	38.646	
4,300.0	4,287.8	4,180.3	4,041.5	10.1	20.7	-39.71	-189.7	923.6	796.9	776.3	20.59	38.700	
4,400.0	4,387.2	4,277.5	4,133.9	10.3	21.4	-40.05	-193.3	953.8	820.0	798.8	21.16	38.747	
4,500.0	4,486.6	4,374.7	4,226.2	10.6	22.0	-40.37	-197.0	983.9	843.1	821.3	21.74	38.787	
4,600.0	4,586.0	4,471.9	4,318.5	10.9	22.7	-40.68	-200.7	1,014.0	866.2	843.9	22.31	38.822	
4,700.0	4,685.4	4,569.0	4,410.8	11.2	23.3	-40.97	-204.4	1,044.2	889.4	866.5	22.89	38.851	
4,800.0	4,784.8	4,666.2	4,503.1	11.5	24.0	-41.25	-208.1	1,074.3	912.5	889.1	23.47	38.876	
4,900.0	4,884.1	4,763.4	4,595.5	11.8	24.6	-41.51	-211.8	1,104.5	935.7	911.7	24.06	38.897	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,983.5	4,860.6	4,687.8	12.1	25.2	-41.76	-215.5	1,134.6	958.9	934.3	24.64	38.914	
5,100.0	5,082.9	4,957.8	4,780.1	12.4	25.9	-42.00	-219.2	1,164.7	982.2	956.9	25.23	38.929	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	2.0	2.0	0.0	0.0	-178.49	-105.6	-2.8	105.7				
100.0	100.0	102.0	102.0	0.1	0.1	-178.49	-105.6	-2.8	105.7	105.5	0.20	528.318	
166.0	166.0	168.0	168.0	0.2	0.3	-178.49	-105.6	-2.8	105.7	105.2	0.50	212.788	CC
200.0	200.0	202.0	202.0	0.3	0.3	-178.49	-105.6	-2.8	105.7	105.0	0.65	162.762	
300.0	300.0	301.7	301.7	0.5	0.5	-179.22	-105.8	-1.4	105.8	104.7	1.09	97.383	ES
400.0	400.0	401.3	401.2	0.8	0.8	178.66	-106.3	2.5	106.3	104.8	1.53	69.557	
500.0	500.0	500.6	500.3	1.0	1.0	175.22	-107.0	9.0	107.4	105.4	1.99	54.087	
600.0	600.0	599.5	598.8	1.2	1.2	170.57	-108.1	17.9	109.6	107.1	2.46	44.498	
700.0	700.0	697.9	696.5	1.4	1.5	164.95	-109.4	29.4	113.4	110.4	2.97	38.228	
800.0	800.0	795.6	793.2	1.7	1.8	158.71	-111.0	43.3	119.4	115.9	3.50	34.087	
900.0	900.0	892.6	888.8	1.9	2.2	152.24	-112.9	59.4	128.2	124.2	4.08	31.434	
1,000.0	1,000.0	988.6	983.0	2.1	2.6	145.92	-115.0	77.8	140.1	135.4	4.69	29.873	
1,100.0	1,100.0	1,083.7	1,075.8	2.3	3.0	140.06	-117.4	98.3	155.3	150.0	5.33	29.121	
1,200.0	1,200.0	1,177.6	1,167.0	2.6	3.4	134.81	-120.0	120.8	173.8	167.8	6.00	28.960	SF
1,300.0	1,300.0	1,270.4	1,256.4	2.8	3.9	130.23	-122.8	145.2	195.6	188.9	6.69	29.221	
1,400.0	1,400.0	1,361.8	1,344.0	3.0	4.5	126.30	-125.9	171.4	220.4	213.0	7.40	29.776	
1,500.0	1,500.0	1,452.0	1,429.7	3.2	5.0	122.95	-129.1	199.2	248.2	240.0	8.13	30.531	
1,600.0	1,600.0	1,540.6	1,513.3	3.5	5.6	120.11	-132.5	228.5	278.7	269.8	8.87	31.418	
1,700.0	1,700.0	1,627.9	1,594.8	3.7	6.2	117.69	-136.1	259.2	311.8	302.1	9.63	32.388	
1,800.0	1,800.0	1,713.5	1,674.2	3.9	6.9	115.64	-139.8	291.2	347.4	337.0	10.39	33.416	
1,900.0	1,900.0	1,803.4	1,756.9	4.1	7.6	113.80	-143.8	326.1	384.8	373.6	11.21	34.317	
2,000.0	2,000.0	1,895.4	1,841.6	4.4	8.4	112.24	-148.0	361.9	422.6	410.6	12.05	35.087	
2,100.0	2,100.0	1,987.8	1,926.6	4.6	9.1	-22.21	-152.2	397.9	459.6	449.7	9.90	46.430	
2,200.0	2,199.9	2,081.0	2,012.3	4.8	9.9	-23.28	-156.4	434.2	494.5	484.1	10.37	47.688	
2,300.0	2,299.7	2,174.8	2,098.6	4.9	10.7	-24.32	-160.6	470.7	527.3	516.5	10.84	48.632	
2,400.0	2,399.3	2,269.3	2,185.6	5.1	11.5	-25.34	-164.9	507.5	558.1	546.8	11.32	49.303	
2,500.0	2,498.7	2,364.2	2,272.9	5.3	12.3	-26.47	-169.2	544.4	587.6	575.8	11.79	49.823	
2,600.0	2,598.1	2,459.1	2,360.2	5.6	13.0	-27.53	-173.5	581.4	617.3	605.0	12.27	50.291	
2,700.0	2,697.5	2,554.0	2,447.5	5.8	13.8	-28.50	-177.8	618.3	647.1	634.3	12.76	50.704	
2,800.0	2,796.9	2,648.9	2,534.8	6.0	14.6	-29.38	-182.0	655.3	677.1	663.8	13.26	51.066	
2,900.0	2,896.2	2,743.8	2,622.1	6.3	15.4	-30.19	-186.3	692.2	707.2	693.4	13.76	51.382	
3,000.0	2,995.6	2,838.7	2,709.4	6.5	16.2	-30.93	-190.6	729.1	737.4	723.2	14.28	51.657	
3,100.0	3,095.0	2,933.6	2,796.7	6.8	17.0	-31.62	-194.9	766.1	767.8	753.0	14.80	51.894	
3,200.0	3,194.4	3,028.5	2,884.0	7.0	17.8	-32.25	-199.2	803.0	798.2	782.9	15.32	52.097	
3,300.0	3,293.8	3,123.3	2,971.3	7.3	18.6	-32.84	-203.5	840.0	828.7	812.9	15.85	52.272	
3,400.0	3,393.2	3,218.2	3,058.6	7.6	19.4	-33.38	-207.8	876.9	859.3	842.9	16.39	52.420	
3,500.0	3,492.6	3,313.1	3,145.9	7.8	20.2	-33.89	-212.1	913.9	890.0	873.1	16.94	52.545	
3,600.0	3,592.0	3,408.0	3,233.2	8.1	21.0	-34.37	-216.4	950.8	920.7	903.2	17.49	52.649	
3,700.0	3,691.4	3,502.9	3,320.5	8.4	21.8	-34.81	-220.7	987.8	951.5	933.4	18.04	52.736	
3,800.0	3,790.8	3,597.8	3,407.8	8.6	22.6	-35.23	-224.9	1,024.7	982.3	963.7	18.60	52.807	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10Q-241 - Wellbore #1 - Plan #2 (6-10-15)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	12.0	12.0	0.0	0.0	-92.06	-29.1	-811.5	812.0				
100.0	100.0	112.0	112.0	0.1	0.1	-92.06	-29.1	-811.5	812.0	811.8	0.22	3,649.019	
200.0	200.0	212.0	212.0	0.3	0.3	-92.06	-29.1	-811.5	812.0	811.3	0.67	1,208.204	
300.0	300.0	312.0	312.0	0.5	0.6	-92.06	-29.1	-811.5	812.0	810.9	1.12	723.954	
400.0	400.0	412.0	412.0	0.8	0.8	-92.06	-29.1	-811.5	812.0	810.4	1.57	516.814	
500.0	500.0	512.0	512.0	1.0	1.0	-92.06	-29.1	-811.5	812.0	810.0	2.02	401.839	
600.0	600.0	612.0	612.0	1.2	1.2	-92.06	-29.1	-811.5	812.0	809.5	2.47	328.711	
700.0	700.0	712.0	712.0	1.4	1.5	-92.06	-29.1	-811.5	812.0	809.1	2.92	278.101	
800.0	800.0	813.8	813.8	1.7	1.7	-92.06	-29.1	-811.4	812.0	808.6	3.37	240.886	
900.0	900.0	928.8	928.8	1.9	1.9	-92.10	-29.6	-810.1	810.8	807.0	3.83	211.752	
1,000.0	1,000.0	1,043.7	1,043.6	2.1	2.2	-92.20	-31.0	-806.6	807.8	803.5	4.28	188.748	
1,100.0	1,100.0	1,158.4	1,158.2	2.3	2.4	-92.37	-33.1	-801.0	803.0	798.3	4.74	169.453	
1,200.0	1,200.0	1,272.8	1,272.3	2.6	2.7	-92.60	-36.1	-793.2	796.3	791.1	5.20	153.016	
1,300.0	1,300.0	1,386.8	1,385.8	2.8	2.9	-92.91	-39.8	-783.4	787.9	782.2	5.68	138.812	
1,400.0	1,400.0	1,500.4	1,498.7	3.0	3.2	-93.29	-44.3	-771.5	777.6	771.5	6.15	126.380	
1,500.0	1,500.0	1,613.4	1,610.7	3.2	3.5	-93.75	-49.6	-757.6	765.6	758.9	6.64	115.357	
1,600.0	1,600.0	1,725.8	1,721.8	3.5	3.9	-94.29	-55.7	-741.7	751.8	744.7	7.13	105.510	
1,700.0	1,700.0	1,833.1	1,827.6	3.7	4.2	-94.90	-62.1	-724.7	736.5	728.9	7.61	96.805	
1,800.0	1,800.0	1,931.6	1,924.6	3.9	4.6	-95.50	-68.2	-708.7	720.8	712.8	8.07	89.319	
1,900.0	1,900.0	2,030.1	2,021.5	4.1	4.9	-96.12	-74.3	-692.7	705.3	696.7	8.53	82.649	
2,000.0	2,000.0	2,128.6	2,118.5	4.4	5.3	-96.77	-80.4	-676.7	689.8	680.8	9.00	76.665	
2,100.0	2,100.0	2,227.3	2,215.7	4.6	5.6	129.51	-86.4	-660.7	675.2	665.6	9.58	70.479	
2,200.0	2,199.9	2,326.3	2,313.2	4.8	6.0	129.22	-92.6	-644.6	662.3	652.3	10.04	65.996	
2,300.0	2,299.7	2,425.6	2,411.0	4.9	6.4	129.06	-98.7	-628.5	651.1	640.6	10.50	62.024	
2,400.0	2,399.3	2,525.1	2,509.1	5.1	6.8	129.07	-104.8	-612.4	641.6	630.6	10.97	58.502	
2,500.0	2,498.7	2,624.8	2,607.2	5.3	7.1	129.10	-111.0	-596.2	633.2	621.7	11.45	55.307	
2,600.0	2,598.1	2,724.4	2,705.3	5.6	7.5	129.12	-117.1	-580.0	624.8	612.8	11.94	52.327	
2,700.0	2,697.5	2,824.1	2,803.5	5.8	7.9	129.14	-123.3	-563.8	616.4	603.9	12.44	49.552	
2,800.0	2,796.9	2,923.7	2,901.6	6.0	8.3	129.16	-129.4	-547.7	608.0	595.0	12.95	46.965	
2,900.0	2,896.2	3,023.4	2,999.7	6.3	8.7	129.18	-135.6	-531.5	599.6	586.1	13.46	44.552	
3,000.0	2,995.6	3,123.0	3,097.9	6.5	9.1	129.20	-141.7	-515.3	591.2	577.2	13.98	42.299	
3,100.0	3,095.0	3,222.7	3,196.0	6.8	9.5	129.22	-147.9	-499.1	582.8	568.3	14.50	40.194	
3,200.0	3,194.4	3,322.3	3,294.1	7.0	9.9	129.24	-154.0	-482.9	574.4	559.4	15.03	38.224	
3,300.0	3,293.8	3,422.0	3,392.2	7.3	10.2	129.27	-160.2	-466.8	566.0	550.5	15.56	36.379	
3,400.0	3,393.2	3,521.6	3,490.4	7.6	10.6	129.29	-166.3	-450.6	557.6	541.5	16.09	34.648	
3,500.0	3,492.6	3,621.3	3,588.5	7.8	11.0	129.31	-172.5	-434.4	549.3	532.6	16.63	33.022	
3,600.0	3,592.0	3,720.9	3,686.6	8.1	11.4	129.34	-178.6	-418.2	540.9	523.7	17.17	31.492	
3,700.0	3,691.4	3,820.6	3,784.8	8.4	11.8	129.37	-184.8	-402.1	532.5	514.8	17.72	30.052	
3,800.0	3,790.8	3,920.2	3,882.9	8.6	12.2	129.39	-190.9	-385.9	524.1	505.8	18.26	28.694	
3,900.0	3,890.2	4,019.9	3,981.0	8.9	12.6	129.42	-197.1	-369.7	515.7	496.9	18.81	27.412	
4,000.0	3,989.6	4,119.5	4,079.2	9.2	13.0	129.45	-203.2	-353.5	507.3	487.9	19.36	26.200	
4,100.0	4,089.0	4,219.1	4,177.3	9.5	13.4	129.48	-209.4	-337.4	498.9	479.0	19.91	25.053	
4,200.0	4,188.4	4,318.8	4,275.4	9.8	13.8	129.51	-215.5	-321.2	490.5	470.1	20.47	23.966	
4,300.0	4,287.8	4,418.4	4,373.6	10.1	14.2	129.54	-221.7	-305.0	482.1	461.1	21.02	22.935	
4,400.0	4,387.2	4,518.1	4,471.7	10.3	14.6	129.57	-227.9	-288.8	473.8	452.2	21.58	21.956	
4,500.0	4,486.6	4,617.7	4,569.8	10.6	15.0	129.60	-234.0	-272.6	465.4	443.2	22.13	21.024	
4,600.0	4,586.0	4,717.4	4,668.0	10.9	15.4	129.64	-240.2	-256.5	457.0	434.3	22.69	20.138	
4,700.0	4,685.4	4,817.0	4,766.1	11.2	15.8	129.68	-246.3	-240.3	448.6	425.3	23.25	19.294	
4,800.0	4,784.8	4,916.7	4,864.2	11.5	16.2	129.71	-252.5	-224.1	440.2	416.4	23.81	18.488	
4,900.0	4,884.1	5,016.3	4,962.4	11.8	16.6	129.75	-258.6	-207.9	431.8	407.4	24.37	17.719	
5,000.0	4,983.5	5,116.0	5,060.5	12.1	17.0	129.79	-264.8	-191.8	423.4	398.5	24.93	16.985	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10Q-241 - Wellbore #1 - Plan #2 (6-10-15)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,082.9	5,215.6	5,158.6	12.4	17.4	129.83	-270.9	-175.6	415.0	389.5	25.49	16.282	
5,200.0	5,182.3	5,315.3	5,256.8	12.7	17.8	129.88	-277.1	-159.4	406.6	380.6	26.05	15.609	
5,300.0	5,281.7	5,414.9	5,354.9	13.0	18.2	129.92	-283.2	-143.2	398.3	371.6	26.61	14.965	
5,400.0	5,381.1	5,514.6	5,453.0	13.3	18.6	129.97	-289.4	-127.1	389.9	362.7	27.17	14.347	
5,500.0	5,480.5	5,609.0	5,546.1	13.6	18.9	130.04	-295.1	-112.0	381.8	354.1	27.70	13.786	
5,600.0	5,579.9	5,700.0	5,636.2	13.9	19.2	130.29	-299.7	-99.9	376.2	348.1	28.13	13.373	
5,700.0	5,679.3	5,787.8	5,723.4	14.2	19.4	130.73	-303.2	-90.7	373.3	344.8	28.52	13.089	
5,751.1	5,730.1	5,833.5	5,769.0	14.3	19.5	131.04	-304.6	-86.9	373.0	344.3	28.71	12.991	CC, ES
5,800.0	5,778.7	5,877.3	5,812.6	14.5	19.6	131.37	-305.8	-83.9	373.3	344.4	28.88	12.926	
5,900.0	5,878.1	5,966.6	5,901.8	14.8	19.7	132.20	-307.3	-79.8	376.1	346.9	29.20	12.881	
6,000.0	5,977.5	6,055.5	5,990.6	15.1	19.8	133.18	-307.9	-78.2	381.9	352.4	29.50	12.946	
6,100.0	6,076.9	6,153.7	6,088.9	15.4	20.0	134.34	-307.9	-78.2	389.5	359.7	29.80	13.073	
6,200.0	6,176.3	6,253.1	6,188.3	15.7	20.1	135.47	-307.9	-78.2	397.3	367.2	30.10	13.200	
6,300.0	6,275.7	6,352.5	6,287.6	16.0	20.2	136.70	-306.9	-78.2	405.2	374.8	30.39	13.336	
6,400.0	6,375.1	6,449.0	6,383.5	16.3	20.3	139.25	-295.8	-78.2	413.7	383.2	30.48	13.573	
6,500.0	6,474.6	6,541.2	6,473.0	16.5	20.4	-148.27	-274.0	-78.2	423.8	393.4	30.38	13.951	
6,600.0	6,573.7	6,630.8	6,556.9	16.7	20.4	-105.51	-242.7	-78.2	435.1	404.8	30.28	14.369	
6,700.0	6,670.6	6,718.2	6,634.6	16.8	20.4	-91.81	-202.8	-78.2	447.1	416.9	30.23	14.789	
6,800.0	6,763.6	6,803.6	6,705.7	16.8	20.4	-84.45	-155.6	-78.2	459.5	429.2	30.24	15.197	
6,900.0	6,851.2	6,887.5	6,770.0	16.8	20.3	-79.47	-101.7	-78.2	471.6	441.3	30.28	15.576	
7,000.0	6,931.9	6,970.0	6,827.0	16.8	20.3	-75.76	-42.2	-78.2	483.1	452.8	30.36	15.915	
7,100.0	7,004.2	7,050.0	6,875.9	16.8	20.3	-72.91	21.1	-78.2	493.6	463.2	30.47	16.200	
7,200.0	7,066.9	7,131.9	6,918.9	16.7	20.3	-70.68	90.8	-78.2	502.9	472.2	30.70	16.381	
7,300.0	7,119.1	7,211.7	6,953.3	16.7	20.4	-69.00	162.7	-78.2	510.5	479.5	31.04	16.446	
7,400.0	7,159.7	7,291.0	6,979.9	16.9	20.6	-67.79	237.3	-78.2	516.4	484.8	31.58	16.354	
7,500.0	7,188.1	7,369.8	6,998.5	17.7	20.8	-67.01	314.0	-78.2	520.4	488.0	32.34	16.090	
7,600.0	7,203.8	7,450.0	7,009.3	18.6	21.2	-66.65	393.3	-78.2	522.4	489.0	33.37	15.653	
7,700.0	7,207.2	7,529.6	7,011.8	19.6	21.8	-66.61	472.8	-78.2	522.6	487.9	34.77	15.030	
7,800.0	7,207.9	7,629.6	7,011.0	20.8	22.7	-66.46	572.8	-78.2	523.2	486.4	36.78	14.226	
7,900.0	7,208.6	7,729.5	7,010.3	22.0	23.8	-66.32	672.8	-78.2	523.8	484.8	38.99	13.433	
8,000.0	7,209.4	7,829.5	7,009.5	23.3	25.0	-66.17	772.8	-78.2	524.4	483.0	41.39	12.671	
8,100.0	7,210.1	7,929.5	7,008.8	24.7	26.3	-66.03	872.8	-78.2	525.0	481.0	43.93	11.951	
8,200.0	7,210.8	8,029.5	7,008.0	26.2	27.7	-65.88	972.8	-78.2	525.6	479.0	46.59	11.280	
8,300.0	7,211.5	8,129.5	7,007.3	27.7	29.1	-65.74	1,072.8	-78.2	526.2	476.8	49.36	10.660	
8,400.0	7,212.2	8,229.5	7,006.5	29.2	30.6	-65.60	1,172.7	-78.2	526.8	474.5	52.21	10.089	
8,500.0	7,212.9	8,329.5	7,005.8	30.8	32.2	-65.45	1,272.7	-78.2	527.4	472.2	55.13	9.566	
8,600.0	7,213.6	8,429.5	7,005.0	32.5	33.8	-65.31	1,372.7	-78.2	528.0	469.9	58.11	9.086	
8,700.0	7,214.3	8,529.5	7,004.2	34.1	35.4	-65.16	1,472.7	-78.2	528.6	467.4	61.13	8.646	
8,800.0	7,215.0	8,629.4	7,003.5	35.8	37.0	-65.02	1,572.7	-78.2	529.2	465.0	64.20	8.243	
8,900.0	7,215.7	8,729.4	7,002.7	37.5	38.7	-64.88	1,672.7	-78.2	529.8	462.5	67.30	7.872	
9,000.0	7,216.4	8,829.4	7,002.0	39.3	40.4	-64.74	1,772.7	-78.2	530.4	460.0	70.43	7.531	
9,100.0	7,217.1	8,929.4	7,001.2	41.0	42.1	-64.60	1,872.7	-78.2	531.0	457.5	73.58	7.217	
9,200.0	7,217.8	9,029.4	7,000.5	42.8	43.8	-64.45	1,972.6	-78.2	531.7	454.9	76.75	6.927	
9,300.0	7,218.5	9,129.4	6,999.7	44.5	45.6	-64.31	2,072.6	-78.2	532.3	452.4	79.94	6.659	
9,400.0	7,219.2	9,229.4	6,999.0	46.3	47.3	-64.17	2,172.6	-78.2	532.9	449.8	83.14	6.410	
9,500.0	7,219.9	9,329.4	6,998.2	48.1	49.1	-64.03	2,272.6	-78.2	533.6	447.2	86.35	6.179	
9,600.0	7,220.6	9,429.4	6,997.5	49.9	50.9	-63.89	2,372.6	-78.2	534.2	444.6	89.58	5.964	
9,700.0	7,221.3	9,529.4	6,996.7	51.7	52.7	-63.75	2,472.6	-78.2	534.8	442.0	92.80	5.763	
9,800.0	7,222.0	9,629.3	6,996.0	53.5	54.5	-63.61	2,572.6	-78.2	535.5	439.4	96.04	5.576	
9,900.0	7,222.7	9,729.3	6,995.2	55.4	56.3	-63.47	2,672.5	-78.2	536.1	436.8	99.28	5.400	
10,000.0	7,223.4	9,829.3	6,994.5	57.2	58.1	-63.34	2,772.5	-78.2	536.8	434.3	102.52	5.236	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10Q-241 - Wellbore #1 - Plan #2 (6-10-15)

Offset Site Error: 0.0 ft

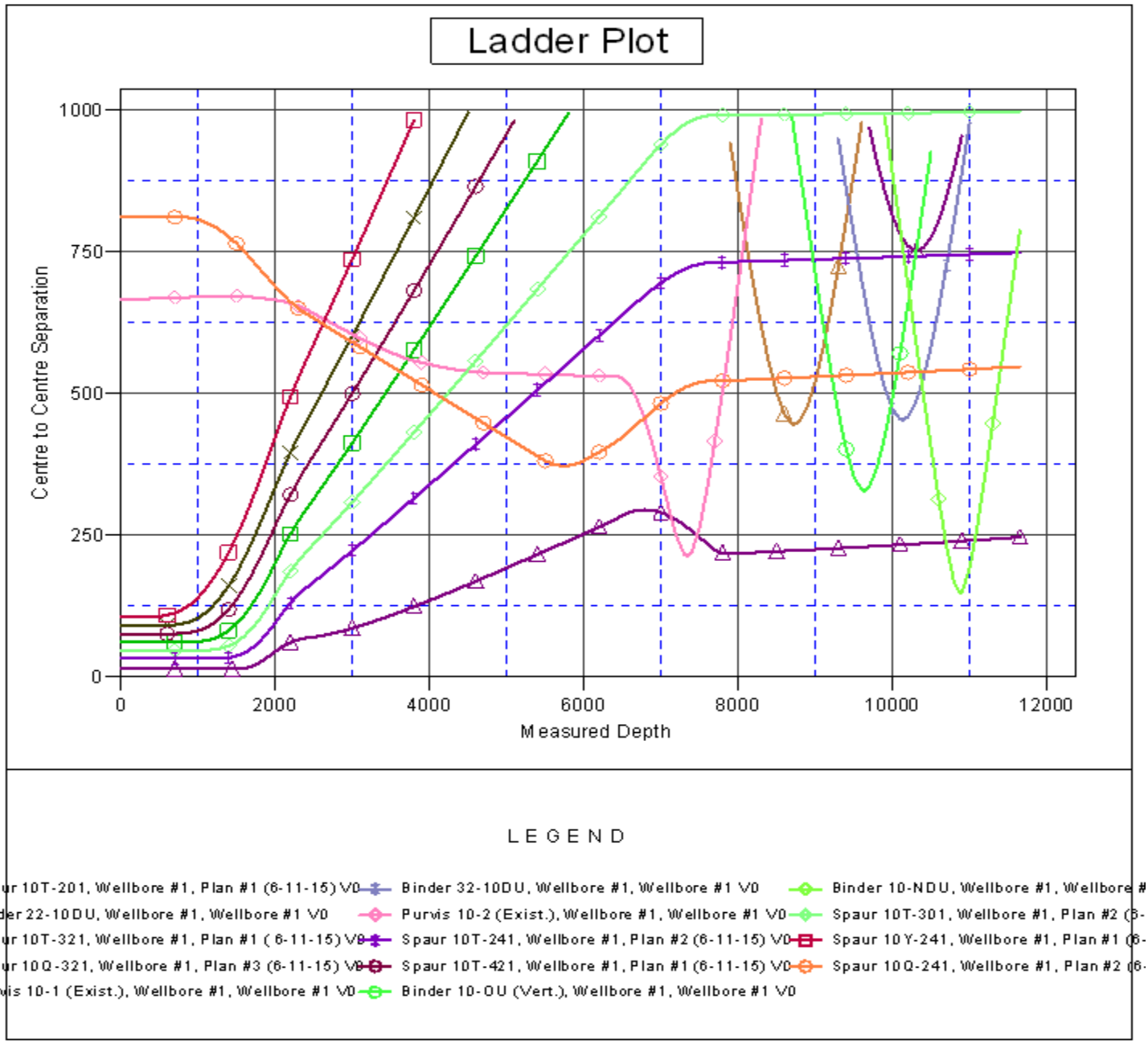
Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	7,224.1	9,929.3	6,993.7	59.0	59.9	-63.20	2,872.5	-78.2	537.4	431.7	105.77	5.081	
10,200.0	7,224.8	10,029.3	6,993.0	60.9	61.7	-63.06	2,972.5	-78.2	538.1	429.1	109.02	4.936	
10,300.0	7,225.5	10,129.3	6,992.2	62.7	63.6	-62.92	3,072.5	-78.2	538.7	426.5	112.26	4.799	
10,400.0	7,226.2	10,229.3	6,991.5	64.6	65.4	-62.78	3,172.5	-78.2	539.4	423.9	115.51	4.670	
10,500.0	7,226.9	10,329.3	6,990.7	66.4	67.2	-62.65	3,272.5	-78.2	540.1	421.3	118.76	4.548	
10,600.0	7,227.6	10,429.3	6,990.0	68.3	69.1	-62.51	3,372.5	-78.2	540.7	418.7	122.01	4.432	
10,700.0	7,228.3	10,529.2	6,989.2	70.1	70.9	-62.37	3,472.4	-78.2	541.4	416.2	125.25	4.323	
10,800.0	7,229.0	10,629.2	6,988.5	72.0	72.8	-62.24	3,572.4	-78.2	542.1	413.6	128.49	4.219	
10,900.0	7,229.7	10,729.2	6,987.7	73.9	74.6	-62.10	3,672.4	-78.2	542.8	411.0	131.73	4.120	
11,000.0	7,230.4	10,829.2	6,987.0	75.7	76.5	-61.97	3,772.4	-78.2	543.5	408.5	134.97	4.027	
11,100.0	7,231.1	10,929.2	6,986.2	77.6	78.3	-61.83	3,872.4	-78.2	544.1	405.9	138.20	3.937	
11,200.0	7,231.8	11,029.2	6,985.5	79.5	80.2	-61.70	3,972.4	-78.2	544.8	403.4	141.43	3.852	
11,300.0	7,232.5	11,129.2	6,984.7	81.4	82.1	-61.56	4,072.4	-78.2	545.5	400.9	144.66	3.771	
11,400.0	7,233.2	11,229.2	6,984.0	83.2	83.9	-61.43	4,172.3	-78.2	546.2	398.3	147.88	3.694	
11,500.0	7,233.9	11,329.2	6,983.2	85.1	85.8	-61.29	4,272.3	-78.2	546.9	395.8	151.10	3.620	
11,600.0	7,234.6	11,429.2	6,982.5	87.0	87.7	-61.16	4,372.3	-78.2	547.6	393.3	154.31	3.549	
11,652.0	7,235.0	11,481.2	6,982.1	88.0	88.7	-61.09	4,424.4	-78.2	548.0	392.0	155.98	3.513	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 @ 4842.0ft (RKB - 13')	Coordinates are relative to: Spaur 10Q-401
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °	Grid Convergence at Surface is: 0.40°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10Q-401
Project:	SEC.10-T4N-R67W	**TVD Reference:**	WELL @ 4842.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	**MD Reference:**	WELL @ 4842.0ft (RKB - 13')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Spaur 10Q-401	**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 @ 4842.0ft (RKB - 13')	Coordinates are relative to: Spaur 10Q-401
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °	Grid Convergence at Surface is: 0.40°