

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Fitzsimmons 9E-403**

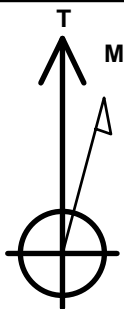
Surface Location: Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4992.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1269212.13	3199779.71	40.070170	-104.786150	
RKB - 13' WELL @ 5005.0ft (RKB - 13')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' E & W Hardline (9E-403)	1.0	-1786.2	-1475.2	Rectangle (Sides: L3976.4 W100.0)
SHL 1015'FNL & 1548'FWL	1.0	0.0	0.0	Point
BHL 500'FSL & 50'FWL	7485.0	-3774.0	-1475.2	Point



Azimuths to True North
Magnetic North: 8.33°

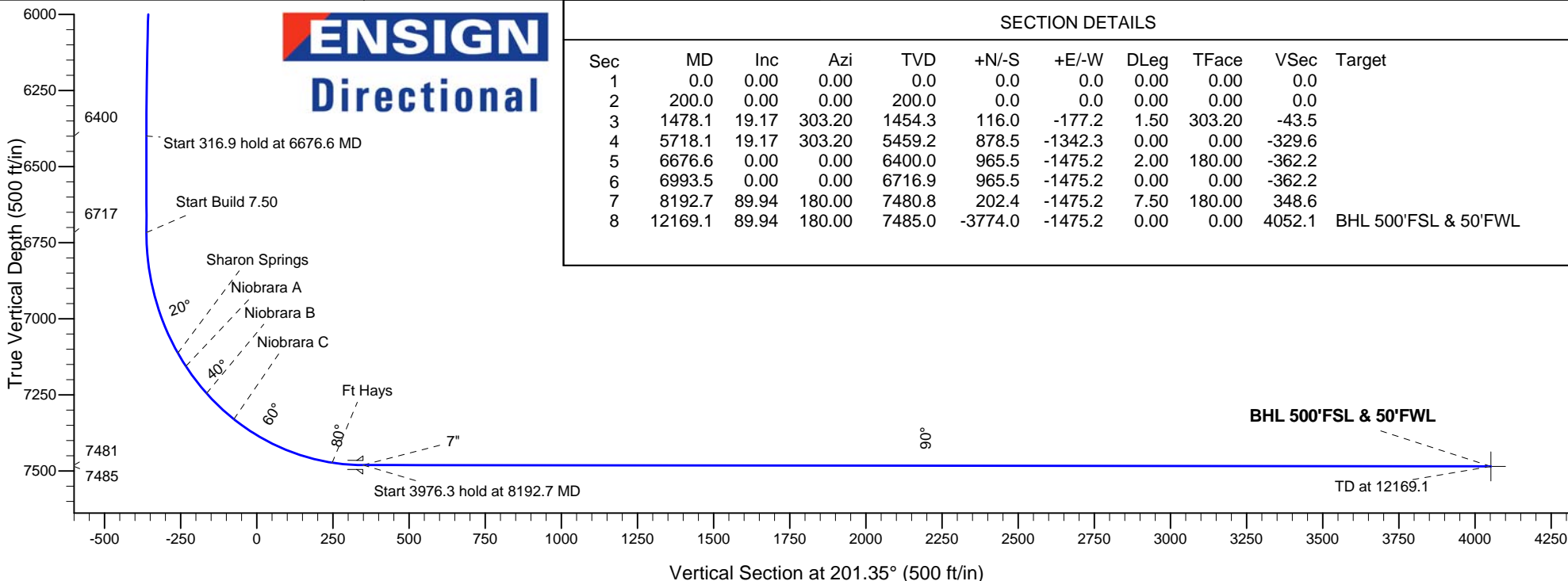
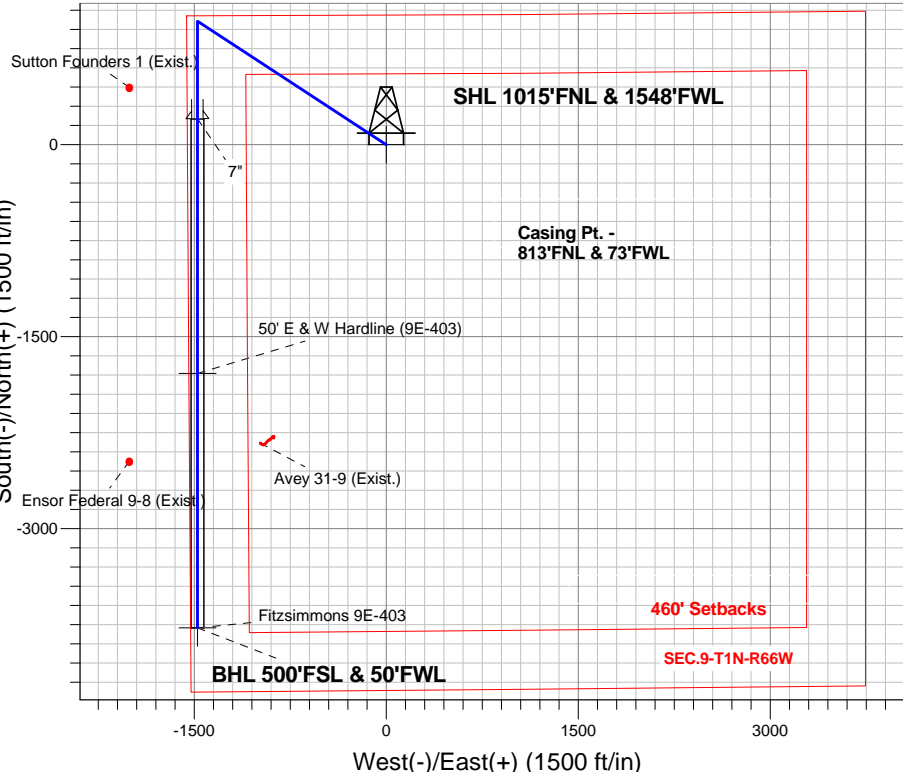
Magnetic Field
Strength: 52546.3snT
Dip Angle: 66.65°
Date: 5/1/2015
Model: IGRF2010

Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W
Fitzsimmons 9E-403
Plan #2 (4-30-15)
10:08, May 01 2015

ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	KOP - Start Build 1.50
5459.2	5718.1	Start Drop -2.00
6400.0	6676.6	Start 316.9 hold at 6676.6 MD
6716.9	6993.5	Start Build 7.50
7480.8	8192.7	Start 3976.3 hold at 8192.7 MD
7485.0	12169.1	TD at 12169.1

South(-)/North(+) (1500 ft/in)





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.9-T1N-R66W

Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W

Fitzsimmons 9E-403

Wellbore #1

Plan: Plan #2 (4-30-15)

Standard Planning Report

01 May, 2015

Database:	Landmark	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Project:	SEC.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	North Reference:	True
Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-15)		

Project	SEC.9-T1N-R66W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site						Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W											
Site Position:						Northing:			1,269,248.97 ft			Latitude:			40.070270		
From:			Lat/Long			Easting:			3,199,826.99 ft			Longitude:			-104.785980		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.46 °		

Well	Fitzsimmons 9E-403					
Well Position	+N-S	-36.5 ft	Northing:	1,269,212.13 ft	Latitude:	40.070170
	+E-W	-47.6 ft	Easting:	3,199,779.71 ft	Longitude:	-104.786150
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,992.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/1/2015	8.33	66.65	52,546

Design	Plan #2 (4-30-15)			
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	201.35

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,478.1	19.17	303.20	1,454.3	116.0	-177.2	1.50	1.50	0.00	303.20	
5,718.1	19.17	303.20	5,459.2	878.5	-1,342.3	0.00	0.00	0.00	0.00	
6,676.6	0.00	0.00	6,400.0	965.5	-1,475.2	2.00	-2.00	0.00	180.00	
6,993.5	0.00	0.00	6,716.9	965.5	-1,475.2	0.00	0.00	0.00	0.00	
8,192.7	89.94	180.00	7,480.8	202.4	-1,475.2	7.50	7.50	0.00	180.00	
12,169.1	89.94	180.00	7,485.0	-3,774.0	-1,475.2	0.00	0.00	0.00	0.00	BHL 500'FSL & 50'I

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Project:	SEC.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	North Reference:	True
Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-15)		

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
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 1015'FNL & 1548'FWL - 50' E & W Hardline (9E-403)									
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
KOP - Start Build 1.50									
300.0	1.50	303.20	300.0	0.7	-1.1	-0.3	1.50	1.50	0.00
400.0	3.00	303.20	399.9	2.9	-4.4	-1.1	1.50	1.50	0.00
500.0	4.50	303.20	499.7	6.4	-9.9	-2.4	1.50	1.50	0.00
600.0	6.00	303.20	599.3	11.5	-17.5	-4.3	1.50	1.50	0.00
700.0	7.50	303.20	698.6	17.9	-27.3	-6.7	1.50	1.50	0.00
800.0	9.00	303.20	797.5	25.8	-39.3	-9.7	1.50	1.50	0.00
900.0	10.50	303.20	896.1	35.0	-53.5	-13.1	1.50	1.50	0.00
1,000.0	12.00	303.20	994.2	45.7	-69.8	-17.1	1.50	1.50	0.00
1,100.0	13.50	303.20	1,091.7	57.8	-88.3	-21.7	1.50	1.50	0.00
1,200.0	15.00	303.20	1,188.6	71.3	-108.9	-26.7	1.50	1.50	0.00
1,300.0	16.50	303.20	1,284.9	86.1	-131.6	-32.3	1.50	1.50	0.00
1,400.0	18.00	303.20	1,380.4	102.4	-156.4	-38.4	1.50	1.50	0.00
1,478.1	19.17	303.20	1,454.3	116.0	-177.2	-43.5	1.50	1.50	0.00
1,500.0	19.17	303.20	1,475.1	119.9	-183.3	-45.0	0.00	0.00	0.00
1,600.0	19.17	303.20	1,569.5	137.9	-210.7	-51.7	0.00	0.00	0.00
1,700.0	19.17	303.20	1,664.0	155.9	-238.2	-58.5	0.00	0.00	0.00
1,800.0	19.17	303.20	1,758.4	173.9	-265.7	-65.2	0.00	0.00	0.00
1,900.0	19.17	303.20	1,852.9	191.9	-293.2	-72.0	0.00	0.00	0.00
2,000.0	19.17	303.20	1,947.3	209.9	-320.7	-78.7	0.00	0.00	0.00
2,100.0	19.17	303.20	2,041.8	227.8	-348.1	-85.5	0.00	0.00	0.00
2,200.0	19.17	303.20	2,136.2	245.8	-375.6	-92.2	0.00	0.00	0.00
2,300.0	19.17	303.20	2,230.7	263.8	-403.1	-99.0	0.00	0.00	0.00
2,400.0	19.17	303.20	2,325.2	281.8	-430.6	-105.7	0.00	0.00	0.00
2,500.0	19.17	303.20	2,419.6	299.8	-458.0	-112.5	0.00	0.00	0.00
2,600.0	19.17	303.20	2,514.1	317.8	-485.5	-119.2	0.00	0.00	0.00
2,700.0	19.17	303.20	2,608.5	335.7	-513.0	-125.9	0.00	0.00	0.00
2,800.0	19.17	303.20	2,703.0	353.7	-540.5	-132.7	0.00	0.00	0.00
2,900.0	19.17	303.20	2,797.4	371.7	-567.9	-139.4	0.00	0.00	0.00
3,000.0	19.17	303.20	2,891.9	389.7	-595.4	-146.2	0.00	0.00	0.00
3,100.0	19.17	303.20	2,986.3	407.7	-622.9	-152.9	0.00	0.00	0.00
3,200.0	19.17	303.20	3,080.8	425.7	-650.4	-159.7	0.00	0.00	0.00
3,300.0	19.17	303.20	3,175.2	443.6	-677.9	-166.4	0.00	0.00	0.00
3,400.0	19.17	303.20	3,269.7	461.6	-705.3	-173.2	0.00	0.00	0.00
3,500.0	19.17	303.20	3,364.2	479.6	-732.8	-179.9	0.00	0.00	0.00
3,600.0	19.17	303.20	3,458.6	497.6	-760.3	-186.7	0.00	0.00	0.00
3,700.0	19.17	303.20	3,553.1	515.6	-787.8	-193.4	0.00	0.00	0.00
3,800.0	19.17	303.20	3,647.5	533.6	-815.2	-200.2	0.00	0.00	0.00
3,900.0	19.17	303.20	3,742.0	551.5	-842.7	-206.9	0.00	0.00	0.00
4,000.0	19.17	303.20	3,836.4	569.5	-870.2	-213.6	0.00	0.00	0.00
4,100.0	19.17	303.20	3,930.9	587.5	-897.7	-220.4	0.00	0.00	0.00
4,200.0	19.17	303.20	4,025.3	605.5	-925.1	-227.1	0.00	0.00	0.00
4,300.0	19.17	303.20	4,119.8	623.5	-952.6	-233.9	0.00	0.00	0.00
4,384.9	19.17	303.20	4,200.0	638.8	-976.0	-239.6	0.00	0.00	0.00
Parkman									
4,400.0	19.17	303.20	4,214.2	641.5	-980.1	-240.6	0.00	0.00	0.00
4,500.0	19.17	303.20	4,308.7	659.4	-1,007.6	-247.4	0.00	0.00	0.00

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Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-15)		

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	19.17	303.20	4,403.2	677.4	-1,035.1	-254.1	0.00	0.00	0.00
4,700.0	19.17	303.20	4,497.6	695.4	-1,062.5	-260.9	0.00	0.00	0.00
4,800.0	19.17	303.20	4,592.1	713.4	-1,090.0	-267.6	0.00	0.00	0.00
4,840.2	19.17	303.20	4,630.0	720.6	-1,101.0	-270.3	0.00	0.00	0.00
Sussex									
4,900.0	19.17	303.20	4,686.5	731.4	-1,117.5	-274.4	0.00	0.00	0.00
5,000.0	19.17	303.20	4,781.0	749.4	-1,145.0	-281.1	0.00	0.00	0.00
5,100.0	19.17	303.20	4,875.4	767.3	-1,172.4	-287.9	0.00	0.00	0.00
5,200.0	19.17	303.20	4,969.9	785.3	-1,199.9	-294.6	0.00	0.00	0.00
5,300.0	19.17	303.20	5,064.3	803.3	-1,227.4	-301.3	0.00	0.00	0.00
5,337.8	19.17	303.20	5,100.0	810.1	-1,237.8	-303.9	0.00	0.00	0.00
Shannon									
5,400.0	19.17	303.20	5,158.8	821.3	-1,254.9	-308.1	0.00	0.00	0.00
5,500.0	19.17	303.20	5,253.2	839.3	-1,282.3	-314.8	0.00	0.00	0.00
5,600.0	19.17	303.20	5,347.7	857.3	-1,309.8	-321.6	0.00	0.00	0.00
5,700.0	19.17	303.20	5,442.2	875.2	-1,337.3	-328.3	0.00	0.00	0.00
5,718.1	19.17	303.20	5,459.2	878.5	-1,342.3	-329.6	0.00	0.00	0.00
Start Drop -2.00									
5,800.0	17.53	303.20	5,537.0	892.6	-1,363.8	-334.8	2.00	-2.00	0.00
5,900.0	15.53	303.20	5,632.8	908.2	-1,387.7	-340.7	2.00	-2.00	0.00
6,000.0	13.53	303.20	5,729.6	921.9	-1,408.6	-345.8	2.00	-2.00	0.00
6,100.0	11.53	303.20	5,827.2	933.8	-1,426.8	-350.3	2.00	-2.00	0.00
6,200.0	9.53	303.20	5,925.6	943.8	-1,442.1	-354.1	2.00	-2.00	0.00
6,300.0	7.53	303.20	6,024.4	952.0	-1,454.5	-357.1	2.00	-2.00	0.00
6,400.0	5.53	303.20	6,123.8	958.2	-1,464.0	-359.4	2.00	-2.00	0.00
6,500.0	3.53	303.20	6,223.5	962.5	-1,470.6	-361.1	2.00	-2.00	0.00
6,600.0	1.53	303.20	6,323.4	964.9	-1,474.3	-362.0	2.00	-2.00	0.00
6,676.6	0.00	303.20	6,400.0	965.5	-1,475.2	-362.2	2.00	-2.00	0.00
Start 316.9 hold at 6676.6 MD									
6,700.0	0.00	0.00	6,423.4	965.5	-1,475.2	-362.2	0.00	0.00	0.00
6,800.0	0.00	0.00	6,523.4	965.5	-1,475.2	-362.2	0.00	0.00	0.00
6,900.0	0.00	0.00	6,623.4	965.5	-1,475.2	-362.2	0.00	0.00	0.00
6,993.5	0.00	0.00	6,716.9	965.5	-1,475.2	-362.2	0.00	0.00	0.00
Start Build 7.50									
7,000.0	0.49	180.00	6,723.4	965.5	-1,475.2	-362.2	7.47	7.47	0.00
7,100.0	7.99	180.00	6,823.0	958.1	-1,475.2	-355.3	7.50	7.50	0.00
7,200.0	15.49	180.00	6,920.9	937.8	-1,475.2	-336.4	7.50	7.50	0.00
7,300.0	22.99	180.00	7,015.2	904.8	-1,475.2	-305.7	7.50	7.50	0.00
7,400.0	30.49	180.00	7,104.5	859.9	-1,475.2	-263.8	7.50	7.50	0.00
7,410.0	31.23	180.00	7,113.0	854.8	-1,475.2	-259.1	7.50	7.50	0.00
Sharon Springs									
7,461.3	35.08	180.00	7,156.0	826.7	-1,475.2	-232.9	7.50	7.50	0.00
Niobrara A									
7,500.0	37.99	180.00	7,187.1	803.7	-1,475.2	-211.5	7.50	7.50	0.00
7,576.6	43.73	180.00	7,245.0	753.6	-1,475.2	-164.8	7.50	7.50	0.00
Niobrara B									
7,600.0	45.49	180.00	7,261.6	737.2	-1,475.2	-149.5	7.50	7.50	0.00
7,700.0	52.99	180.00	7,326.9	661.5	-1,475.2	-79.0	7.50	7.50	0.00
7,705.2	53.37	180.00	7,330.0	657.3	-1,475.2	-75.1	7.50	7.50	0.00
Niobrara C									
7,800.0	60.49	180.00	7,381.7	577.9	-1,475.2	-1.2	7.50	7.50	0.00

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Project:	SEC.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	North Reference:	True
Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-15)		

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)
7,900.0	67.99	180.00	7,425.1	487.9	-1,475.2	82.6	7.50	7.50	0.00
8,000.0	75.49	180.00	7,456.5	393.0	-1,475.2	171.0	7.50	7.50	0.00
8,084.0	81.79	180.00	7,473.0	310.7	-1,475.2	247.7	7.50	7.50	0.00
Ft Hays									
8,100.0	82.99	180.00	7,475.1	294.9	-1,475.2	262.4	7.50	7.50	0.00
8,192.7	89.94	180.00	7,480.8	202.4	-1,475.2	348.6	7.50	7.50	0.00
Start 3976.3 hold at 8192.7 MD - 7"									
8,200.0	89.94	180.00	7,480.8	195.1	-1,475.2	355.4	0.03	0.03	0.00
8,300.0	89.94	180.00	7,480.9	95.1	-1,475.2	448.5	0.00	0.00	0.00
8,400.0	89.94	180.00	7,481.1	-4.9	-1,475.2	541.6	0.00	0.00	0.00
8,500.0	89.94	180.00	7,481.2	-104.9	-1,475.2	634.8	0.00	0.00	0.00
8,600.0	89.94	180.00	7,481.3	-204.9	-1,475.2	727.9	0.00	0.00	0.00
8,700.0	89.94	180.00	7,481.4	-304.9	-1,475.2	821.0	0.00	0.00	0.00
8,800.0	89.94	180.00	7,481.5	-404.9	-1,475.2	914.2	0.00	0.00	0.00
8,900.0	89.94	180.00	7,481.6	-504.9	-1,475.2	1,007.3	0.00	0.00	0.00
9,000.0	89.94	180.00	7,481.7	-604.9	-1,475.2	1,100.5	0.00	0.00	0.00
9,100.0	89.94	180.00	7,481.8	-704.9	-1,475.2	1,193.6	0.00	0.00	0.00
9,200.0	89.94	180.00	7,481.9	-804.9	-1,475.2	1,286.7	0.00	0.00	0.00
9,300.0	89.94	180.00	7,482.0	-904.9	-1,475.2	1,379.9	0.00	0.00	0.00
9,400.0	89.94	180.00	7,482.1	-1,004.9	-1,475.2	1,473.0	0.00	0.00	0.00
9,500.0	89.94	180.00	7,482.2	-1,104.9	-1,475.2	1,566.1	0.00	0.00	0.00
9,600.0	89.94	180.00	7,482.3	-1,204.9	-1,475.2	1,659.3	0.00	0.00	0.00
9,700.0	89.94	180.00	7,482.4	-1,304.9	-1,475.2	1,752.4	0.00	0.00	0.00
9,800.0	89.94	180.00	7,482.5	-1,404.9	-1,475.2	1,845.6	0.00	0.00	0.00
9,900.0	89.94	180.00	7,482.6	-1,504.9	-1,475.2	1,938.7	0.00	0.00	0.00
10,000.0	89.94	180.00	7,482.7	-1,604.9	-1,475.2	2,031.8	0.00	0.00	0.00
10,100.0	89.94	180.00	7,482.8	-1,704.9	-1,475.2	2,125.0	0.00	0.00	0.00
10,200.0	89.94	180.00	7,482.9	-1,804.9	-1,475.2	2,218.1	0.00	0.00	0.00
10,300.0	89.94	180.00	7,483.0	-1,904.9	-1,475.2	2,311.2	0.00	0.00	0.00
10,400.0	89.94	180.00	7,483.1	-2,004.9	-1,475.2	2,404.4	0.00	0.00	0.00
10,500.0	89.94	180.00	7,483.3	-2,104.9	-1,475.2	2,497.5	0.00	0.00	0.00
10,600.0	89.94	180.00	7,483.4	-2,204.9	-1,475.2	2,590.7	0.00	0.00	0.00
10,700.0	89.94	180.00	7,483.5	-2,304.9	-1,475.2	2,683.8	0.00	0.00	0.00
10,800.0	89.94	180.00	7,483.6	-2,404.9	-1,475.2	2,776.9	0.00	0.00	0.00
10,900.0	89.94	180.00	7,483.7	-2,504.9	-1,475.2	2,870.1	0.00	0.00	0.00
11,000.0	89.94	180.00	7,483.8	-2,604.9	-1,475.2	2,963.2	0.00	0.00	0.00
11,100.0	89.94	180.00	7,483.9	-2,704.9	-1,475.2	3,056.3	0.00	0.00	0.00
11,200.0	89.94	180.00	7,484.0	-2,804.9	-1,475.2	3,149.5	0.00	0.00	0.00
11,300.0	89.94	180.00	7,484.1	-2,904.9	-1,475.2	3,242.6	0.00	0.00	0.00
11,400.0	89.94	180.00	7,484.2	-3,004.9	-1,475.2	3,335.8	0.00	0.00	0.00
11,500.0	89.94	180.00	7,484.3	-3,104.9	-1,475.2	3,428.9	0.00	0.00	0.00
11,600.0	89.94	180.00	7,484.4	-3,204.9	-1,475.2	3,522.0	0.00	0.00	0.00
11,700.0	89.94	180.00	7,484.5	-3,304.9	-1,475.2	3,615.2	0.00	0.00	0.00
11,800.0	89.94	180.00	7,484.6	-3,404.9	-1,475.2	3,708.3	0.00	0.00	0.00
11,900.0	89.94	180.00	7,484.7	-3,504.9	-1,475.2	3,801.4	0.00	0.00	0.00
12,000.0	89.94	180.00	7,484.8	-3,604.9	-1,475.2	3,894.6	0.00	0.00	0.00
12,100.0	89.94	180.00	7,484.9	-3,704.9	-1,475.2	3,987.7	0.00	0.00	0.00
12,169.1	89.94	180.00	7,485.0	-3,774.0	-1,475.2	4,052.1	0.00	0.00	0.00
BHL 500'FSL & 50'FWL									

Database:	Landmark	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Project:	SEC.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	North Reference:	True
Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (4-30-15)		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N-S	+E-W	Northing	Easting		
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	Latitude	Longitude
SHL 1015'FNL & 154ft - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,269,212.16	3,199,779.71	40.070170	-104.786150
BHL 500'FSL & 50'FW - plan hits target center - Point	0.00	0.00	7,485.0	-3,774.0	-1,475.2	1,265,426.55	3,198,335.02	40.059810	-104.791420
50' E & W Hardline (9 - plan misses target center by 2316.6ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Rectangle (sides W3,976.4 H100.0 D0.0)	0.00	0.00	1.0	-1,786.2	-1,475.2	1,267,414.21	3,198,319.00	40.065267	-104.791421

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
8,192.7	7,480.8	7"	7	7-1/2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,384.9	4,200.0	Parkman		0.00		
4,840.2	4,630.0	Sussex		0.00		
5,337.8	5,100.0	Shannon		0.00		
7,410.0	7,113.0	Sharon Springs		0.00		
7,461.3	7,156.0	Niobrara A		0.00		
7,576.6	7,245.0	Niobrara B		0.00		
7,705.2	7,330.0	Niobrara C		0.00		
8,084.0	7,473.0	Ft Hays		0.00		
	7,495.0	Codell		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment	
200.0	200.0	0.0	0.0	KOP - Start Build 1.50	
5,718.1	5,459.2	878.5	-1,342.3	Start Drop -2.00	
6,676.6	6,400.0	965.5	-1,475.2	Start 316.9 hold at 6676.6 MD	
6,993.5	6,716.9	965.5	-1,475.2	Start Build 7.50	
8,192.7	7,480.8	202.4	-1,475.2	Start 3976.3 hold at 8192.7 MD	
12,169.1	7,485.0	-3,774.0	-1,475.2	TD at 12169.1	

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.9-T1N-R66W

Fitzsimmons 1N66W9JM (West) Pad

Sec.9-T1N-R66W

Fitzsimmons 9E-403

Wellbore #1

Plan #2 (4-30-15)

Anticollision Report

01 May, 2015

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (4-30-15)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 800.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 5/1/2015			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,169.1	Plan #2 (4-30-15) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells Sec.9-T1N-R66W						
Avey 31-9 (Exist.) - Wellbore #1 - Wellbore #1	10,731.0	7,477.0	495.4	425.0	7.045	CC, ES
Avey 31-9 (Exist.) - Wellbore #1 - Wellbore #1	10,800.0	7,476.5	500.1	428.6	6.993	SF
Ensor Federal 9-8 (Exist.) - Wellbore #1 - Wellbore #1	10,868.5	7,440.6	531.7	326.5	2.591	CC, ES
Ensor Federal 9-8 (Exist.) - Wellbore #1 - Wellbore #1	10,900.0	7,440.7	532.7	326.9	2.588	SF
Sutton Founders 1 (Exist.) - Wellbore #1 - Wellbore #1	7,942.4	7,392.9	531.5	361.0	3.117	CC, ES, SF
Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W						
Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4-30-15)	200.0	198.0	688.1	687.4	1,027.277	CC
Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4-30-15)	300.0	298.0	688.5	687.4	617.537	ES
Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4-30-15)	1,600.0	1,613.7	787.7	778.9	89.338	SF
Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W						
Fitzsimmons 9E-223 - Wellbore #1 - Plan #2 (5-01-15)	200.0	200.0	31.1	30.4	46.110	CC, ES
Fitzsimmons 9E-223 - Wellbore #1 - Plan #2 (5-01-15)	12,169.1	11,933.3	292.1	185.7	2.746	SF
Fitzsimmons 9E-323 - Wellbore #1 - Plan #2 (4-30-15)	200.0	200.0	59.9	59.2	88.868	CC, ES
Fitzsimmons 9E-323 - Wellbore #1 - Plan #2 (4-30-15)	12,169.1	11,975.4	412.2	265.2	2.804	SF
Fitzsimmons 9J-243 - Wellbore #1 - Plan #2 (4-30-15)	200.0	200.0	93.2	92.6	138.275	CC
Fitzsimmons 9J-243 - Wellbore #1 - Plan #2 (4-30-15)	300.0	300.0	93.7	92.5	83.664	ES
Fitzsimmons 9J-243 - Wellbore #1 - Plan #2 (4-30-15)	12,169.1	11,853.9	700.6	549.8	4.647	SF
Fitzsimmons 9J-443 - Wellbore #1 - Plan #2 (5-01-15)	200.0	200.0	122.1	121.4	181.079	CC
Fitzsimmons 9J-443 - Wellbore #1 - Plan #2 (5-01-15)	300.0	300.0	122.5	121.4	109.446	ES
Fitzsimmons 9J-443 - Wellbore #1 - Plan #2 (5-01-15)	4,900.0	4,898.8	795.8	762.5	23.869	SF

Offset Design	Existing Wells Sec.9-T1N-R66W - Avey 31-9 (Exist.) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 ft
Survey Program:	100-NS-GYRO-MS											Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
10,200.0	7,482.9	7,480.7	7,478.8	48.4	16.3	-91.19	-2,335.8	-979.9	726.1	664.8	61.31	11.844	
10,300.0	7,483.0	7,480.0	7,478.1	49.9	16.3	-91.11	-2,335.8	-979.9	656.6	593.6	62.97	10.427	
10,400.0	7,483.1	7,479.3	7,477.4	51.5	16.3	-91.03	-2,335.9	-979.9	595.7	531.1	64.65	9.215	
10,500.0	7,483.3	7,478.6	7,476.7	53.2	16.3	-90.95	-2,335.9	-979.9	546.6	480.2	66.34	8.238	
10,600.0	7,483.4	7,477.9	7,476.0	54.8	16.3	-90.87	-2,335.9	-979.9	512.4	444.3	68.06	7.529	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.9-T1N-R66W - Avey 31-9 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,700.0	7,483.5	7,477.2	7,475.3	56.5	16.3	-90.78	-2,335.9	-979.9	496.3	426.5	69.78	7.113		
10,731.0	7,483.5	7,477.0	7,475.1	57.0	16.3	-90.76	-2,335.9	-979.9	495.4	425.0	70.32	7.045 CC, ES		
10,800.0	7,483.6	7,476.5	7,474.6	58.2	16.2	-90.70	-2,335.9	-979.9	500.1	428.6	71.52	6.993 SF		
10,900.0	7,483.7	7,475.8	7,473.9	59.8	16.2	-90.62	-2,335.9	-979.8	523.4	450.1	73.26	7.144		
11,000.0	7,483.8	7,475.0	7,473.1	61.6	16.2	-90.54	-2,335.9	-979.8	563.7	488.7	75.02	7.514		
11,100.0	7,483.9	7,474.3	7,472.4	63.3	16.2	-90.46	-2,335.9	-979.8	617.7	540.9	76.79	8.044		
11,200.0	7,484.0	7,473.6	7,471.7	65.0	16.2	-90.37	-2,335.9	-979.8	682.2	603.6	78.56	8.683		
11,300.0	7,484.1	7,472.9	7,471.0	66.7	16.2	-90.29	-2,335.9	-979.8	754.4	674.1	80.35	9.390		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.9-T1N-R66W - Ensor Federal 9-8 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:		0.0 ft	
Survey Program: 8088-UNKNOWN												Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis		Distance							Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
10,300.0	7,483.0	7,440.0	7,440.0	49.9	148.8	89.94	-2,473.4	-2,006.9	778.4	583.0	195.43	3.983			
10,400.0	7,483.1	7,440.1	7,440.1	51.5	148.8	89.95	-2,473.4	-2,006.9	708.7	511.6	197.12	3.595			
10,500.0	7,483.3	7,440.3	7,440.3	53.2	148.8	89.96	-2,473.4	-2,006.9	647.0	448.1	198.83	3.254			
10,600.0	7,483.4	7,440.4	7,440.4	54.8	148.8	89.97	-2,473.4	-2,006.9	595.7	395.1	200.55	2.970			
10,700.0	7,483.5	7,440.5	7,440.5	56.5	148.8	89.98	-2,473.4	-2,006.9	557.8	355.5	202.28	2.758			
10,800.0	7,483.6	7,440.6	7,440.6	58.2	148.8	89.99	-2,473.4	-2,006.9	536.1	332.1	204.03	2.628			
10,868.5	7,483.6	7,440.6	7,440.6	59.3	148.8	90.00	-2,473.4	-2,006.9	531.7	326.5	205.24	2.591 CC, ES			
10,900.0	7,483.7	7,440.7	7,440.7	59.8	148.8	90.00	-2,473.4	-2,006.9	532.7	326.9	205.79	2.588 SF			
11,000.0	7,483.8	7,440.8	7,440.8	61.6	148.8	90.01	-2,473.4	-2,006.9	547.7	340.2	207.56	2.639			
11,100.0	7,483.9	7,440.9	7,440.9	63.3	148.8	90.03	-2,473.4	-2,006.9	579.9	370.6	209.33	2.770			
11,200.0	7,484.0	7,441.0	7,441.0	65.0	148.8	90.04	-2,473.4	-2,006.9	626.6	415.5	211.12	2.968			
11,300.0	7,484.1	7,441.1	7,441.1	66.7	148.8	90.05	-2,473.4	-2,006.9	684.8	471.9	212.91	3.216			
11,400.0	7,484.2	7,441.2	7,441.2	68.5	148.8	90.06	-2,473.4	-2,006.9	751.8	537.1	214.71	3.501			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.9-T1N-R66W - Sutton Founders 1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 8070-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,700.0	5,442.2	5,395.2	5,395.2	34.0	107.9	-66.94	448.2	-2,006.7	794.0	655.2	138.85	5.718		
5,718.1	5,459.2	5,412.2	5,412.2	34.2	108.2	-67.32	448.2	-2,006.7	791.6	652.2	139.40	5.679		
5,800.0	5,537.0	5,490.0	5,490.0	34.7	109.8	-68.80	448.2	-2,006.7	781.5	639.6	141.89	5.508		
5,900.0	5,632.8	5,585.8	5,585.8	35.1	111.7	-70.50	448.2	-2,006.7	771.2	626.5	144.75	5.328		
6,000.0	5,729.6	5,682.6	5,682.6	35.6	113.7	-72.07	448.2	-2,006.7	763.0	615.5	147.49	5.173		
6,100.0	5,827.2	5,780.2	5,780.2	35.9	115.6	-73.47	448.2	-2,006.7	756.4	606.3	150.12	5.039		
6,200.0	5,925.6	5,878.6	5,878.6	36.3	117.6	-74.69	448.2	-2,006.7	751.3	598.6	152.64	4.922		
6,300.0	6,024.4	5,977.4	5,977.4	36.5	119.5	-75.70	448.2	-2,006.7	747.5	592.4	155.06	4.820		
6,400.0	6,123.8	6,076.8	6,076.8	36.7	121.5	-76.49	448.2	-2,006.7	744.7	587.3	157.40	4.731		
6,500.0	6,223.5	6,176.5	6,176.5	36.9	123.5	-77.05	448.2	-2,006.7	742.9	583.2	159.65	4.653		
6,600.0	6,323.4	6,276.4	6,276.4	37.0	125.5	-77.36	448.2	-2,006.7	741.9	580.1	161.81	4.585		
6,676.6	6,400.0	6,353.0	6,353.0	37.1	127.1	-134.23	448.2	-2,006.7	741.7	578.3	163.42	4.538		
6,700.0	6,423.4	6,376.4	6,376.4	37.1	127.5	-134.23	448.2	-2,006.7	741.7	577.8	163.91	4.525		
6,800.0	6,523.4	6,476.4	6,476.4	37.2	129.5	-134.23	448.2	-2,006.7	741.7	575.7	165.99	4.468		
6,900.0	6,623.4	6,576.4	6,576.4	37.3	131.5	-134.23	448.2	-2,006.7	741.7	573.6	168.08	4.413		
6,993.5	6,716.9	6,669.9	6,669.9	37.4	133.4	-134.23	448.2	-2,006.7	741.7	571.7	170.03	4.362		
7,000.0	6,723.4	6,676.4	6,676.4	37.4	133.5	45.78	448.2	-2,006.7	741.7	571.5	170.16	4.359		
7,050.0	6,773.3	6,726.3	6,726.3	37.4	134.5	45.97	448.2	-2,006.7	740.2	569.3	170.95	4.330		
7,100.0	6,823.0	6,776.0	6,776.0	37.4	135.5	46.46	448.2	-2,006.7	736.5	565.2	171.31	4.299		
7,150.0	6,872.3	6,825.3	6,825.3	37.4	136.5	47.27	448.2	-2,006.7	730.6	559.4	171.28	4.266		
7,200.0	6,920.9	6,873.9	6,873.9	37.3	137.5	48.40	448.2	-2,006.7	722.6	551.7	170.92	4.228		
7,250.0	6,968.6	6,921.6	6,921.6	37.3	138.4	49.86	448.2	-2,006.7	712.6	542.3	170.30	4.184		
7,300.0	7,015.2	6,968.2	6,968.2	37.2	139.4	51.65	448.2	-2,006.7	700.7	531.2	169.52	4.134		
7,350.0	7,060.6	7,013.6	7,013.6	37.1	140.3	53.79	448.2	-2,006.7	687.2	518.5	168.71	4.073		
7,400.0	7,104.5	7,057.5	7,057.5	36.9	141.1	56.27	448.2	-2,006.7	672.3	504.3	167.99	4.002		
7,450.0	7,146.7	7,099.7	7,099.7	36.8	142.0	59.09	448.2	-2,006.7	656.3	488.8	167.47	3.919		
7,500.0	7,187.1	7,140.1	7,140.1	36.6	142.8	62.20	448.2	-2,006.7	639.4	472.2	167.26	3.823		
7,550.0	7,225.4	7,178.4	7,178.4	36.5	143.6	65.57	448.2	-2,006.7	622.2	454.8	167.38	3.717		
7,600.0	7,261.6	7,214.6	7,214.6	36.3	144.3	69.13	448.2	-2,006.7	605.0	437.2	167.80	3.605		
7,650.0	7,295.5	7,248.5	7,248.5	36.1	145.0	72.78	448.2	-2,006.7	588.3	419.9	168.43	3.493		
7,700.0	7,326.9	7,279.9	7,279.9	35.9	145.6	76.42	448.2	-2,006.7	572.7	403.6	169.13	3.386		
7,750.0	7,355.7	7,308.7	7,308.7	35.7	146.2	79.91	448.2	-2,006.7	558.7	389.0	169.76	3.291		
7,800.0	7,381.7	7,334.7	7,334.7	35.5	146.7	83.14	448.2	-2,006.7	547.1	376.9	170.22	3.214		
7,850.0	7,404.9	7,357.9	7,357.9	35.3	147.2	86.00	448.2	-2,006.7	538.3	367.8	170.48	3.158		
7,900.0	7,425.1	7,378.1	7,378.1	35.1	147.6	88.39	448.2	-2,006.7	533.0	362.4	170.55	3.125		
7,942.4	7,439.9	7,392.9	7,392.9	34.9	147.9	90.00	448.2	-2,006.7	531.5	361.0	170.52	3.117 CC, ES, SF		
7,950.0	7,442.3	7,395.3	7,395.3	34.9	147.9	90.24	448.2	-2,006.7	531.5	361.0	170.51	3.117		
8,000.0	7,456.5	7,409.5	7,409.5	34.7	148.2	91.49	448.2	-2,006.7	534.3	363.9	170.46	3.135		
8,050.0	7,467.4	7,420.4	7,420.4	34.5	148.4	92.09	448.2	-2,006.7	541.5	371.1	170.47	3.177		
8,100.0	7,475.1	7,428.1	7,428.1	34.3	148.6	92.02	448.2	-2,006.7	553.2	382.5	170.61	3.242		
8,150.0	7,479.6	7,432.6	7,432.6	34.2	148.7	91.25	448.2	-2,006.7	569.0	398.1	170.83	3.331		
8,192.7	7,480.8	7,433.8	7,433.8	34.0	148.7	90.03	448.2	-2,006.7	585.6	414.6	171.02	3.424		
8,200.0	7,480.8	7,433.8	7,433.8	34.0	148.7	90.03	448.2	-2,006.7	588.7	417.6	171.03	3.442		
8,300.0	7,480.9	7,433.9	7,433.9	33.7	148.7	90.04	448.2	-2,006.7	638.1	466.9	171.17	3.728		
8,400.0	7,481.1	7,434.1	7,434.1	33.5	148.7	90.05	448.2	-2,006.7	698.4	526.9	171.47	4.073		
8,500.0	7,481.2	7,434.2	7,434.2	33.3	148.7	90.06	448.2	-2,006.7	767.1	595.1	171.93	4.462		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4														Offset Well Error:	0.0 ft
Survey Program: 0-MWD															
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	51.72	426.2	540.2	688.1						
100.0	100.0	98.0	98.0	0.1	0.1	51.72	426.2	540.2	688.1	687.9	0.22	3,092.153			
200.0	200.0	198.0	198.0	0.3	0.3	51.72	426.2	540.2	688.1	687.4	0.67	1,027.277 CC			
300.0	300.0	298.0	298.0	0.6	0.6	108.62	426.2	540.2	688.5	687.4	1.11	617.537 ES			
400.0	399.9	397.9	397.9	0.8	0.8	108.91	426.2	540.2	689.8	688.2	1.56	441.236			
500.0	499.7	497.7	497.7	1.0	1.0	109.39	426.2	540.2	691.9	689.9	2.02	341.841			
600.0	599.3	597.3	597.3	1.3	1.2	110.05	426.2	540.2	695.0	692.5	2.50	277.790			
700.0	698.6	696.6	696.6	1.6	1.5	110.89	426.2	540.2	699.1	696.1	3.00	232.937			
800.0	797.5	795.5	795.5	1.9	1.7	111.90	426.2	540.2	704.4	700.9	3.53	199.760			
900.0	896.1	894.1	894.1	2.2	1.9	113.06	426.2	540.2	711.0	706.9	4.08	174.291			
1,000.0	994.2	992.2	992.2	2.6	2.1	114.36	426.2	540.2	719.0	714.3	4.66	154.231			
1,100.0	1,091.7	1,094.7	1,094.7	3.1	2.3	115.81	426.7	539.5	728.2	722.9	5.28	137.967			
1,200.0	1,188.6	1,197.9	1,197.9	3.6	2.6	117.27	428.2	537.3	738.3	732.4	5.92	124.692			
1,300.0	1,284.9	1,301.4	1,301.2	4.1	2.8	118.74	430.8	533.7	749.5	742.9	6.60	113.583			
1,400.0	1,380.4	1,405.0	1,404.7	4.7	3.0	120.21	434.4	528.4	761.5	754.2	7.31	104.186			
1,478.1	1,454.3	1,486.2	1,485.6	5.2	3.2	121.36	438.0	523.2	771.7	763.8	7.89	97.822			
1,500.0	1,475.1	1,509.0	1,508.3	5.3	3.3	121.71	439.2	521.6	774.6	766.5	8.05	96.168			
1,600.0	1,569.5	1,613.7	1,612.5	6.0	3.5	123.23	445.0	513.2	787.7	778.9	8.82	89.338 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9E-223 - Wellbore #1 - Plan #2 (Offset Site Error:		0.0 ft
Survey Program:		0-MWD										Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	54.11	18.2	25.2	31.1					
100.0	100.0	100.0	100.0	0.1	0.1	54.11	18.2	25.2	31.1	30.9	0.22	138.330		
200.0	200.0	200.0	200.0	0.3	0.3	54.11	18.2	25.2	31.1	30.4	0.67	46.110	CC, ES	
300.0	300.0	300.0	300.0	0.6	0.6	113.12	18.2	25.2	31.6	30.5	1.12	28.210		
400.0	399.9	399.9	399.9	0.8	0.8	119.31	18.2	25.2	33.3	31.8	1.57	21.250		
500.0	499.7	500.2	500.2	1.0	1.0	126.50	19.0	24.1	36.2	34.2	2.02	17.925		
600.0	599.3	600.7	600.6	1.3	1.2	132.43	21.3	20.9	39.7	37.2	2.48	16.003		
700.0	698.6	701.3	701.0	1.6	1.5	137.26	25.1	15.5	43.5	40.6	2.95	14.753		
800.0	797.5	802.1	801.3	1.9	1.7	141.16	30.5	8.0	47.7	44.3	3.44	13.877		
900.0	896.1	902.9	901.5	2.2	2.0	144.31	37.4	-1.7	52.1	48.2	3.94	13.221		
1,000.0	994.2	1,004.0	1,001.4	2.6	2.3	146.87	45.9	-13.6	56.7	52.3	4.47	12.698		
1,100.0	1,091.7	1,105.1	1,101.1	3.1	2.6	148.93	55.9	-27.6	61.4	56.4	5.01	12.258		
1,200.0	1,188.6	1,206.4	1,200.4	3.6	3.0	150.61	67.5	-43.8	66.2	60.7	5.58	11.872		
1,300.0	1,284.9	1,307.8	1,299.3	4.1	3.4	151.97	80.6	-62.2	71.1	64.9	6.17	11.518		
1,400.0	1,380.4	1,409.4	1,397.7	4.7	3.9	153.07	95.3	-82.7	76.0	69.2	6.80	11.186		
1,478.1	1,454.3	1,488.8	1,474.1	5.2	4.3	153.77	107.8	-100.3	79.9	72.6	7.31	10.938		
1,500.0	1,475.1	1,511.1	1,495.5	5.3	4.5	153.94	111.5	-105.4	80.9	73.5	7.46	10.852		
1,600.0	1,569.5	1,613.0	1,592.7	6.0	5.0	154.12	129.2	-130.3	84.2	76.0	8.19	10.287		
1,700.0	1,664.0	1,713.2	1,687.8	6.6	5.6	153.80	147.5	-155.9	86.1	77.2	8.96	9.608		
1,800.0	1,758.4	1,813.1	1,782.7	7.3	6.3	153.49	165.7	-181.5	88.0	78.3	9.76	9.021		
1,900.0	1,852.9	1,913.1	1,877.6	8.0	6.9	153.19	184.0	-207.1	89.9	79.4	10.57	8.511		
2,000.0	1,947.3	2,013.1	1,972.5	8.6	7.5	152.91	202.3	-232.6	91.9	80.5	11.39	8.064		
2,100.0	2,041.8	2,113.1	2,067.4	9.3	8.1	152.63	220.5	-258.2	93.8	81.5	12.23	7.670		
2,200.0	2,136.2	2,213.1	2,162.4	10.0	8.8	152.37	238.8	-283.8	95.7	82.6	13.07	7.322		
2,300.0	2,230.7	2,313.0	2,257.3	10.7	9.4	152.12	257.0	-309.4	97.6	83.7	13.92	7.011		
2,400.0	2,325.2	2,413.0	2,352.2	11.3	10.1	151.88	275.3	-335.0	99.5	84.7	14.78	6.733		
2,500.0	2,419.6	2,513.0	2,447.1	12.0	10.7	151.65	293.6	-360.6	101.5	85.8	15.65	6.482		
2,600.0	2,514.1	2,613.0	2,542.0	12.7	11.4	151.42	311.8	-386.2	103.4	86.9	16.52	6.256		
2,700.0	2,608.5	2,713.0	2,636.9	13.4	12.0	151.21	330.1	-411.7	105.3	87.9	17.41	6.050		
2,800.0	2,703.0	2,812.9	2,731.8	14.1	12.7	151.00	348.3	-437.3	107.2	88.9	18.29	5.862		
2,900.0	2,797.4	2,912.9	2,826.7	14.8	13.3	150.80	366.6	-462.9	109.2	90.0	19.18	5.691		
3,000.0	2,891.9	3,012.9	2,921.6	15.5	14.0	150.61	384.9	-488.5	111.1	91.0	20.08	5.533		
3,100.0	2,986.3	3,112.9	3,016.5	16.1	14.6	150.42	403.1	-514.1	113.0	92.0	20.98	5.388		
3,200.0	3,080.8	3,212.9	3,111.5	16.8	15.3	150.24	421.4	-539.7	114.9	93.1	21.88	5.253		
3,300.0	3,175.2	3,312.9	3,206.4	17.5	15.9	150.06	439.7	-565.3	116.9	94.1	22.79	5.129		
3,400.0	3,269.7	3,412.8	3,301.3	18.2	16.6	149.89	457.9	-590.8	118.8	95.1	23.70	5.013		
3,500.0	3,364.2	3,512.8	3,396.2	18.9	17.2	149.73	476.2	-616.4	120.8	96.1	24.62	4.906		
3,600.0	3,458.6	3,612.8	3,491.1	19.6	17.9	149.57	494.4	-642.0	122.7	97.2	25.53	4.805		
3,700.0	3,553.1	3,712.8	3,586.0	20.3	18.5	149.42	512.7	-667.6	124.6	98.2	26.45	4.711		
3,800.0	3,647.5	3,812.8	3,680.9	21.0	19.2	149.27	531.0	-693.2	126.6	99.2	27.38	4.623		
3,900.0	3,742.0	3,912.7	3,775.8	21.6	19.9	149.13	549.2	-718.8	128.5	100.2	28.30	4.540		
4,000.0	3,836.4	4,012.7	3,870.7	22.3	20.5	148.99	567.5	-744.4	130.4	101.2	29.23	4.462		
4,100.0	3,930.9	4,112.7	3,965.7	23.0	21.2	148.85	585.7	-769.9	132.4	102.2	30.17	4.389		
4,200.0	4,025.3	4,212.7	4,060.6	23.7	21.8	148.72	604.0	-795.5	134.3	103.2	31.10	4.319		
4,300.0	4,119.8	4,312.7	4,155.5	24.4	22.5	148.59	622.3	-821.1	136.3	104.2	32.03	4.254		
4,400.0	4,214.2	4,412.6	4,250.4	25.1	23.1	148.47	640.5	-846.7	138.2	105.2	32.97	4.192		
4,500.0	4,308.7	4,512.6	4,345.3	25.8	23.8	148.34	658.8	-872.3	140.2	106.2	33.91	4.133		
4,600.0	4,403.2	4,612.6	4,440.2	26.5	24.5	148.23	677.1	-897.9	142.1	107.2	34.85	4.077		
4,700.0	4,497.6	4,712.6	4,535.1	27.2	25.1	148.11	695.3	-923.5	144.0	108.2	35.80	4.024		
4,800.0	4,592.1	4,812.6	4,630.0	27.8	25.8	148.00	713.6	-949.0	146.0	109.2	36.74	3.973		
4,900.0	4,686.5	4,912.5	4,724.9	28.5	26.4	147.89	731.8	-974.6	147.9	110.2	37.69	3.925		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9E-223 - Wellbore #1 - Plan #2 (Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.0	4,781.0	5,012.5	4,819.8	29.2	27.1	147.79	750.1	-1,000.2	149.9	111.2	38.64	3.879		
5,100.0	4,875.4	5,112.5	4,914.8	29.9	27.8	147.68	768.4	-1,025.8	151.8	112.2	39.59	3.835		
5,200.0	4,969.9	5,212.5	5,009.7	30.6	28.4	147.58	786.6	-1,051.4	153.8	113.2	40.54	3.793		
5,300.0	5,064.3	5,312.5	5,104.6	31.3	29.1	147.48	804.9	-1,077.0	155.7	114.2	41.49	3.753		
5,400.0	5,158.8	5,412.4	5,199.5	32.0	29.7	147.39	823.1	-1,102.6	157.7	115.2	42.45	3.714		
5,500.0	5,253.2	5,512.4	5,294.4	32.7	30.4	147.29	841.4	-1,128.1	159.6	116.2	43.40	3.678		
5,600.0	5,347.7	5,612.4	5,389.3	33.4	31.0	147.20	859.7	-1,153.7	161.6	117.2	44.36	3.642		
5,700.0	5,442.2	5,712.4	5,484.2	34.0	31.7	147.11	877.9	-1,179.3	163.5	118.2	45.31	3.608		
5,718.1	5,459.2	5,730.4	5,501.3	34.2	31.8	147.10	881.2	-1,183.9	163.9	118.4	45.49	3.602		
5,800.0	5,537.0	5,808.6	5,575.9	34.7	32.3	147.06	894.9	-1,203.1	165.4	119.3	46.18	3.583		
5,900.0	5,632.8	5,904.0	5,667.8	35.1	32.7	147.02	909.9	-1,224.2	167.2	120.3	46.88	3.566		
6,000.0	5,729.6	6,000.0	5,760.9	35.6	33.1	146.99	923.3	-1,242.9	168.7	121.2	47.51	3.551		
6,100.0	5,827.2	6,094.9	5,853.7	35.9	33.4	146.96	934.7	-1,258.8	170.0	122.0	48.05	3.539		
6,200.0	5,925.6	6,190.2	5,947.6	36.3	33.7	146.94	944.3	-1,272.4	171.2	122.6	48.51	3.528		
6,300.0	6,024.4	6,285.6	6,042.0	36.5	34.0	146.92	952.2	-1,283.3	172.1	123.2	48.89	3.519		
6,400.0	6,123.8	6,380.9	6,136.7	36.7	34.2	146.90	958.2	-1,291.8	172.8	123.6	49.19	3.512		
6,500.0	6,223.5	6,476.2	6,231.8	36.9	34.3	146.89	962.4	-1,297.6	173.2	123.8	49.41	3.506		
6,600.0	6,323.4	6,571.5	6,327.0	37.0	34.5	146.89	964.7	-1,300.9	173.5	124.0	49.56	3.501		
6,676.6	6,400.0	6,644.5	6,400.0	37.1	34.5	90.09	965.2	-1,301.6	173.6	124.0	49.62	3.498		
6,684.4	6,407.8	6,652.3	6,407.8	37.1	34.5	90.09	965.2	-1,301.6	173.6	123.9	49.64	3.497		
6,700.0	6,423.4	6,667.9	6,423.4	37.1	34.5	90.09	965.2	-1,301.6	173.6	123.9	49.67	3.495		
6,763.9	6,487.3	6,731.8	6,487.3	37.2	34.6	90.09	965.2	-1,301.6	173.6	123.8	49.82	3.484		
6,800.0	6,523.4	6,767.9	6,523.4	37.2	34.6	90.10	965.2	-1,301.6	173.6	123.7	49.89	3.479		
6,818.0	6,541.4	6,785.9	6,541.4	37.2	34.6	90.24	964.8	-1,301.6	173.6	123.7	49.84	3.483		
6,900.0	6,623.4	6,867.1	6,622.3	37.3	34.6	92.58	957.7	-1,301.6	173.8	125.2	48.51	3.582		
6,993.5	6,716.9	6,956.8	6,710.1	37.4	34.6	98.38	939.9	-1,301.6	175.6	130.4	45.14	3.890		
7,000.0	6,723.4	6,962.9	6,716.0	37.4	34.6	-81.10	938.4	-1,301.6	175.8	131.0	44.84	3.921		
7,050.0	6,773.3	7,009.2	6,760.3	37.4	34.5	-77.20	924.8	-1,301.6	178.3	135.6	42.64	4.181		
7,100.0	6,823.0	7,054.8	6,803.0	37.4	34.4	-73.48	908.9	-1,301.6	181.5	140.8	40.67	4.463		
7,150.0	6,872.3	7,100.0	6,844.3	37.4	34.3	-69.96	890.7	-1,301.6	185.4	146.4	38.96	4.758		
7,200.0	6,920.9	7,144.3	6,883.8	37.3	34.2	-66.69	870.4	-1,301.6	189.8	152.3	37.52	5.059		
7,250.0	6,968.6	7,188.3	6,921.6	37.3	34.1	-63.64	848.1	-1,301.6	194.7	158.4	36.31	5.362		
7,300.0	7,015.2	7,231.7	6,957.7	37.2	34.0	-60.83	824.0	-1,301.6	199.9	164.7	35.27	5.668		
7,350.0	7,060.6	7,274.7	6,992.1	37.1	33.8	-58.26	798.1	-1,301.6	205.4	171.0	34.34	5.980		
7,400.0	7,104.5	7,317.3	7,024.6	36.9	33.7	-55.91	770.6	-1,301.6	210.9	177.4	33.47	6.302		
7,450.0	7,146.7	7,359.5	7,055.2	36.8	33.5	-53.78	741.6	-1,301.6	216.5	183.9	32.60	6.641		
7,500.0	7,187.1	7,400.0	7,083.1	36.6	33.4	-51.91	712.2	-1,301.6	222.0	190.3	31.71	7.002		
7,550.0	7,225.4	7,442.8	7,110.8	36.5	33.2	-50.13	679.6	-1,301.6	227.4	196.7	30.77	7.392		
7,600.0	7,261.6	7,484.0	7,135.8	36.3	33.0	-48.58	646.8	-1,301.6	232.7	202.9	29.79	7.810		
7,650.0	7,295.5	7,525.0	7,158.7	36.1	32.8	-47.21	612.9	-1,301.6	237.7	208.9	28.78	8.259		
7,700.0	7,326.9	7,565.7	7,179.7	35.9	32.7	-45.98	578.0	-1,301.6	242.4	214.6	27.75	8.733		
7,750.0	7,355.7	7,606.2	7,198.8	35.7	32.5	-44.91	542.3	-1,301.6	246.7	220.0	26.75	9.222		
7,800.0	7,381.7	7,650.0	7,217.2	35.5	32.3	-43.92	502.6	-1,301.6	250.7	224.9	25.81	9.713		
7,850.0	7,404.9	7,686.6	7,230.8	35.3	32.2	-43.17	468.6	-1,301.6	254.3	229.2	25.02	10.161		
7,900.0	7,425.1	7,726.6	7,243.8	35.1	32.0	-42.49	430.8	-1,301.6	257.4	233.0	24.40	10.548		
7,950.0	7,442.3	7,766.4	7,254.8	34.9	31.8	-41.92	392.5	-1,301.6	260.1	236.1	24.02	10.829		
8,000.0	7,456.5	7,806.2	7,263.7	34.7	31.7	-41.47	353.8	-1,301.6	262.3	238.4	23.91	10.970		
8,050.0	7,467.4	7,850.0	7,271.3	34.5	31.5	-41.10	310.6	-1,301.6	264.1	239.9	24.11	10.950		
8,100.0	7,475.1	7,885.5	7,275.5	34.3	31.4	-40.88	275.4	-1,301.6	265.2	240.6	24.65	10.758		
8,150.0	7,479.6	7,925.0	7,278.3	34.2	31.2	-40.75	235.9	-1,301.6	265.9	240.4	25.50	10.430		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9E-223 - Wellbore #1 - Plan #2 (Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,192.7	7,480.8	7,958.8	7,279.1	34.0	31.1	-40.71	202.1	-1,301.6	266.1	239.7	26.43	10.068		
8,192.8	7,480.8	7,958.9	7,279.1	34.0	31.1	-40.71	202.1	-1,301.6	266.1	239.7	26.43	10.068		
8,200.0	7,480.8	7,965.3	7,279.1	34.0	31.1	-40.71	195.7	-1,301.6	266.1	239.7	26.44	10.067		
8,300.0	7,480.9	8,064.4	7,278.4	33.7	30.8	-40.59	96.6	-1,301.6	266.8	240.1	26.64	10.014		
8,400.0	7,481.1	8,164.4	7,277.6	33.5	30.6	-40.47	-3.4	-1,301.6	267.4	240.3	27.10	9.866		
8,500.0	7,481.2	8,264.4	7,276.9	33.3	30.4	-40.36	-103.4	-1,301.6	268.0	240.2	27.83	9.631		
8,600.0	7,481.3	8,364.4	7,276.2	33.2	30.3	-40.24	-203.4	-1,301.6	268.7	239.9	28.79	9.331		
8,700.0	7,481.4	8,464.4	7,275.4	33.2	30.3	-40.13	-303.4	-1,301.6	269.3	239.3	29.97	8.986		
8,800.0	7,481.5	8,564.4	7,274.7	33.3	30.5	-40.01	-403.4	-1,301.6	270.0	238.6	31.33	8.616		
8,900.0	7,481.6	8,664.4	7,274.0	33.5	30.9	-39.90	-503.4	-1,301.6	270.6	237.7	32.86	8.236		
9,000.0	7,481.7	8,764.4	7,273.2	33.9	31.5	-39.78	-603.4	-1,301.6	271.2	236.7	34.52	7.858		
9,100.0	7,481.8	8,864.4	7,272.5	34.5	32.2	-39.67	-703.4	-1,301.6	271.9	235.6	36.30	7.490		
9,200.0	7,481.9	8,964.4	7,271.8	35.2	33.2	-39.56	-803.4	-1,301.6	272.5	234.4	38.18	7.138		
9,300.0	7,482.0	9,064.4	7,271.0	36.1	34.3	-39.45	-903.4	-1,301.6	273.2	233.0	40.14	6.806		
9,400.0	7,482.1	9,164.4	7,270.3	37.2	35.6	-39.33	-1,003.4	-1,301.6	273.8	231.7	42.17	6.493		
9,500.0	7,482.2	9,264.4	7,269.6	38.3	36.9	-39.22	-1,103.4	-1,301.6	274.5	230.2	44.26	6.201		
9,600.0	7,482.3	9,364.4	7,268.8	39.6	38.3	-39.11	-1,203.3	-1,301.6	275.1	228.7	46.40	5.929		
9,700.0	7,482.4	9,464.4	7,268.1	40.9	39.7	-39.00	-1,303.3	-1,301.6	275.8	227.2	48.58	5.676		
9,800.0	7,482.5	9,564.3	7,267.4	42.3	41.2	-38.89	-1,403.3	-1,301.6	276.4	225.6	50.80	5.442		
9,900.0	7,482.6	9,664.3	7,266.6	43.8	42.7	-38.79	-1,503.3	-1,301.6	277.1	224.0	53.04	5.223		
10,000.0	7,482.7	9,764.3	7,265.9	45.3	44.2	-38.68	-1,603.3	-1,301.6	277.7	222.4	55.32	5.021		
10,100.0	7,482.8	9,864.3	7,265.2	46.8	45.8	-38.57	-1,703.3	-1,301.6	278.4	220.8	57.61	4.833		
10,200.0	7,482.9	9,964.3	7,264.4	48.4	47.4	-38.46	-1,803.3	-1,301.6	279.0	219.1	59.91	4.657		
10,300.0	7,483.0	10,064.3	7,263.7	49.9	49.1	-38.35	-1,903.3	-1,301.6	279.7	217.5	62.24	4.494		
10,400.0	7,483.1	10,164.3	7,263.0	51.5	50.7	-38.25	-2,003.3	-1,301.6	280.4	215.8	64.57	4.342		
10,500.0	7,483.3	10,264.3	7,262.2	53.2	52.4	-38.14	-2,103.3	-1,301.6	281.0	214.1	66.91	4.200		
10,600.0	7,483.4	10,364.3	7,261.5	54.8	54.0	-38.04	-2,203.3	-1,301.6	281.7	212.4	69.27	4.066		
10,700.0	7,483.5	10,464.3	7,260.8	56.5	55.7	-37.93	-2,303.3	-1,301.6	282.3	210.7	71.62	3.942		
10,800.0	7,483.6	10,564.3	7,260.0	58.2	57.5	-37.83	-2,403.3	-1,301.6	283.0	209.0	73.99	3.825		
10,900.0	7,483.7	10,664.3	7,259.3	59.8	59.2	-37.72	-2,503.3	-1,301.6	283.7	207.3	76.35	3.715		
11,000.0	7,483.8	10,764.3	7,258.6	61.6	60.9	-37.62	-2,603.3	-1,301.6	284.3	205.6	78.72	3.612		
11,100.0	7,483.9	10,864.3	7,257.8	63.3	62.6	-37.52	-2,703.3	-1,301.6	285.0	203.9	81.09	3.514		
11,200.0	7,484.0	10,964.3	7,257.1	65.0	64.4	-37.42	-2,803.3	-1,301.6	285.6	202.2	83.47	3.422		
11,300.0	7,484.1	11,064.3	7,256.4	66.7	66.1	-37.31	-2,903.2	-1,301.6	286.3	200.5	85.84	3.335		
11,400.0	7,484.2	11,164.3	7,255.7	68.5	67.9	-37.21	-3,003.2	-1,301.6	287.0	198.8	88.21	3.253		
11,500.0	7,484.3	11,264.3	7,254.9	70.2	69.7	-37.11	-3,103.2	-1,301.6	287.6	197.1	90.58	3.176		
11,600.0	7,484.4	11,364.3	7,254.2	72.0	71.5	-37.01	-3,203.2	-1,301.6	288.3	195.4	92.95	3.102		
11,700.0	7,484.5	11,464.3	7,253.5	73.8	73.3	-36.91	-3,303.2	-1,301.6	289.0	193.7	95.31	3.032		
11,800.0	7,484.6	11,564.3	7,252.7	75.5	75.0	-36.81	-3,403.2	-1,301.6	289.7	192.0	97.68	2.965		
11,900.0	7,484.7	11,664.3	7,252.0	77.3	76.8	-36.71	-3,503.2	-1,301.6	290.3	190.3	100.04	2.902		
12,000.0	7,484.8	11,764.3	7,251.3	79.1	78.7	-36.61	-3,603.2	-1,301.6	291.0	188.6	102.40	2.842		
12,100.0	7,484.9	11,864.3	7,250.5	80.9	80.5	-36.51	-3,703.2	-1,301.6	291.7	186.9	104.76	2.784		
12,169.1	7,485.0	11,933.3	7,250.0	82.1	81.7	-36.45	-3,772.3	-1,301.6	292.1	185.7	106.38	2.746 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design										Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9E-323 - Wellbore #1 - Plan #2 (Offset Site Error:		0.0 ft
Survey Program: 0-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
0.0	0.0	0.0	0.0	0.0	0.0	52.56	36.4	47.6	59.9							
100.0	100.0	100.0	100.0	0.1	0.1	52.56	36.4	47.6	59.9	59.7	0.22	266.604				
200.0	200.0	200.0	200.0	0.3	0.3	52.56	36.4	47.6	59.9	59.2	0.67	88.868	CC, ES			
300.0	300.0	300.0	300.0	0.6	0.6	110.52	36.4	47.6	60.4	59.3	1.12	53.928				
400.0	399.9	399.9	399.9	0.8	0.8	113.91	36.4	47.6	61.9	60.3	1.57	39.453				
500.0	499.7	499.7	499.7	1.0	1.0	119.15	36.4	47.6	64.8	62.8	2.03	31.960				
600.0	599.3	599.3	599.3	1.3	1.2	125.66	36.4	47.6	69.7	67.2	2.50	27.918				
700.0	698.6	699.8	699.8	1.6	1.5	131.96	37.2	46.6	76.4	73.4	2.97	25.721				
800.0	797.5	800.6	800.5	1.9	1.7	137.07	39.7	43.5	84.1	80.6	3.45	24.384				
900.0	896.1	901.6	901.3	2.2	1.9	141.17	43.9	38.3	92.4	88.5	3.94	23.485				
1,000.0	994.2	1,002.9	1,002.2	2.6	2.2	144.44	49.8	31.1	101.3	96.9	4.44	22.832				
1,100.0	1,091.7	1,104.6	1,103.1	3.1	2.4	147.06	57.4	21.7	110.6	105.6	4.96	22.315				
1,200.0	1,188.6	1,206.5	1,203.9	3.6	2.7	149.14	66.6	10.2	120.2	114.7	5.50	21.870				
1,300.0	1,284.9	1,308.6	1,304.6	4.1	3.1	150.80	77.6	-3.4	130.0	124.0	6.06	21.458				
1,400.0	1,380.4	1,411.1	1,405.0	4.7	3.4	152.12	90.4	-19.1	140.0	133.4	6.65	21.056				
1,478.1	1,454.3	1,491.2	1,483.2	5.2	3.7	152.95	101.5	-32.9	147.9	140.8	7.13	20.741				
1,500.0	1,475.1	1,513.8	1,505.1	5.3	3.8	153.16	104.8	-37.0	150.1	142.8	7.28	20.629				
1,600.0	1,569.5	1,617.0	1,605.0	6.0	4.3	153.72	121.1	-57.1	158.6	150.7	7.96	19.930				
1,700.0	1,664.0	1,720.0	1,704.1	6.6	4.8	153.72	138.9	-79.2	164.9	156.2	8.69	18.984				
1,800.0	1,758.4	1,819.9	1,799.7	7.3	5.4	153.55	156.9	-101.4	170.3	160.9	9.44	18.037				
1,900.0	1,852.9	1,919.7	1,895.4	8.0	5.9	153.38	174.8	-123.6	175.7	165.5	10.21	17.207				
2,000.0	1,947.3	2,019.6	1,991.1	8.6	6.5	153.22	192.8	-145.7	181.1	170.1	10.99	16.476				
2,100.0	2,041.8	2,119.4	2,086.8	9.3	7.0	153.07	210.7	-167.9	186.5	174.7	11.78	15.828				
2,200.0	2,136.2	2,219.3	2,182.5	10.0	7.6	152.93	228.7	-190.1	191.9	179.3	12.58	15.252				
2,300.0	2,230.7	2,319.1	2,278.2	10.7	8.2	152.80	246.6	-212.3	197.3	183.9	13.39	14.737				
2,400.0	2,325.2	2,419.0	2,373.9	11.3	8.7	152.67	264.6	-234.5	202.7	188.5	14.20	14.274				
2,500.0	2,419.6	2,518.8	2,469.5	12.0	9.3	152.55	282.5	-256.7	208.1	193.1	15.02	13.856				
2,600.0	2,514.1	2,618.7	2,565.2	12.7	9.9	152.44	300.5	-278.9	213.6	197.7	15.84	13.478				
2,700.0	2,608.5	2,718.6	2,660.9	13.4	10.5	152.33	318.4	-301.1	219.0	202.3	16.67	13.134				
2,800.0	2,703.0	2,818.4	2,756.6	14.1	11.1	152.23	336.4	-323.3	224.4	206.9	17.50	12.820				
2,900.0	2,797.4	2,918.3	2,852.3	14.8	11.7	152.13	354.3	-345.5	229.8	211.5	18.34	12.532				
3,000.0	2,891.9	3,018.1	2,948.0	15.5	12.2	152.04	372.2	-367.7	235.2	216.0	19.17	12.267				
3,100.0	2,986.3	3,118.0	3,043.7	16.1	12.8	151.95	390.2	-389.9	240.6	220.6	20.01	12.022				
3,200.0	3,080.8	3,217.8	3,139.4	16.8	13.4	151.87	408.1	-412.1	246.0	225.2	20.86	11.797				
3,300.0	3,175.2	3,317.7	3,235.0	17.5	14.0	151.78	426.1	-434.2	251.5	229.8	21.70	11.587				
3,400.0	3,269.7	3,417.5	3,330.7	18.2	14.6	151.71	444.0	-456.4	256.9	234.3	22.55	11.392				
3,500.0	3,364.2	3,517.4	3,426.4	18.9	15.2	151.63	462.0	-478.6	262.3	238.9	23.40	11.211				
3,600.0	3,458.6	3,617.2	3,522.1	19.6	15.8	151.56	479.9	-500.8	267.7	243.5	24.25	11.041				
3,700.0	3,553.1	3,717.1	3,617.8	20.3	16.4	151.49	497.9	-523.0	273.1	248.0	25.10	10.882				
3,800.0	3,647.5	3,816.9	3,713.5	21.0	17.0	151.43	515.8	-545.2	278.5	252.6	25.95	10.733				
3,900.0	3,742.0	3,916.8	3,809.2	21.6	17.6	151.36	533.8	-567.4	284.0	257.1	26.81	10.593				
4,000.0	3,836.4	4,016.6	3,904.8	22.3	18.2	151.30	551.7	-589.6	289.4	261.7	27.66	10.461				
4,100.0	3,930.9	4,116.5	4,000.5	23.0	18.8	151.24	569.7	-611.8	294.8	266.3	28.52	10.337				
4,200.0	4,025.3	4,216.3	4,096.2	23.7	19.4	151.18	587.6	-634.0	300.2	270.8	29.38	10.220				
4,300.0	4,119.8	4,316.2	4,191.9	24.4	19.9	151.13	605.6	-656.2	305.6	275.4	30.23	10.109				
4,400.0	4,214.2	4,416.0	4,287.6	25.1	20.5	151.08	623.5	-678.4	311.0	280.0	31.09	10.003				
4,500.0	4,308.7	4,515.9	4,383.3	25.8	21.1	151.03	641.4	-700.6	316.5	284.5	31.95	9.904				
4,600.0	4,403.2	4,615.8	4,479.0	26.5	21.7	150.98	659.4	-722.7	321.9	289.1	32.82	9.809				
4,700.0	4,497.6	4,715.6	4,574.7	27.2	22.3	150.93	677.3	-744.9	327.3	293.6	33.68	9.718				
4,800.0	4,592.1	4,815.5	4,670.3	27.8	22.9	150.88	695.3	-767.1	332.7	298.2	34.54	9.633				
4,900.0	4,686.5	4,915.3	4,766.0	28.5	23.5	150.84	713.2	-789.3	338.1	302.7	35.41	9.551				

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9E-323 - Wellbore #1 - Plan #2 (Offset Site Error:		0.0 ft
Survey Program:		0-MWD										Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,000.0	4,781.0	5,015.2	4,861.7	29.2	24.1	150.79	731.2	-811.5	343.6	307.3	36.27	9.473		
5,100.0	4,875.4	5,115.0	4,957.4	29.9	24.7	150.75	749.1	-833.7	349.0	311.9	37.13	9.398		
5,200.0	4,969.9	5,214.9	5,053.1	30.6	25.3	150.71	767.1	-855.9	354.4	316.4	38.00	9.326		
5,300.0	5,064.3	5,314.7	5,148.8	31.3	25.9	150.67	785.0	-878.1	359.8	321.0	38.87	9.258		
5,400.0	5,158.8	5,414.6	5,244.5	32.0	26.5	150.63	803.0	-900.3	365.3	325.5	39.73	9.193		
5,500.0	5,253.2	5,514.4	5,340.2	32.7	27.1	150.60	820.9	-922.5	370.7	330.1	40.60	9.130		
5,600.0	5,347.7	5,614.3	5,435.8	33.4	27.7	150.56	838.9	-944.7	376.1	334.6	41.47	9.069		
5,700.0	5,442.2	5,714.1	5,531.5	34.0	28.3	150.53	856.8	-966.9	381.5	339.2	42.34	9.012		
5,718.1	5,459.2	5,732.2	5,548.8	34.2	28.4	150.52	860.1	-970.9	382.5	340.0	42.49	9.001		
5,800.0	5,537.0	5,814.0	5,627.3	34.7	28.9	150.44	874.8	-989.1	385.9	342.7	43.23	8.926		
5,900.0	5,632.8	5,909.6	5,719.0	35.1	29.4	150.13	891.8	-1,010.1	387.6	343.5	44.14	8.781		
6,000.0	5,729.6	6,000.0	5,806.3	35.6	29.8	149.80	906.4	-1,028.2	388.4	343.5	44.93	8.646		
6,100.0	5,827.2	6,089.8	5,893.7	35.9	30.2	149.49	919.2	-1,044.0	388.8	343.1	45.63	8.520		
6,200.0	5,925.6	6,179.9	5,982.1	36.3	30.5	149.17	930.3	-1,057.8	388.7	342.4	46.27	8.401		
6,300.0	6,024.4	6,270.1	6,071.0	36.5	30.7	148.87	939.7	-1,069.4	388.1	341.3	46.83	8.289		
6,400.0	6,123.8	6,360.3	6,160.4	36.7	31.0	148.57	947.3	-1,078.8	387.1	339.8	47.31	8.183		
6,500.0	6,223.5	6,450.6	6,250.2	36.9	31.2	148.27	953.2	-1,086.0	385.7	338.0	47.72	8.082		
6,600.0	6,323.4	6,540.9	6,340.3	37.0	31.3	147.97	957.2	-1,091.0	383.8	335.7	48.06	7.985		
6,676.6	6,400.0	6,610.2	6,409.5	37.1	31.4	90.96	959.1	-1,093.4	382.0	333.7	48.27	7.913		
6,700.0	6,423.4	6,631.3	6,430.6	37.1	31.5	90.90	959.5	-1,093.8	381.5	333.1	48.36	7.889		
6,800.0	6,523.4	6,724.1	6,523.4	37.2	31.5	90.82	960.0	-1,094.5	380.7	332.1	48.63	7.830		
6,860.7	6,584.1	6,784.8	6,584.1	37.3	31.6	90.82	960.0	-1,094.5	380.7	332.0	48.77	7.807		
6,900.0	6,623.4	6,824.0	6,623.3	37.3	31.6	90.85	959.9	-1,094.5	380.8	331.9	48.85	7.795		
6,993.5	6,716.9	6,916.1	6,715.1	37.4	31.6	91.96	952.5	-1,094.5	380.9	332.6	48.35	7.879		
7,000.0	6,723.4	6,922.4	6,721.3	37.4	31.6	-87.91	951.6	-1,094.5	381.0	332.7	48.28	7.891		
7,050.0	6,773.3	6,970.8	6,768.9	37.4	31.6	-86.87	942.9	-1,094.5	381.3	333.6	47.68	7.997		
7,100.0	6,823.0	7,018.8	6,815.5	37.4	31.6	-85.86	931.3	-1,094.5	381.7	334.7	47.03	8.116		
7,150.0	6,872.3	7,066.4	6,860.9	37.4	31.5	-84.87	917.0	-1,094.5	382.3	335.9	46.36	8.246		
7,200.0	6,920.9	7,113.7	6,904.9	37.3	31.4	-83.90	900.0	-1,094.5	382.9	337.3	45.66	8.387		
7,250.0	6,968.6	7,160.5	6,947.5	37.3	31.3	-82.96	880.4	-1,094.5	383.6	338.7	44.95	8.535		
7,300.0	7,015.2	7,207.1	6,988.6	37.2	31.2	-82.06	858.5	-1,094.5	384.4	340.2	44.25	8.689		
7,350.0	7,060.6	7,253.3	7,027.9	37.1	31.0	-81.20	834.3	-1,094.5	385.3	341.8	43.55	8.847		
7,400.0	7,104.5	7,300.0	7,066.1	36.9	30.9	-80.36	807.4	-1,094.5	386.2	343.3	42.87	9.009		
7,450.0	7,146.7	7,344.9	7,101.3	36.8	30.7	-79.59	779.4	-1,094.5	387.1	344.9	42.23	9.168		
7,500.0	7,187.1	7,390.3	7,135.1	36.6	30.5	-78.85	749.1	-1,094.5	388.1	346.5	41.61	9.326		
7,550.0	7,225.4	7,435.5	7,166.8	36.5	30.3	-78.16	717.0	-1,094.5	389.1	348.0	41.04	9.480		
7,600.0	7,261.6	7,480.5	7,196.5	36.3	30.2	-77.52	683.2	-1,094.5	390.0	349.5	40.52	9.626		
7,650.0	7,295.5	7,525.2	7,224.0	36.1	30.0	-76.93	647.9	-1,094.5	390.9	350.9	40.04	9.762		
7,700.0	7,326.9	7,569.8	7,249.3	35.9	29.8	-76.39	611.2	-1,094.5	391.8	352.1	39.63	9.886		
7,750.0	7,355.7	7,614.2	7,272.3	35.7	29.6	-75.90	573.3	-1,094.5	392.6	353.3	39.28	9.995		
7,800.0	7,381.7	7,658.5	7,293.1	35.5	29.4	-75.47	534.2	-1,094.5	393.3	354.3	38.99	10.087		
7,850.0	7,404.9	7,700.0	7,310.4	35.3	29.2	-75.11	496.5	-1,094.5	394.0	355.2	38.79	10.157		
7,900.0	7,425.1	7,746.7	7,327.4	35.1	29.0	-74.77	453.0	-1,094.5	394.6	355.9	38.64	10.211		
7,950.0	7,442.3	7,790.6	7,341.0	34.9	28.8	-74.51	411.2	-1,094.5	395.1	356.5	38.58	10.240		
8,000.0	7,456.5	7,834.5	7,352.2	34.7	28.6	-74.30	368.8	-1,094.5	395.5	356.9	38.60	10.246		
8,050.0	7,467.4	7,878.3	7,360.8	34.5	28.5	-74.15	325.9	-1,094.5	395.8	357.1	38.69	10.229		
8,100.0	7,475.1	7,922.1	7,367.0	34.3	28.3	-74.05	282.5	-1,094.5	395.9	357.1	38.85	10.191		
8,150.0	7,479.6	7,965.8	7,370.7	34.2	28.1	-74.02	238.9	-1,094.5	396.0	356.9	39.08	10.132		
8,192.7	7,480.8	8,003.2	7,371.9	34.0	28.0	-74.04	201.6	-1,094.5	396.0	356.6	39.33	10.068		
8,198.1	7,480.8	8,007.9	7,372.0	34.0	28.0	-74.04	196.9	-1,094.5	396.0	356.6	39.33	10.067		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
8,200.0	7,480.8	8,009.6	7,372.0	34.0	28.0	-74.04	195.2	-1,094.5	396.0	356.6	39.33	10.067			
8,300.0	7,480.9	8,108.5	7,370.9	33.7	27.7	-73.87	96.3	-1,094.5	396.3	356.8	39.50	10.034			
8,400.0	7,481.1	8,208.5	7,369.7	33.5	27.4	-73.70	-3.7	-1,094.5	396.6	356.7	39.99	9.919			
8,500.0	7,481.2	8,308.5	7,368.6	33.3	27.3	-73.53	-103.6	-1,094.5	397.0	356.2	40.81	9.727			
8,600.0	7,481.3	8,408.4	7,367.5	33.2	27.2	-73.36	-203.6	-1,094.5	397.3	355.4	41.94	9.474			
8,700.0	7,481.4	8,508.4	7,366.3	33.2	27.4	-73.19	-303.6	-1,094.5	397.7	354.4	43.35	9.175			
8,800.0	7,481.5	8,608.4	7,365.2	33.3	27.7	-73.02	-403.6	-1,094.5	398.1	353.1	45.01	8.844			
8,900.0	7,481.6	8,708.4	7,364.1	33.5	28.4	-72.85	-503.6	-1,094.5	398.4	351.5	46.90	8.496			
9,000.0	7,481.7	8,808.4	7,362.9	33.9	29.3	-72.68	-603.6	-1,094.5	398.8	349.8	48.98	8.142			
9,100.0	7,481.8	8,908.4	7,361.8	34.5	30.4	-72.51	-703.6	-1,094.5	399.2	347.9	51.24	7.791			
9,200.0	7,481.9	9,008.4	7,360.7	35.2	31.6	-72.34	-803.5	-1,094.5	399.5	345.9	53.64	7.448			
9,300.0	7,482.0	9,108.4	7,359.5	36.1	32.9	-72.17	-903.5	-1,094.5	399.9	343.7	56.18	7.119			
9,400.0	7,482.1	9,208.4	7,358.4	37.2	34.2	-72.00	-1,003.5	-1,094.5	400.3	341.5	58.82	6.805			
9,500.0	7,482.2	9,308.4	7,357.3	38.3	35.7	-71.83	-1,103.5	-1,094.5	400.7	339.1	61.56	6.508			
9,600.0	7,482.3	9,408.4	7,356.1	39.6	37.1	-71.66	-1,203.5	-1,094.5	401.1	336.7	64.39	6.229			
9,700.0	7,482.4	9,508.4	7,355.0	40.9	38.6	-71.49	-1,303.5	-1,094.5	401.5	334.2	67.28	5.967			
9,800.0	7,482.5	9,608.4	7,353.9	42.3	40.2	-71.33	-1,403.5	-1,094.5	401.9	331.6	70.24	5.721			
9,900.0	7,482.6	9,708.3	7,352.7	43.8	41.8	-71.16	-1,503.4	-1,094.5	402.3	329.0	73.25	5.492			
10,000.0	7,482.7	9,808.3	7,351.6	45.3	43.4	-70.99	-1,603.4	-1,094.5	402.7	326.4	76.30	5.277			
10,100.0	7,482.8	9,908.3	7,350.4	46.8	45.0	-70.83	-1,703.4	-1,094.5	403.1	323.7	79.40	5.077			
10,200.0	7,482.9	10,008.3	7,349.3	48.4	46.6	-70.66	-1,803.4	-1,094.5	403.5	320.9	82.53	4.889			
10,300.0	7,483.0	10,108.3	7,348.2	49.9	48.3	-70.49	-1,903.4	-1,094.5	403.9	318.2	85.68	4.714			
10,400.0	7,483.1	10,208.3	7,347.0	51.5	50.0	-70.33	-2,003.4	-1,094.5	404.3	315.4	88.87	4.549			
10,500.0	7,483.3	10,308.3	7,345.9	53.2	51.7	-70.16	-2,103.4	-1,094.5	404.7	312.6	92.07	4.395			
10,600.0	7,483.4	10,408.3	7,344.8	54.8	53.4	-70.00	-2,203.3	-1,094.5	405.1	309.8	95.30	4.251			
10,700.0	7,483.5	10,508.3	7,343.6	56.5	55.1	-69.83	-2,303.3	-1,094.5	405.6	307.0	98.54	4.116			
10,800.0	7,483.6	10,608.3	7,342.5	58.2	56.8	-69.67	-2,403.3	-1,094.5	406.0	304.2	101.80	3.988			
10,900.0	7,483.7	10,708.3	7,341.4	59.8	58.6	-69.51	-2,503.3	-1,094.5	406.4	301.4	105.07	3.868			
11,000.0	7,483.8	10,808.3	7,340.2	61.6	60.3	-69.34	-2,603.3	-1,094.5	406.9	298.5	108.34	3.755			
11,100.0	7,483.9	10,908.3	7,339.1	63.3	62.1	-69.18	-2,703.3	-1,094.5	407.3	295.7	111.63	3.649			
11,200.0	7,484.0	11,008.2	7,338.0	65.0	63.8	-69.02	-2,803.3	-1,094.5	407.7	292.8	114.93	3.548			
11,300.0	7,484.1	11,108.2	7,336.8	66.7	65.6	-68.85	-2,903.2	-1,094.5	408.2	289.9	118.23	3.452			
11,400.0	7,484.2	11,208.2	7,335.7	68.5	67.4	-68.69	-3,003.2	-1,094.5	408.6	287.1	121.53	3.362			
11,500.0	7,484.3	11,308.2	7,334.6	70.2	69.2	-68.53	-3,103.2	-1,094.5	409.1	284.2	124.84	3.277			
11,600.0	7,484.4	11,408.2	7,333.4	72.0	71.0	-68.37	-3,203.2	-1,094.5	409.5	281.4	128.16	3.196			
11,700.0	7,484.5	11,508.2	7,332.3	73.8	72.8	-68.21	-3,303.2	-1,094.5	410.0	278.5	131.47	3.118			
11,800.0	7,484.6	11,608.2	7,331.2	75.5	74.6	-68.05	-3,403.2	-1,094.5	410.5	275.7	134.79	3.045			
11,900.0	7,484.7	11,708.2	7,330.0	77.3	76.4	-67.89	-3,503.2	-1,094.5	410.9	272.8	138.11	2.975			
12,000.0	7,484.8	11,808.2	7,328.9	79.1	78.2	-67.73	-3,603.1	-1,094.5	411.4	270.0	141.42	2.909			
12,100.0	7,484.9	11,908.2	7,327.8	80.9	80.0	-67.57	-3,703.1	-1,094.5	411.9	267.1	144.74	2.845			
12,169.1	7,485.0	11,975.4	7,327.0	82.1	81.3	-67.46	-3,770.4	-1,094.5	412.2	265.2	147.00	2.804 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	51.30	58.3	72.8	93.2					
100.0	100.0	100.0	100.0	0.1	0.1	51.30	58.3	72.8	93.2	93.0	0.22	414.826		
200.0	200.0	200.0	200.0	0.3	0.3	51.30	58.3	72.8	93.2	92.6	0.67	138.275 CC		
300.0	300.0	300.0	300.0	0.6	0.6	108.85	58.3	72.8	93.7	92.5	1.12	83.664 ES		
400.0	399.9	399.9	399.9	0.8	0.8	111.07	58.3	72.8	95.0	93.4	1.57	60.593		
500.0	499.7	499.7	499.7	1.0	1.0	114.62	58.3	72.8	97.5	95.5	2.03	48.103		
600.0	599.3	599.3	599.3	1.3	1.2	119.24	58.3	72.8	101.7	99.2	2.50	40.664		
700.0	698.6	698.6	698.6	1.6	1.5	124.59	58.3	72.8	108.0	105.0	2.99	36.145		
800.0	797.5	797.5	797.5	1.9	1.7	130.26	58.3	72.8	116.7	113.3	3.48	33.542		
900.0	896.1	897.3	897.3	2.2	1.9	135.63	58.9	72.2	128.0	124.0	3.98	32.187		
1,000.0	994.2	997.2	997.2	2.6	2.1	140.23	60.7	70.4	141.1	136.6	4.47	31.566		
1,100.0	1,091.7	1,097.2	1,097.1	3.1	2.3	144.09	63.8	67.4	155.9	150.9	4.97	31.386		
1,200.0	1,188.6	1,197.4	1,197.1	3.6	2.6	147.33	68.2	63.2	172.3	166.8	5.47	31.489		
1,300.0	1,284.9	1,297.7	1,297.1	4.1	2.8	150.03	73.8	57.7	190.1	184.1	5.98	31.771		
1,400.0	1,380.4	1,398.2	1,397.1	4.7	3.1	152.27	80.7	51.0	209.3	202.7	6.51	32.162		
1,478.1	1,454.3	1,476.8	1,475.2	5.2	3.3	153.76	86.9	44.9	225.0	218.1	6.92	32.509		
1,500.0	1,475.1	1,498.9	1,497.1	5.3	3.3	154.17	88.8	43.1	229.6	222.5	7.04	32.591		
1,600.0	1,569.5	1,600.1	1,597.5	6.0	3.6	155.68	98.3	33.9	249.4	241.8	7.61	32.776		
1,700.0	1,664.0	1,702.0	1,698.3	6.6	3.9	156.75	109.1	23.4	268.0	259.8	8.19	32.709		
1,800.0	1,758.4	1,804.5	1,799.3	7.3	4.2	157.46	121.3	11.6	285.2	276.4	8.80	32.420		
1,900.0	1,852.9	1,907.6	1,900.7	8.0	4.6	157.90	134.8	-1.6	300.9	291.5	9.42	31.941		
2,000.0	1,947.3	2,011.1	2,002.1	8.6	5.0	158.10	149.7	-16.1	315.2	305.1	10.07	31.297		
2,100.0	2,041.8	2,115.2	2,103.6	9.3	5.4	158.10	166.1	-32.0	328.0	317.3	10.75	30.510		
2,200.0	2,136.2	2,219.5	2,205.1	10.0	5.8	157.92	183.7	-49.2	339.3	327.9	11.46	29.603		
2,300.0	2,230.7	2,324.2	2,306.3	10.7	6.3	157.58	202.8	-67.7	349.2	336.9	12.21	28.592		
2,400.0	2,325.2	2,429.2	2,407.3	11.3	6.8	157.08	223.3	-87.6	357.5	344.5	13.00	27.497		
2,500.0	2,419.6	2,530.7	2,504.6	12.0	7.4	156.48	244.1	-107.8	364.7	350.9	13.82	26.392		
2,600.0	2,514.1	2,630.4	2,600.1	12.7	7.9	155.91	264.5	-127.7	371.8	357.2	14.65	25.386		
2,700.0	2,608.5	2,730.0	2,695.6	13.4	8.4	155.35	285.0	-147.6	379.0	363.5	15.49	24.463		
2,800.0	2,703.0	2,829.7	2,791.1	14.1	9.0	154.82	305.5	-167.5	386.2	369.9	16.35	23.617		
2,900.0	2,797.4	2,929.4	2,886.6	14.8	9.5	154.31	326.0	-187.4	393.5	376.2	17.23	22.838		
3,000.0	2,891.9	3,029.1	2,982.1	15.5	10.1	153.82	346.5	-207.4	400.7	382.6	18.12	22.121		
3,100.0	2,986.3	3,128.8	3,077.6	16.1	10.7	153.34	367.0	-227.3	408.0	389.0	19.01	21.460		
3,200.0	3,080.8	3,228.4	3,173.1	16.8	11.2	152.88	387.5	-247.2	415.4	395.5	19.92	20.847		
3,300.0	3,175.2	3,328.1	3,268.6	17.5	11.8	152.44	407.9	-267.1	422.7	401.9	20.84	20.280		
3,400.0	3,269.7	3,427.8	3,364.1	18.2	12.4	152.01	428.4	-287.0	430.1	408.3	21.77	19.753		
3,500.0	3,364.2	3,527.5	3,459.5	18.9	13.0	151.60	448.9	-306.9	437.5	414.8	22.71	19.263		
3,600.0	3,458.6	3,627.1	3,555.0	19.6	13.5	151.20	469.4	-326.8	444.9	421.3	23.66	18.806		
3,700.0	3,553.1	3,726.8	3,650.5	20.3	14.1	150.81	489.9	-346.7	452.4	427.8	24.61	18.380		
3,800.0	3,647.5	3,826.5	3,746.0	21.0	14.7	150.44	510.4	-366.7	459.9	434.3	25.57	17.981		
3,900.0	3,742.0	3,926.2	3,841.5	21.6	15.3	150.08	530.9	-386.6	467.3	440.8	26.54	17.607		
4,000.0	3,836.4	4,025.8	3,937.0	22.3	15.9	149.72	551.3	-406.5	474.8	447.3	27.52	17.256		
4,100.0	3,930.9	4,125.5	4,032.5	23.0	16.4	149.38	571.8	-426.4	482.4	453.9	28.50	16.927		
4,200.0	4,025.3	4,225.2	4,128.0	23.7	17.0	149.06	592.3	-446.3	489.9	460.4	29.48	16.616		
4,300.0	4,119.8	4,324.9	4,223.5	24.4	17.6	148.74	612.8	-466.2	497.4	467.0	30.47	16.323		
4,400.0	4,214.2	4,424.5	4,319.0	25.1	18.2	148.43	633.3	-486.1	505.0	473.5	31.47	16.047		
4,500.0	4,308.7	4,524.2	4,414.5	25.8	18.8	148.13	653.8	-506.0	512.6	480.1	32.47	15.786		
4,600.0	4,403.2	4,623.9	4,510.0	26.5	19.4	147.83	674.3	-526.0	520.2	486.7	33.48	15.539		
4,700.0	4,497.6	4,723.6	4,605.5	27.2	20.0	147.55	694.7	-545.9	527.8	493.3	34.49	15.305		
4,800.0	4,592.1	4,823.3	4,701.0	27.8	20.5	147.27	715.2	-565.8	535.4	499.9	35.50	15.082		
4,900.0	4,686.5	4,922.9	4,796.5	28.5	21.1	147.01	735.7	-585.7	543.0	506.5	36.52	14.871		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design										Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-243 - Wellbore #1 - Plan #2 (Offset Site Error:		0.0 ft
Survey Program: 0-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
5,000.0	4,781.0	5,022.6	4,892.0	29.2	21.7	146.75	756.2	-605.6	550.7	513.2	37.54	14.670				
5,100.0	4,875.4	5,122.3	4,987.5	29.9	22.3	146.49	776.7	-625.5	558.3	519.8	38.56	14.479				
5,200.0	4,969.9	5,222.0	5,083.0	30.6	22.9	146.25	797.2	-645.4	566.0	526.4	39.59	14.297				
5,300.0	5,064.3	5,321.6	5,178.5	31.3	23.5	146.01	817.7	-665.4	573.7	533.1	40.62	14.123				
5,400.0	5,158.8	5,421.3	5,273.9	32.0	24.1	145.77	838.1	-685.3	581.4	539.7	41.65	13.957				
5,500.0	5,253.2	5,521.0	5,369.4	32.7	24.7	145.55	858.6	-705.2	589.1	546.4	42.69	13.799				
5,600.0	5,347.7	5,620.7	5,464.9	33.4	25.3	145.33	879.1	-725.1	596.8	553.0	43.73	13.647				
5,700.0	5,442.2	5,709.6	5,550.4	34.0	25.7	145.20	896.7	-742.2	605.2	560.6	44.63	13.561				
5,718.1	5,459.2	5,725.3	5,565.6	34.2	25.8	145.20	899.7	-745.1	607.0	562.2	44.77	13.557				
5,800.0	5,537.0	5,800.0	5,638.0	34.7	26.1	145.30	912.7	-757.7	614.8	569.4	45.38	13.548				
5,900.0	5,632.8	5,883.3	5,719.3	35.1	26.4	145.42	925.7	-770.3	623.6	577.6	45.99	13.561				
6,000.0	5,729.6	5,970.0	5,804.4	35.6	26.7	145.55	937.3	-781.7	631.6	585.1	46.52	13.577				
6,100.0	5,827.2	6,056.5	5,889.9	35.9	26.9	145.69	947.1	-791.2	638.8	591.8	46.97	13.599				
6,200.0	5,925.6	6,143.0	5,975.7	36.3	27.2	145.84	955.1	-798.9	645.2	597.9	47.35	13.627				
6,300.0	6,024.4	6,229.4	6,061.7	36.5	27.4	145.99	961.2	-804.9	650.8	603.2	47.64	13.661				
6,400.0	6,123.8	6,315.8	6,147.8	36.7	27.5	146.16	965.4	-809.0	655.6	607.7	47.85	13.700				
6,500.0	6,223.5	6,400.0	6,232.0	36.9	27.6	146.32	967.7	-811.2	659.5	611.5	47.98	13.745				
6,600.0	6,323.4	6,491.4	6,323.4	37.0	27.7	146.50	968.3	-811.8	662.6	614.5	48.04	13.792				
6,676.6	6,400.0	6,568.0	6,400.0	37.1	27.8	89.76	968.3	-811.8	663.4	615.3	48.10	13.791				
6,700.0	6,423.4	6,591.4	6,423.4	37.1	27.8	89.76	968.3	-811.8	663.4	615.3	48.16	13.776				
6,800.0	6,523.4	6,691.4	6,523.4	37.2	27.9	89.76	968.2	-811.8	663.4	615.0	48.40	13.708				
6,856.6	6,580.0	6,748.1	6,580.0	37.3	28.0	90.00	965.5	-811.8	663.4	615.0	48.37	13.715				
6,900.0	6,623.4	6,791.1	6,622.7	37.3	28.0	90.42	960.6	-811.8	663.4	615.2	48.20	13.765				
6,993.5	6,716.9	6,881.1	6,710.8	37.4	27.9	91.97	942.7	-811.8	663.8	616.4	47.42	13.999				
7,000.0	6,723.4	6,887.1	6,716.7	37.4	27.9	-87.89	941.1	-811.8	663.9	616.6	47.35	14.022				
7,050.0	6,773.3	6,933.6	6,761.1	37.4	27.8	-86.83	927.5	-811.8	664.5	617.8	46.74	14.219				
7,100.0	6,823.0	6,979.4	6,803.9	37.4	27.7	-85.79	911.4	-811.8	665.3	619.3	46.08	14.438				
7,150.0	6,872.3	7,024.5	6,845.2	37.4	27.6	-84.77	893.1	-811.8	666.4	621.0	45.40	14.677				
7,200.0	6,920.9	7,069.1	6,884.8	37.3	27.5	-83.78	872.7	-811.8	667.6	622.9	44.71	14.933				
7,250.0	6,968.6	7,113.1	6,922.7	37.3	27.3	-82.81	850.2	-811.8	669.0	625.0	44.00	15.202				
7,300.0	7,015.2	7,156.7	6,958.8	37.2	27.2	-81.88	826.0	-811.8	670.5	627.2	43.31	15.482				
7,350.0	7,060.6	7,200.0	6,993.4	37.1	27.0	-80.98	799.8	-811.8	672.1	629.5	42.62	15.771				
7,400.0	7,104.5	7,242.4	7,025.7	36.9	26.8	-80.13	772.3	-811.8	673.8	631.8	41.95	16.061				
7,450.0	7,146.7	7,284.7	7,056.3	36.8	26.6	-79.31	743.2	-811.8	675.6	634.3	41.32	16.351				
7,500.0	7,187.1	7,326.6	7,085.0	36.6	26.5	-78.54	712.7	-811.8	677.4	636.7	40.71	16.638				
7,550.0	7,225.4	7,368.1	7,111.8	36.5	26.3	-77.81	680.9	-811.8	679.2	639.0	40.15	16.916				
7,600.0	7,261.6	7,409.4	7,136.7	36.3	26.1	-77.13	648.0	-811.8	680.9	641.3	39.63	17.182				
7,650.0	7,295.5	7,450.0	7,159.4	36.1	25.9	-76.50	614.4	-811.8	682.7	643.5	39.17	17.429				
7,700.0	7,326.9	7,491.1	7,180.5	35.9	25.7	-75.91	579.1	-811.8	684.4	645.6	38.76	17.657				
7,750.0	7,355.7	7,531.7	7,199.4	35.7	25.5	-75.38	543.2	-811.8	685.9	647.5	38.41	17.857				
7,800.0	7,381.7	7,572.0	7,216.3	35.5	25.3	-74.90	506.7	-811.8	687.4	649.3	38.13	18.027				
7,850.0	7,404.9	7,612.1	7,231.3	35.3	25.1	-74.47	469.4	-811.8	688.8	650.8	37.92	18.163				
7,900.0	7,425.1	7,650.0	7,243.5	35.1	25.0	-74.12	433.5	-811.8	690.0	652.2	37.79	18.260				
7,950.0	7,442.3	7,692.0	7,255.0	34.9	24.8	-73.79	393.2	-811.8	691.0	653.3	37.71	18.322				
8,000.0	7,456.5	7,731.7	7,263.8	34.7	24.6	-73.53	354.4	-811.8	691.9	654.2	37.73	18.340				
8,050.0	7,467.4	7,771.4	7,270.6	34.5	24.4	-73.32	315.3	-811.8	692.6	654.8	37.81	18.319				
8,100.0	7,475.1	7,811.0	7,275.3	34.3	24.3	-73.18	276.0	-811.8	693.1	655.1	37.96	18.259				
8,150.0	7,479.6	7,850.0	7,278.0	34.2	24.1	-73.09	237.1	-811.8	693.4	655.2	38.18	18.162				
8,192.7	7,480.8	7,886.4	7,278.7	34.0	24.0	-73.05	200.7	-811.8	693.5	655.1	38.42	18.051				
8,194.1	7,480.8	7,886.4	7,278.7	34.0	24.0	-73.05	200.7	-811.8	693.5	655.1	38.42	18.051				

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-243 - Wellbore #1 - Plan #2 (Offset Site Error:		0.0 ft	
Survey Program: 0-MWD												Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	Toolface (°)	+N/-S (ft)	+E/-W (ft)	Centres (ft)	Ellipses (ft)	Separation (ft)	Factor			
8,200.0	7,480.8	7,891.1	7,278.7	34.0	24.0	-73.05	196.0	-811.8	693.5	655.1	38.42	18.049			
8,300.0	7,480.9	7,991.1	7,278.2	33.7	23.6	-73.01	96.0	-811.8	693.7	655.0	38.68	17.934			
8,400.0	7,481.1	8,091.1	7,277.7	33.5	23.3	-72.96	-4.0	-811.8	693.9	654.6	39.28	17.666			
8,500.0	7,481.2	8,191.1	7,277.3	33.3	23.1	-72.92	-104.0	-811.8	694.0	653.8	40.20	17.264			
8,600.0	7,481.3	8,291.1	7,276.8	33.2	23.2	-72.87	-204.0	-811.8	694.2	652.8	41.43	16.755			
8,700.0	7,481.4	8,391.1	7,276.3	33.2	23.7	-72.82	-303.9	-811.8	694.4	651.4	42.95	16.169			
8,800.0	7,481.5	8,491.1	7,275.8	33.3	24.8	-72.78	-403.9	-811.8	694.6	649.8	44.71	15.535			
8,900.0	7,481.6	8,591.1	7,275.4	33.5	25.9	-72.73	-503.9	-811.8	694.7	648.0	46.69	14.878			
9,000.0	7,481.7	8,691.1	7,274.9	33.9	27.2	-72.69	-603.9	-811.8	694.9	646.0	48.88	14.217			
9,100.0	7,481.8	8,791.1	7,274.4	34.5	28.5	-72.64	-703.9	-811.8	695.1	643.8	51.23	13.568			
9,200.0	7,481.9	8,891.1	7,274.0	35.2	29.9	-72.60	-803.9	-811.8	695.2	641.5	53.73	12.940			
9,300.0	7,482.0	8,991.1	7,273.5	36.1	31.3	-72.55	-903.9	-811.8	695.4	639.1	56.35	12.341			
9,400.0	7,482.1	9,091.1	7,273.0	37.2	32.8	-72.51	-1,003.9	-811.8	695.6	636.5	59.09	11.772			
9,500.0	7,482.2	9,191.1	7,272.5	38.3	34.3	-72.46	-1,103.9	-811.8	695.8	633.8	61.92	11.236			
9,600.0	7,482.3	9,291.1	7,272.1	39.6	35.9	-72.42	-1,203.9	-811.8	695.9	631.1	64.83	10.734			
9,700.0	7,482.4	9,391.1	7,271.6	40.9	37.5	-72.37	-1,303.9	-811.8	696.1	628.3	67.82	10.264			
9,800.0	7,482.5	9,491.1	7,271.1	42.3	39.1	-72.33	-1,403.9	-811.8	696.3	625.4	70.87	9.825			
9,900.0	7,482.6	9,591.1	7,270.7	43.8	40.7	-72.28	-1,503.9	-811.8	696.4	622.5	73.97	9.415			
10,000.0	7,482.7	9,691.1	7,270.2	45.3	42.3	-72.24	-1,603.9	-811.8	696.6	619.5	77.12	9.033			
10,100.0	7,482.8	9,791.1	7,269.7	46.8	44.0	-72.19	-1,703.9	-811.8	696.8	616.5	80.32	8.676			
10,200.0	7,482.9	9,891.1	7,269.2	48.4	45.7	-72.15	-1,803.9	-811.8	697.0	613.4	83.55	8.342			
10,300.0	7,483.0	9,991.1	7,268.8	49.9	47.4	-72.10	-1,903.9	-811.8	697.2	610.3	86.81	8.031			
10,400.0	7,483.1	10,091.1	7,268.3	51.5	49.1	-72.06	-2,003.9	-811.8	697.3	607.2	90.10	7.740			
10,500.0	7,483.3	10,191.1	7,267.8	53.2	50.9	-72.01	-2,103.9	-811.8	697.5	604.1	93.42	7.467			
10,600.0	7,483.4	10,291.1	7,267.4	54.8	52.6	-71.97	-2,203.9	-811.8	697.7	600.9	96.76	7.211			
10,700.0	7,483.5	10,391.1	7,266.9	56.5	54.3	-71.92	-2,303.9	-811.8	697.9	597.7	100.12	6.971			
10,800.0	7,483.6	10,491.1	7,266.4	58.2	56.1	-71.88	-2,403.9	-811.8	698.0	594.5	103.49	6.745			
10,900.0	7,483.7	10,591.1	7,266.0	59.8	57.9	-71.83	-2,503.9	-811.8	698.2	591.3	106.89	6.532			
11,000.0	7,483.8	10,691.0	7,265.5	61.6	59.7	-71.79	-2,603.9	-811.8	698.4	588.1	110.30	6.332			
11,100.0	7,483.9	10,791.0	7,265.0	63.3	61.4	-71.74	-2,703.9	-811.8	698.6	584.9	113.72	6.143			
11,200.0	7,484.0	10,891.0	7,264.5	65.0	63.2	-71.70	-2,803.9	-811.8	698.8	581.6	117.15	5.964			
11,300.0	7,484.1	10,991.0	7,264.1	66.7	65.0	-71.65	-2,903.9	-811.8	698.9	578.3	120.60	5.796			
11,400.0	7,484.2	11,091.0	7,263.6	68.5	66.8	-71.61	-3,003.9	-811.8	699.1	575.1	124.05	5.636			
11,500.0	7,484.3	11,191.0	7,263.1	70.2	68.7	-71.56	-3,103.9	-811.8	699.3	571.8	127.52	5.484			
11,600.0	7,484.4	11,291.0	7,262.7	72.0	70.5	-71.52	-3,203.9	-811.8	699.5	568.5	130.99	5.340			
11,700.0	7,484.5	11,391.0	7,262.2	73.8	72.3	-71.47	-3,303.9	-811.8	699.7	565.2	134.46	5.203			
11,800.0	7,484.6	11,491.0	7,261.7	75.5	74.1	-71.43	-3,403.9	-811.8	699.8	561.9	137.95	5.073			
11,900.0	7,484.7	11,591.0	7,261.2	77.3	76.0	-71.38	-3,503.9	-811.8	700.0	558.6	141.44	4.949			
12,000.0	7,484.8	11,691.0	7,260.8	79.1	77.8	-71.34	-3,603.9	-811.8	700.2	555.3	144.94	4.831			
12,100.0	7,484.9	11,791.0	7,260.3	80.9	79.6	-71.29	-3,703.9	-811.8	700.4	552.0	148.44	4.719			
12,169.1	7,485.0	11,853.9	7,260.0	82.1	80.8	-71.27	-3,766.7	-811.8	700.6	549.8	150.75	4.647 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-443 - Wellbore #1 - Plan #2 (Offset Site Error:		0.0 ft
Survey Program:		0-MWD										Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	51.20	76.5	95.2	122.1					
100.0	100.0	100.0	100.0	0.1	0.1	51.20	76.5	95.2	122.1	121.9	0.22	543.238		
200.0	200.0	200.0	200.0	0.3	0.3	51.20	76.5	95.2	122.1	121.4	0.67	181.079	CC	
300.0	300.0	300.0	300.0	0.6	0.6	108.57	76.5	95.2	122.5	121.4	1.12	109.446	ES	
400.0	399.9	399.9	399.9	0.8	0.8	110.27	76.5	95.2	123.8	122.3	1.57	78.979		
500.0	499.7	499.7	499.7	1.0	1.0	113.02	76.5	95.2	126.2	124.2	2.03	62.247		
600.0	599.3	599.3	599.3	1.3	1.2	116.67	76.5	95.2	130.1	127.6	2.50	51.984		
700.0	698.6	698.6	698.6	1.6	1.5	121.01	76.5	95.2	135.8	132.8	2.99	45.387		
800.0	797.5	797.5	797.5	1.9	1.7	125.78	76.5	95.2	143.8	140.3	3.49	41.149		
900.0	896.1	896.1	896.1	2.2	1.9	130.73	76.5	95.2	154.4	150.4	4.00	38.560		
1,000.0	994.2	994.2	994.2	2.6	2.1	135.59	76.5	95.2	167.8	163.3	4.51	37.184		
1,100.0	1,091.7	1,091.7	1,091.7	3.1	2.3	140.18	76.5	95.2	184.4	179.4	5.02	36.719		
1,200.0	1,188.6	1,188.6	1,188.6	3.6	2.6	144.39	76.5	95.2	204.1	198.6	5.53	36.943		
1,300.0	1,284.9	1,287.0	1,287.0	4.1	2.8	148.11	77.0	94.8	226.6	220.6	6.02	37.612		
1,400.0	1,380.4	1,385.8	1,385.7	4.7	3.0	151.14	79.0	93.4	251.0	244.5	6.52	38.491		
1,478.1	1,454.3	1,463.0	1,462.9	5.2	3.2	153.10	81.4	91.6	271.2	264.3	6.91	39.246		
1,500.0	1,475.1	1,484.7	1,484.6	5.3	3.2	153.64	82.2	91.0	277.0	270.0	7.02	39.439		
1,600.0	1,569.5	1,584.3	1,584.0	6.0	3.4	155.66	87.0	87.6	303.0	295.5	7.55	40.150		
1,700.0	1,664.0	1,684.8	1,684.3	6.6	3.7	157.16	93.1	83.2	328.1	320.0	8.08	40.595		
1,800.0	1,758.4	1,786.2	1,785.2	7.3	3.9	158.25	100.8	77.6	352.0	343.4	8.63	40.793		
1,900.0	1,852.9	1,888.3	1,886.6	8.0	4.2	159.01	110.0	71.0	374.8	365.6	9.19	40.767		
2,000.0	1,947.3	1,991.1	1,988.6	8.6	4.4	159.52	120.7	63.2	396.2	386.5	9.77	40.540		
2,100.0	2,041.8	2,094.6	2,091.0	9.3	4.7	159.80	133.0	54.3	416.4	406.0	10.38	40.134		
2,200.0	2,136.2	2,198.7	2,193.7	10.0	5.0	159.89	146.9	44.3	435.2	424.2	11.00	39.567		
2,300.0	2,230.7	2,303.4	2,296.6	10.7	5.4	159.81	162.4	33.1	452.7	441.0	11.65	38.855		
2,400.0	2,325.2	2,408.5	2,399.5	11.3	5.8	159.59	179.4	20.8	468.8	456.4	12.33	38.014		
2,500.0	2,419.6	2,514.0	2,502.5	12.0	6.1	159.23	198.1	7.3	483.5	470.4	13.05	37.061		
2,600.0	2,514.1	2,619.7	2,605.2	12.7	6.6	158.74	218.4	-7.3	496.8	483.1	13.80	36.014		
2,700.0	2,608.5	2,718.8	2,701.3	13.4	7.0	158.24	238.0	-21.5	509.6	495.0	14.55	35.017		
2,800.0	2,703.0	2,817.9	2,797.4	14.1	7.4	157.76	257.7	-35.8	522.4	507.0	15.32	34.089		
2,900.0	2,797.4	2,917.0	2,893.4	14.8	7.9	157.31	277.4	-50.0	535.2	519.1	16.11	33.225		
3,000.0	2,891.9	3,016.1	2,989.5	15.5	8.3	156.88	297.1	-64.2	548.0	531.1	16.90	32.420		
3,100.0	2,986.3	3,115.1	3,085.6	16.1	8.8	156.47	316.8	-78.4	560.9	543.2	17.71	31.670		
3,200.0	3,080.8	3,214.2	3,181.6	16.8	9.2	156.07	336.4	-92.6	573.8	555.2	18.53	30.970		
3,300.0	3,175.2	3,313.3	3,277.7	17.5	9.7	155.69	356.1	-106.9	586.7	567.3	19.35	30.317		
3,400.0	3,269.7	3,412.4	3,373.8	18.2	10.2	155.33	375.8	-121.1	599.6	579.4	20.19	29.706		
3,500.0	3,364.2	3,511.5	3,469.8	18.9	10.7	154.99	395.5	-135.3	612.6	591.6	21.03	29.134		
3,600.0	3,458.6	3,610.6	3,565.9	19.6	11.1	154.66	415.2	-149.5	625.6	603.7	21.87	28.598		
3,700.0	3,553.1	3,709.7	3,662.0	20.3	11.6	154.34	434.8	-163.7	638.6	615.8	22.73	28.095		
3,800.0	3,647.5	3,808.8	3,758.0	21.0	12.1	154.04	454.5	-178.0	651.6	628.0	23.59	27.623		
3,900.0	3,742.0	3,907.9	3,854.1	21.6	12.6	153.74	474.2	-192.2	664.6	640.2	24.46	27.178		
4,000.0	3,836.4	4,007.0	3,950.2	22.3	13.1	153.46	493.9	-206.4	677.7	652.4	25.33	26.759		
4,100.0	3,930.9	4,106.0	4,046.2	23.0	13.6	153.19	513.6	-220.6	690.8	664.6	26.20	26.364		
4,200.0	4,025.3	4,205.1	4,142.3	23.7	14.1	152.93	533.2	-234.8	703.9	676.8	27.08	25.990		
4,300.0	4,119.8	4,304.2	4,238.4	24.4	14.6	152.68	552.9	-249.1	717.0	689.0	27.97	25.637		
4,400.0	4,214.2	4,403.3	4,334.5	25.1	15.1	152.43	572.6	-263.3	730.1	701.2	28.85	25.303		
4,500.0	4,308.7	4,502.4	4,430.5	25.8	15.6	152.20	592.3	-277.5	743.2	713.5	29.75	24.986		
4,600.0	4,403.2	4,601.5	4,526.6	26.5	16.1	151.97	612.0	-291.7	756.4	725.7	30.64	24.685		
4,700.0	4,497.6	4,700.6	4,622.7	27.2	16.5	151.76	631.6	-305.9	769.5	738.0	31.54	24.400		
4,800.0	4,592.1	4,799.7	4,718.7	27.8	17.0	151.55	651.3	-320.2	782.7	750.2	32.44	24.128		
4,900.0	4,686.5	4,898.8	4,814.8	28.5	17.5	151.34	671.0	-334.4	795.8	762.5	33.34	23.869	SF	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Offset Design													
Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-443 - Wellbore #1 - Plan #2 (
Survey Program: 0-MWD												Offset Site Error:	0.0 ft
												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5005.0ft (RKB - 13')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Fitzsimmons 9E-403

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.46°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9E-403
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5005.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5005.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9E-403	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (4-30-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5005.0ft (RKB - 13')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Fitzsimmons 9E-403
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.46°

