

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Fitzsimmons 9M-443**

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

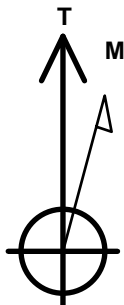
Ground Elevation: 4990.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1269697.89	3200385.91	40.071490	-104.783970	

RKB - 13' WELL @ 5003.0ft (RKB - 13')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' E & W Hardline (9M-443)	1.0	-2252.8	72.8	Rectangle (Sides: L3967.9 W100.0)
SHL 539'FNL & 2160'FWL	1.0	0.0	0.0	Point
BHL 500'FSL & 2208'FWL	7490.0	-4236.7	72.8	Point



Azimuths to True North
Magnetic North: 8.32°

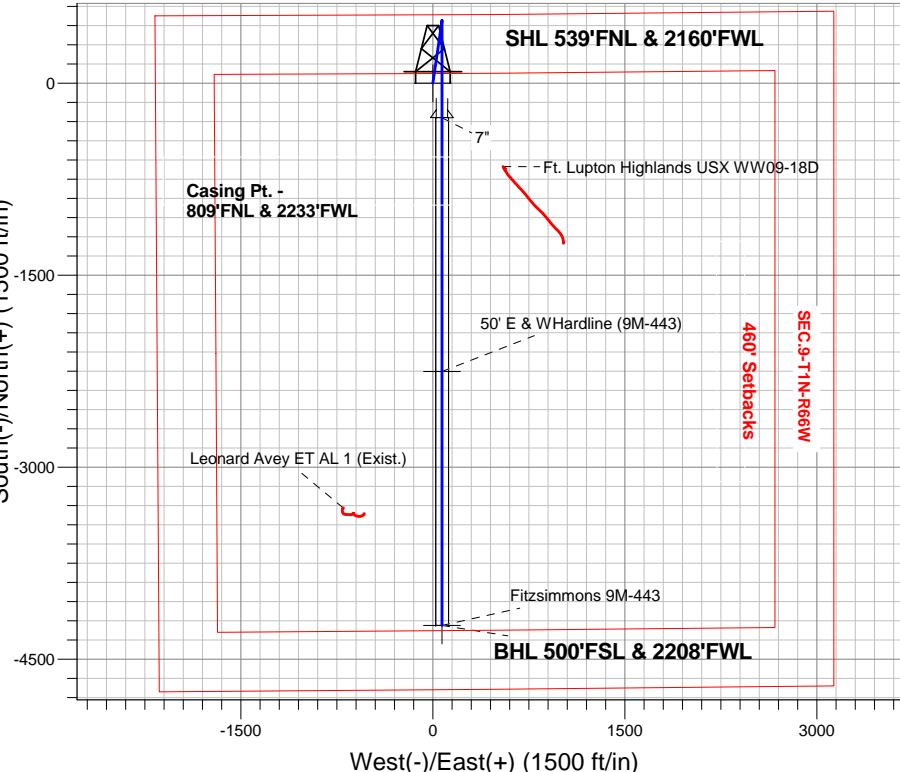
Magnetic Field
Strength: 52546.3snT
Dip Angle: 66.65°
Date: 5/4/2015
Model: IGRF2010

Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W
Fitzsimmons 9M-443
Plan #2 (5-01-15)
9:17, May 04 2015

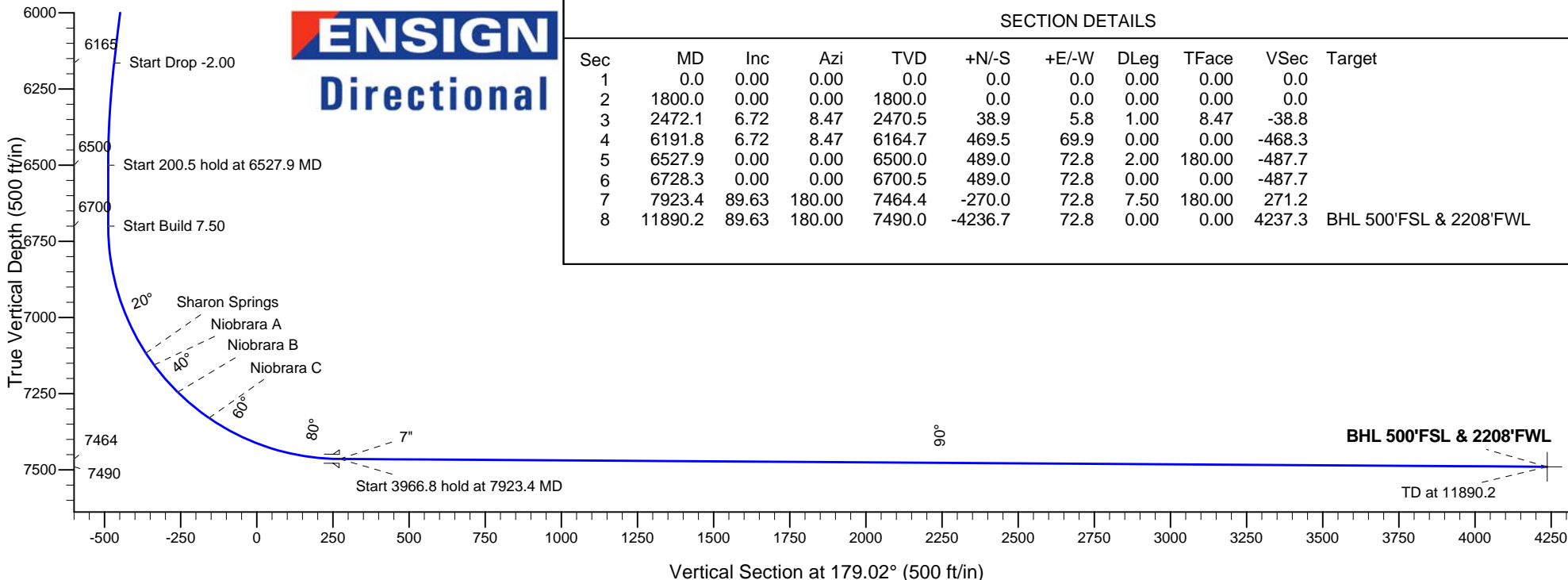
ANNOTATIONS

TVD	MD	Annotation
1800.0	1800.0	KOP - Start Build 1.00
6164.7	6191.8	Start Drop -2.00
6500.0	6527.9	Start 200.5 hold at 6527.9 MD
6700.5	6728.3	Start Build 7.50
7464.4	7923.4	Start 3966.8 hold at 7923.4 MD
7490.0	11890.2	TD at 11890.2

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



West(-)/East(+) (1500 ft/in)



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	1800.0	0.00	0.00	1800.0	0.0	0.0	0.00	0.00	0.0	
3	2472.1	6.72	8.47	2470.5	38.9	5.8	1.00	8.47	-38.8	
4	6191.8	6.72	8.47	6164.7	469.5	69.9	0.00	0.00	-468.3	
5	6527.9	0.00	0.00	6500.0	489.0	72.8	2.00	180.00	-487.7	
6	6728.3	0.00	0.00	6700.5	489.0	72.8	0.00	0.00	-487.7	
7	7923.4	89.63	180.00	7464.4	-270.0	72.8	7.50	180.00	271.2	
8	11890.2	89.63	180.00	7490.0	-4236.7	72.8	0.00	0.00	4237.3	BHL 500'FSL & 2208'FWL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.9-T1N-R66W

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

Fitzsimmons 9M-443

Wellbore #1

Plan: Plan #2 (5-01-15)

Standard Planning Report

04 May, 2015

Database:	Landmark	Local Co-ordinate Reference:	Well Fitzsimmons 9M-443
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Project:	SEC.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	North Reference:	True
Well:	Fitzsimmons 9M-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (5-01-15)		

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 (East) Pad Sec.9-T1N-R66W											
Site Position:						Northing:			1,269,661.10ft			Latitude:			40.071390		
From:			Lat/Long			Easting:			3,200,338.63ft			Longitude:			-104.784140		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.46 °		

Well	Fitzsimmons 9M-443					
Well Position	+N-S	36.4 ft	Northing:	1,269,697.89 ft	Latitude:	40.071490
	+E-W	47.6 ft	Easting:	3,200,385.91 ft	Longitude:	-104.783970
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,990.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/4/2015	8.32	66.65	52,546

Design	Plan #2 (5-01-15)			
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	179.02

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,472.1	6.72	8.47	2,470.5	38.9	5.8	1.00	1.00	0.00	8.47	
6,191.8	6.72	8.47	6,164.7	469.5	69.9	0.00	0.00	0.00	0.00	
6,527.9	0.00	0.00	6,500.0	489.0	72.8	2.00	-2.00	0.00	180.00	
6,728.3	0.00	0.00	6,700.5	489.0	72.8	0.00	0.00	0.00	0.00	
7,923.4	89.63	180.00	7,464.4	-270.0	72.8	7.50	7.50	0.00	180.00	
11,890.2	89.63	180.00	7,490.0	-4,236.7	72.8	0.00	0.00	0.00	0.00	BHL 500'FSL & 22C

Database:	Landmark	Local Co-ordinate Reference:	Well Fitzsimmons 9M-443
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Project:	SEC.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	North Reference:	True
Well:	Fitzsimmons 9M-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (5-01-15)		

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 539'FNL & 2160'FWL - 50' E & WHardline (9M-443)									
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
KOP - Start Build 1.00									
1,900.0	1.00	8.47	1,900.0	0.9	0.1	-0.9	1.00	1.00	0.00
2,000.0	2.00	8.47	2,000.0	3.5	0.5	-3.4	1.00	1.00	0.00
2,100.0	3.00	8.47	2,099.9	7.8	1.2	-7.7	1.00	1.00	0.00
2,200.0	4.00	8.47	2,199.7	13.8	2.1	-13.8	1.00	1.00	0.00
2,300.0	5.00	8.47	2,299.4	21.6	3.2	-21.5	1.00	1.00	0.00
2,400.0	6.00	8.47	2,398.9	31.0	4.6	-31.0	1.00	1.00	0.00
2,472.1	6.72	8.47	2,470.5	38.9	5.8	-38.8	1.00	1.00	0.00
2,500.0	6.72	8.47	2,498.3	42.2	6.3	-42.1	0.00	0.00	0.00
2,600.0	6.72	8.47	2,597.6	53.8	8.0	-53.6	0.00	0.00	0.00
2,700.0	6.72	8.47	2,696.9	65.3	9.7	-65.1	0.00	0.00	0.00
2,800.0	6.72	8.47	2,796.2	76.9	11.4	-76.7	0.00	0.00	0.00
2,900.0	6.72	8.47	2,895.5	88.5	13.2	-88.2	0.00	0.00	0.00
3,000.0	6.72	8.47	2,994.8	100.1	14.9	-99.8	0.00	0.00	0.00
3,100.0	6.72	8.47	3,094.1	111.6	16.6	-111.3	0.00	0.00	0.00
3,200.0	6.72	8.47	3,193.5	123.2	18.3	-122.9	0.00	0.00	0.00
3,300.0	6.72	8.47	3,292.8	134.8	20.1	-134.4	0.00	0.00	0.00
3,400.0	6.72	8.47	3,392.1	146.4	21.8	-146.0	0.00	0.00	0.00
3,500.0	6.72	8.47	3,491.4	157.9	23.5	-157.5	0.00	0.00	0.00
3,600.0	6.72	8.47	3,590.7	169.5	25.2	-169.0	0.00	0.00	0.00
3,700.0	6.72	8.47	3,690.0	181.1	27.0	-180.6	0.00	0.00	0.00
3,800.0	6.72	8.47	3,789.3	192.7	28.7	-192.1	0.00	0.00	0.00
3,900.0	6.72	8.47	3,888.6	204.2	30.4	-203.7	0.00	0.00	0.00
4,000.0	6.72	8.47	3,988.0	215.8	32.1	-215.2	0.00	0.00	0.00
4,100.0	6.72	8.47	4,087.3	227.4	33.8	-226.8	0.00	0.00	0.00
4,200.0	6.72	8.47	4,186.6	239.0	35.6	-238.3	0.00	0.00	0.00
4,213.5	6.72	8.47	4,200.0	240.5	35.8	-239.9	0.00	0.00	0.00
Parkman									
4,300.0	6.72	8.47	4,285.9	250.5	37.3	-249.9	0.00	0.00	0.00
4,400.0	6.72	8.47	4,385.2	262.1	39.0	-261.4	0.00	0.00	0.00
4,500.0	6.72	8.47	4,484.5	273.7	40.7	-272.9	0.00	0.00	0.00

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Project:	SEC.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	North Reference:	True
Well:	Fitzsimmons 9M-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (5-01-15)		

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	6.72	8.47	4,583.8	285.3	42.5	-284.5	0.00	0.00	0.00
4,646.5	6.72	8.47	4,630.0	290.6	43.3	-289.9	0.00	0.00	0.00
Sussex									
4,700.0	6.72	8.47	4,683.1	296.8	44.2	-296.0	0.00	0.00	0.00
4,800.0	6.72	8.47	4,782.5	308.4	45.9	-307.6	0.00	0.00	0.00
4,900.0	6.72	8.47	4,881.8	320.0	47.6	-319.1	0.00	0.00	0.00
5,000.0	6.72	8.47	4,981.1	331.6	49.4	-330.7	0.00	0.00	0.00
5,100.0	6.72	8.47	5,080.4	343.1	51.1	-342.2	0.00	0.00	0.00
5,119.7	6.72	8.47	5,100.0	345.4	51.4	-344.5	0.00	0.00	0.00
Shannon									
5,200.0	6.72	8.47	5,179.7	354.7	52.8	-353.8	0.00	0.00	0.00
5,300.0	6.72	8.47	5,279.0	366.3	54.5	-365.3	0.00	0.00	0.00
5,400.0	6.72	8.47	5,378.3	377.9	56.2	-376.8	0.00	0.00	0.00
5,500.0	6.72	8.47	5,477.7	389.4	58.0	-388.4	0.00	0.00	0.00
5,600.0	6.72	8.47	5,577.0	401.0	59.7	-399.9	0.00	0.00	0.00
5,700.0	6.72	8.47	5,676.3	412.6	61.4	-411.5	0.00	0.00	0.00
5,800.0	6.72	8.47	5,775.6	424.2	63.1	-423.0	0.00	0.00	0.00
5,900.0	6.72	8.47	5,874.9	435.7	64.9	-434.6	0.00	0.00	0.00
6,000.0	6.72	8.47	5,974.2	447.3	66.6	-446.1	0.00	0.00	0.00
6,100.0	6.72	8.47	6,073.5	458.9	68.3	-457.7	0.00	0.00	0.00
6,191.8	6.72	8.47	6,164.7	469.5	69.9	-468.3	0.00	0.00	0.00
Start Drop -2.00									
6,200.0	6.56	8.47	6,172.8	470.5	70.0	-469.2	1.99	-1.99	0.00
6,300.0	4.56	8.47	6,272.4	480.0	71.5	-478.7	2.00	-2.00	0.00
6,400.0	2.56	8.47	6,372.2	486.2	72.4	-484.9	2.00	-2.00	0.00
6,500.0	0.56	8.47	6,472.1	488.9	72.8	-487.5	2.00	-2.00	0.00
6,527.9	0.00	0.00	6,500.0	489.0	72.8	-487.7	2.00	-2.00	0.00
Start 200.5 hold at 6527.9 MD									
6,600.0	0.00	0.00	6,572.1	489.0	72.8	-487.7	0.00	0.00	0.00
6,700.0	0.00	0.00	6,672.1	489.0	72.8	-487.7	0.00	0.00	0.00
6,728.3	0.00	0.00	6,700.4	489.0	72.8	-487.7	0.00	0.00	0.00
Start Build 7.50									
6,800.0	5.38	180.00	6,772.0	485.6	72.8	-484.3	7.50	7.50	0.00
6,900.0	12.88	180.00	6,870.7	469.8	72.8	-468.5	7.50	7.50	0.00
7,000.0	20.38	180.00	6,966.4	441.2	72.8	-439.9	7.50	7.50	0.00
7,100.0	27.88	180.00	7,057.6	400.4	72.8	-399.0	7.50	7.50	0.00
7,168.9	33.04	180.00	7,117.0	365.4	72.8	-364.1	7.50	7.50	0.00
Sharon Springs									
7,200.0	35.38	180.00	7,142.7	348.0	72.8	-346.7	7.50	7.50	0.00
7,216.4	36.61	180.00	7,156.0	338.3	72.8	-337.0	7.50	7.50	0.00
Niobrara A									
7,300.0	42.88	180.00	7,220.2	284.9	72.8	-283.6	7.50	7.50	0.00
7,334.5	45.46	180.00	7,245.0	260.9	72.8	-259.6	7.50	7.50	0.00
Niobrara B									
7,400.0	50.38	180.00	7,288.9	212.3	72.8	-211.0	7.50	7.50	0.00
7,468.3	55.49	180.00	7,330.0	157.8	72.8	-156.5	7.50	7.50	0.00
Niobrara C									
7,500.0	57.88	180.00	7,347.4	131.3	72.8	-130.0	7.50	7.50	0.00
7,600.0	65.38	180.00	7,394.9	43.4	72.8	-42.1	7.50	7.50	0.00
7,700.0	72.88	180.00	7,430.5	-50.0	72.8	51.2	7.50	7.50	0.00
7,800.0	80.38	180.00	7,453.6	-147.2	72.8	148.4	7.50	7.50	0.00

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Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	North Reference:	True
Well:	Fitzsimmons 9M-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (5-01-15)		

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	87.88	180.00	7,463.9	-246.6	72.8	247.8	7.50	7.50	0.00
7,923.4	89.63	180.00	7,464.4	-270.0	72.8	271.2	7.50	7.50	0.00
Start 3966.8 hold at 7923.4 MD - 7"									
8,000.0	89.63	180.00	7,464.9	-346.6	72.8	347.8	0.00	0.00	0.00
8,100.0	89.63	180.00	7,465.5	-446.6	72.8	447.8	0.00	0.00	0.00
8,200.0	89.63	180.00	7,466.2	-546.6	72.8	547.8	0.00	0.00	0.00
8,300.0	89.63	180.00	7,466.8	-646.6	72.8	647.8	0.00	0.00	0.00
8,400.0	89.63	180.00	7,467.5	-746.6	72.8	747.7	0.00	0.00	0.00
8,500.0	89.63	180.00	7,468.1	-846.6	72.8	847.7	0.00	0.00	0.00
8,600.0	89.63	180.00	7,468.8	-946.6	72.8	947.7	0.00	0.00	0.00
8,700.0	89.63	180.00	7,469.4	-1,046.6	72.8	1,047.7	0.00	0.00	0.00
8,800.0	89.63	180.00	7,470.0	-1,146.6	72.8	1,147.7	0.00	0.00	0.00
8,900.0	89.63	180.00	7,470.7	-1,246.6	72.8	1,247.7	0.00	0.00	0.00
9,000.0	89.63	180.00	7,471.3	-1,346.6	72.8	1,347.6	0.00	0.00	0.00
9,100.0	89.63	180.00	7,472.0	-1,446.6	72.8	1,447.6	0.00	0.00	0.00
9,200.0	89.63	180.00	7,472.6	-1,546.6	72.8	1,547.6	0.00	0.00	0.00
9,257.6	89.63	180.00	7,473.0	-1,604.2	72.8	1,605.2	0.00	0.00	0.00
Ft. Hays									
9,300.0	89.63	180.00	7,473.3	-1,646.6	72.8	1,647.6	0.00	0.00	0.00
9,400.0	89.63	180.00	7,473.9	-1,746.6	72.8	1,747.6	0.00	0.00	0.00
9,500.0	89.63	180.00	7,474.6	-1,846.6	72.8	1,847.6	0.00	0.00	0.00
9,600.0	89.63	180.00	7,475.2	-1,946.6	72.8	1,947.5	0.00	0.00	0.00
9,700.0	89.63	180.00	7,475.9	-2,046.6	72.8	2,047.5	0.00	0.00	0.00
9,800.0	89.63	180.00	7,476.5	-2,146.6	72.8	2,147.5	0.00	0.00	0.00
9,900.0	89.63	180.00	7,477.1	-2,246.6	72.8	2,247.5	0.00	0.00	0.00
10,000.0	89.63	180.00	7,477.8	-2,346.6	72.8	2,347.5	0.00	0.00	0.00
10,100.0	89.63	180.00	7,478.4	-2,446.6	72.8	2,447.5	0.00	0.00	0.00
10,200.0	89.63	180.00	7,479.1	-2,546.6	72.8	2,547.4	0.00	0.00	0.00
10,300.0	89.63	180.00	7,479.7	-2,646.6	72.8	2,647.4	0.00	0.00	0.00
10,400.0	89.63	180.00	7,480.4	-2,746.6	72.8	2,747.4	0.00	0.00	0.00
10,500.0	89.63	180.00	7,481.0	-2,846.6	72.8	2,847.4	0.00	0.00	0.00
10,600.0	89.63	180.00	7,481.7	-2,946.6	72.8	2,947.4	0.00	0.00	0.00
10,700.0	89.63	180.00	7,482.3	-3,046.6	72.8	3,047.4	0.00	0.00	0.00
10,800.0	89.63	180.00	7,483.0	-3,146.6	72.8	3,147.3	0.00	0.00	0.00
10,900.0	89.63	180.00	7,483.6	-3,246.6	72.8	3,247.3	0.00	0.00	0.00
11,000.0	89.63	180.00	7,484.3	-3,346.6	72.8	3,347.3	0.00	0.00	0.00
11,100.0	89.63	180.00	7,484.9	-3,446.6	72.8	3,447.3	0.00	0.00	0.00
11,200.0	89.63	180.00	7,485.5	-3,546.5	72.8	3,547.3	0.00	0.00	0.00
11,300.0	89.63	180.00	7,486.2	-3,646.5	72.8	3,647.3	0.00	0.00	0.00
11,400.0	89.63	180.00	7,486.8	-3,746.5	72.8	3,747.2	0.00	0.00	0.00
11,500.0	89.63	180.00	7,487.5	-3,846.5	72.8	3,847.2	0.00	0.00	0.00
11,600.0	89.63	180.00	7,488.1	-3,946.5	72.8	3,947.2	0.00	0.00	0.00
11,700.0	89.63	180.00	7,488.8	-4,046.5	72.8	4,047.2	0.00	0.00	0.00
11,800.0	89.63	180.00	7,489.4	-4,146.5	72.8	4,147.2	0.00	0.00	0.00
11,890.2	89.63	180.00	7,490.0	-4,236.7	72.8	4,237.3	0.00	0.00	0.00
BHL 500'FSL & 2208'FWL									

Database:	Landmark	Local Co-ordinate Reference:	Well Fitzsimmons 9M-443
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Project:	SEC.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	North Reference:	True
Well:	Fitzsimmons 9M-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (5-01-15)		

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
BHL 500'FSL & 2208'I - plan hits target center - Point	0.00	0.00	7,490.0	-4,236.7	72.8	1,265,462.10	3,200,492.90	40.059860	-104.783710
SHL 539'FNL & 2160' - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,269,697.91	3,200,385.91	40.071490	-104.783970
50' E & WHardline (9M - plan misses target center by 2253.9ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Rectangle (sides W3,967.9 H100.0 D0.0)	0.00	0.00	1.0	-2,252.8	72.8	1,267,445.89	3,200,476.90	40.065306	-104.783710

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,923.4	7,464.4	7"	7	7-1/2	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,213.5	4,200.0	Parkman		0.00	
4,646.5	4,630.0	Sussex		0.00	
5,119.7	5,100.0	Shannon		0.00	
7,168.9	7,117.0	Sharon Springs		0.00	
7,216.4	7,156.0	Niobrara A		0.00	
7,334.5	7,245.0	Niobrara B		0.00	
7,468.3	7,330.0	Niobrara C		0.00	
9,257.6	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
1,800.0	1,800.0	0.0	0.0	KOP - Start Build 1.00
6,191.8	6,164.7	38.9	5.8	Start Drop -2.00
6,527.9	6,500.0	469.5	69.9	Start 200.5 hold at 6527.9 MD
6,728.3	6,700.5	489.0	72.8	Start Build 7.50
7,923.4	7,464.4	489.0	72.8	Start 3966.8 hold at 7923.4 MD
11,890.2	7,490.0	-270.0	72.8	TD at 11890.2



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.9-T1N-R66W

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

Fitzsimmons 9M-443

Wellbore #1

Plan #2 (5-01-15)

Anticollision Report

04 May, 2015



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (5-01-15)		
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 5/4/2015			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,890.2	Plan #2 (5-01-15) (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						
Leonard Avey ET AL 1 (Exist.) - Wellbore #1 - Wellbore #	10,973.0	7,482.1	773.7	689.9	9.235	CC
Leonard Avey ET AL 1 (Exist.) - Wellbore #1 - Wellbore #	11,000.0	7,482.1	774.1	689.9	9.186	ES
Leonard Avey ET AL 1 (Exist.) - Wellbore #1 - Wellbore #	11,100.0	7,482.4	784.0	697.9	9.102	SF
Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W						
Fitzsimmons 9J-223 - Wellbore #1 - Plan #2 (5-01-15)	800.0	800.0	59.9	56.6	17.773	CC
Fitzsimmons 9J-223 - Wellbore #1 - Plan #2 (5-01-15)	1,000.0	999.8	60.2	56.0	14.134	ES
Fitzsimmons 9J-223 - Wellbore #1 - Plan #2 (5-01-15)	11,890.2	11,723.0	620.8	461.0	3.885	SF
Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4-30-15)	1,000.0	1,000.0	88.8	84.5	20.788	CC
Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4-30-15)	1,100.0	1,099.5	89.0	84.3	18.890	ES
Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4-30-15)	1,700.0	1,693.4	109.1	101.7	14.722	SF
Fitzsimmons 9J-323 - Wellbore #1 - Plan #2 (5-01-15)	1,498.2	1,498.3	30.1	23.6	4.626	CC
Fitzsimmons 9J-323 - Wellbore #1 - Plan #2 (5-01-15)	1,500.0	1,500.1	30.1	23.6	4.620	ES
Fitzsimmons 9J-323 - Wellbore #1 - Plan #2 (5-01-15)	11,890.2	11,775.9	338.5	186.0	2.219	SF
Fitzsimmons 9M-203 - Wellbore #1 - Plan #2 (5-01-15)	1,000.0	1,000.0	28.9	24.6	6.759	CC, ES
Fitzsimmons 9M-203 - Wellbore #1 - Plan #2 (5-01-15)	11,890.2	11,695.6	367.6	228.7	2.646	SF
Ft. Lupton Pad Sec.9-T1N-R66W						
Ft. Lupton Highlands USX WW09-18D - Ft. Lupton Highl	8,312.4	7,567.0	479.4	438.1	11.615	CC, ES
Ft. Lupton Highlands USX WW09-18D - Ft. Lupton Highl	8,400.0	7,567.0	487.3	444.9	11.492	SF

Offset Design	Existing Wells Sec.9-T1N-R66W - Leonard Avey ET AL 1 (Exist.) - Wellbore #1 - Wellbore #1										Offset Site Error:	0.0 ft
Survey Program:	100-NS-GYRO-MS										Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Warning				
Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Separation Factor			
10,800.0	7,483.0	7,481.6	7,476.7	64.7	16.0	89.75	-3,319.5	-700.9	792.8	712.2	80.57	9.840
10,900.0	7,483.6	7,481.8	7,477.0	66.5	16.0	89.77	-3,319.5	-700.9	777.1	694.7	82.42	9.428
10,973.0	7,484.1	7,482.1	7,477.2	67.9	16.0	89.79	-3,319.5	-700.9	773.7	689.9	83.78	9.235 CC
11,000.0	7,484.3	7,482.1	7,477.3	68.4	16.0	89.79	-3,319.5	-700.9	774.1	689.9	84.28	9.186 ES
11,100.0	7,484.9	7,482.4	7,477.6	70.2	16.0	89.82	-3,319.5	-700.9	784.0	697.9	86.14	9.102 SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	Offset TVD Reference:	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-223 - Wellbore #1 - Plan #2 (5										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	-127.44	-36.4	-47.6	59.9					
100.0	100.0	100.0	100.0	0.1	0.1	-127.44	-36.4	-47.6	59.9	59.7	0.22	266.602		
200.0	200.0	200.0	200.0	0.3	0.3	-127.44	-36.4	-47.6	59.9	59.2	0.67	88.867		
300.0	300.0	300.0	300.0	0.6	0.6	-127.44	-36.4	-47.6	59.9	58.8	1.12	53.320		
400.0	400.0	400.0	400.0	0.8	0.8	-127.44	-36.4	-47.6	59.9	58.3	1.57	38.086		
500.0	500.0	500.0	500.0	1.0	1.0	-127.44	-36.4	-47.6	59.9	57.9	2.02	29.622		
600.0	600.0	600.0	600.0	1.2	1.2	-127.44	-36.4	-47.6	59.9	57.5	2.47	24.237		
700.0	700.0	700.0	700.0	1.5	1.5	-127.44	-36.4	-47.6	59.9	57.0	2.92	20.508		
800.0	800.0	800.0	800.0	1.7	1.7	-127.44	-36.4	-47.6	59.9	56.6	3.37	17.773 CC		
900.0	900.0	899.9	899.9	1.9	1.9	-126.61	-35.8	-48.1	60.0	56.2	3.82	15.712		
1,000.0	1,000.0	999.8	999.8	2.1	2.1	-124.13	-33.8	-49.9	60.2	56.0	4.26	14.134 ES		
1,100.0	1,100.0	1,099.5	1,099.4	2.4	2.4	-120.07	-30.5	-52.7	60.9	56.2	4.71	12.935		
1,200.0	1,200.0	1,199.1	1,198.8	2.6	2.6	-114.59	-25.9	-56.7	62.3	57.2	5.16	12.083		
1,300.0	1,300.0	1,298.4	1,297.8	2.8	2.8	-107.99	-20.1	-61.8	65.0	59.4	5.62	11.572		
1,400.0	1,400.0	1,397.4	1,396.4	3.0	3.1	-100.76	-12.9	-68.0	69.3	63.2	6.08	11.399		
1,500.0	1,500.0	1,496.1	1,494.4	3.3	3.3	-93.44	-4.5	-75.3	75.6	69.1	6.54	11.552		
1,600.0	1,600.0	1,594.4	1,591.8	3.5	3.6	-86.51	5.1	-83.6	84.2	77.1	7.01	12.000		
1,700.0	1,700.0	1,693.4	1,689.9	3.7	3.9	-80.54	15.4	-92.5	94.4	86.9	7.48	12.610		
1,800.0	1,800.0	1,792.5	1,788.0	3.9	4.2	-75.78	25.7	-101.5	105.4	97.4	7.95	13.256		
1,900.0	1,900.0	1,891.6	1,886.2	4.2	4.5	-80.70	36.0	-110.4	116.8	108.5	8.38	13.951		
2,000.0	2,000.0	1,990.8	1,984.5	4.4	4.8	-78.54	46.4	-119.4	128.3	119.5	8.84	14.519		
2,100.0	2,099.9	2,090.2	2,082.9	4.6	5.1	-77.42	56.7	-128.4	139.5	130.2	9.30	14.996		
2,200.0	2,199.7	2,189.6	2,181.4	4.8	5.4	-77.11	67.1	-137.3	150.3	140.6	9.78	15.380		
2,300.0	2,299.4	2,289.0	2,279.9	5.1	5.7	-77.44	77.4	-146.3	160.8	150.6	10.26	15.677		
2,400.0	2,398.9	2,388.5	2,378.4	5.3	6.0	-78.29	87.8	-155.3	170.9	160.2	10.75	15.897		
2,472.1	2,470.5	2,460.2	2,449.4	5.5	6.3	-79.18	95.2	-161.8	178.0	166.9	11.12	16.012		
2,500.0	2,498.3	2,487.9	2,476.8	5.5	6.4	-79.59	98.1	-164.3	180.8	169.5	11.26	16.050		
2,600.0	2,597.6	2,587.3	2,575.3	5.8	6.7	-80.95	108.5	-173.3	190.6	178.9	11.79	16.175		
2,700.0	2,696.9	2,686.7	2,673.8	6.0	7.0	-82.18	118.8	-182.2	200.6	188.3	12.32	16.286		
2,800.0	2,796.2	2,786.2	2,772.2	6.3	7.3	-83.29	129.2	-191.2	210.7	197.8	12.86	16.385		
2,900.0	2,895.5	2,885.6	2,870.7	6.6	7.7	-84.30	139.5	-200.2	220.8	207.4	13.40	16.473		
3,000.0	2,994.8	2,985.0	2,969.2	6.8	8.0	-85.22	149.9	-209.2	231.0	217.0	13.95	16.551		
3,100.0	3,094.1	3,084.4	3,067.6	7.1	8.3	-86.06	160.2	-218.1	241.2	226.7	14.51	16.621		
3,200.0	3,193.5	3,183.8	3,166.1	7.4	8.6	-86.83	170.5	-227.1	251.5	236.4	15.07	16.683		
3,300.0	3,292.8	3,283.2	3,264.6	7.6	9.0	-87.55	180.9	-236.1	261.8	246.2	15.64	16.740		
3,400.0	3,392.1	3,382.6	3,363.0	7.9	9.3	-88.21	191.2	-245.1	272.2	255.9	16.21	16.791		
3,500.0	3,491.4	3,482.1	3,461.5	8.2	9.6	-88.82	201.6	-254.0	282.6	265.8	16.78	16.837		
3,600.0	3,590.7	3,581.5	3,560.0	8.5	10.0	-89.38	211.9	-263.0	293.0	275.6	17.36	16.879		
3,700.0	3,690.0	3,680.9	3,658.4	8.8	10.3	-89.91	222.3	-272.0	303.4	285.5	17.94	16.917		
3,800.0	3,789.3	3,780.3	3,756.9	9.1	10.6	-90.41	232.6	-281.0	313.9	295.4	18.52	16.952		
3,900.0	3,888.6	3,879.7	3,855.4	9.3	11.0	-90.87	243.0	-290.0	324.4	305.3	19.10	16.984		
4,000.0	3,988.0	3,979.1	3,953.8	9.6	11.3	-91.30	253.3	-298.9	334.9	315.2	19.69	17.013		
4,100.0	4,087.3	4,078.5	4,052.3	9.9	11.6	-91.70	263.7	-307.9	345.4	325.2	20.27	17.040		
4,200.0	4,186.6	4,178.0	4,150.8	10.2	12.0	-92.09	274.0	-316.9	356.0	335.1	20.86	17.065		
4,300.0	4,285.9	4,277.4	4,249.2	10.5	12.3	-92.45	284.4	-325.9	366.6	345.1	21.45	17.088		
4,400.0	4,385.2	4,376.8	4,347.7	10.8	12.6	-92.79	294.7	-334.8	377.1	355.1	22.04	17.109		
4,500.0	4,484.5	4,476.2	4,446.2	11.1	13.0	-93.11	305.1	-343.8	387.7	365.1	22.64	17.129		
4,600.0	4,583.8	4,575.6	4,544.6	11.4	13.3	-93.41	315.4	-352.8	398.3	375.1	23.23	17.148		
4,700.0	4,683.1	4,675.0	4,643.1	11.7	13.6	-93.70	325.8	-361.8	408.9	385.1	23.82	17.165		
4,800.0	4,782.5	4,774.4	4,741.6	12.0	14.0	-93.97	336.1	-370.7	419.6	395.1	24.42	17.182		
4,900.0	4,881.8	4,873.9	4,840.0	12.3	14.3	-94.23	346.5	-379.7	430.2	405.2	25.02	17.197		

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 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	Offset TVD Reference:	Offset Datum

Offset Design													Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-223 - Wellbore #1 - Plan #2 (5)		Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft		
Reference		Offset		Semi Major Axis			Distance										
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation	Warning				
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	Toolface (°)	+N/-S (ft)	+E/-W (ft)	Centres (ft)	Ellipses (ft)	Separation (ft)	Factor					
5,000.0	4,981.1	4,973.3	4,938.5	12.6	14.7	-94.48	356.8	-388.7	440.8	415.2	25.61	17.211					
5,100.0	5,080.4	5,072.7	5,037.0	12.9	15.0	-94.72	367.2	-397.7	451.5	425.3	26.21	17.224					
5,200.0	5,179.7	5,172.1	5,135.4	13.2	15.3	-94.94	377.5	-406.6	462.1	435.3	26.81	17.237					
5,300.0	5,279.0	5,271.5	5,233.9	13.5	15.7	-95.16	387.9	-415.6	472.8	445.4	27.41	17.249					
5,400.0	5,378.3	5,370.9	5,332.4	13.8	16.0	-95.36	398.2	-424.6	483.5	455.5	28.01	17.260					
5,500.0	5,477.7	5,470.4	5,430.8	14.1	16.3	-95.56	408.6	-433.6	494.1	465.5	28.61	17.271					
5,600.0	5,577.0	5,569.8	5,529.3	14.4	16.7	-95.75	418.9	-442.6	504.8	475.6	29.21	17.281					
5,700.0	5,676.3	5,669.2	5,627.8	14.7	17.0	-95.93	429.3	-451.5	515.5	485.7	29.81	17.290					
5,800.0	5,775.6	5,768.6	5,726.2	15.0	17.3	-96.10	439.6	-460.5	526.2	495.8	30.42	17.300					
5,900.0	5,874.9	5,868.0	5,824.7	15.3	17.7	-96.27	450.0	-469.5	536.9	505.9	31.02	17.308					
6,000.0	5,974.2	5,967.4	5,923.2	15.6	18.0	-96.43	460.3	-478.5	547.6	516.0	31.62	17.316					
6,100.0	6,073.5	6,069.3	6,024.1	15.9	18.4	-96.59	470.9	-487.6	558.2	526.0	32.23	17.322					
6,191.8	6,164.7	6,174.7	6,128.8	16.1	18.6	-96.95	479.8	-495.4	566.5	533.8	32.77	17.290					
6,200.0	6,172.8	6,184.0	6,138.1	16.2	18.6	-97.00	480.5	-496.0	567.2	534.4	32.81	17.285					
6,300.0	6,272.4	6,299.0	6,252.8	16.4	18.9	-97.62	486.7	-501.4	573.2	539.9	33.31	17.209					
6,400.0	6,372.2	6,414.2	6,367.9	16.6	19.1	-98.12	489.4	-503.7	576.1	542.4	33.73	17.079					
6,500.0	6,472.1	6,518.4	6,472.1	16.8	19.2	-98.40	489.6	-503.8	576.6	542.5	34.09	16.913					
6,527.9	6,500.0	6,546.3	6,500.0	16.8	19.2	-89.94	489.6	-503.8	576.6	542.4	34.19	16.867					
6,573.0	6,545.2	6,591.5	6,545.2	16.9	19.3	-90.00	489.0	-503.8	576.6	542.3	34.34	16.794					
6,600.0	6,572.1	6,618.4	6,572.0	16.9	19.3	-90.15	487.5	-503.8	576.6	542.2	34.42	16.754					
6,700.0	6,672.1	6,716.4	6,669.0	17.1	19.4	-91.49	474.0	-503.8	576.8	542.1	34.72	16.616					
6,728.3	6,700.5	6,743.4	6,695.4	17.2	19.4	-92.08	468.1	-503.8	577.0	542.2	34.79	16.585					
6,750.0	6,722.1	6,763.8	6,715.2	17.2	19.4	87.43	463.0	-503.8	577.2	542.4	34.84	16.567					
6,800.0	6,772.0	6,810.5	6,759.8	17.2	19.3	86.31	449.4	-503.8	577.9	543.0	34.91	16.552					
6,850.0	6,821.6	6,856.5	6,803.0	17.3	19.3	85.21	433.4	-503.8	578.8	543.8	34.94	16.567					
6,900.0	6,870.7	6,902.0	6,844.5	17.3	19.2	84.14	415.0	-503.8	579.8	544.9	34.91	16.609					
6,950.0	6,919.0	6,946.9	6,884.5	17.3	19.1	83.10	394.5	-503.8	581.0	546.2	34.84	16.677					
7,000.0	6,966.4	6,991.4	6,922.8	17.2	19.1	82.09	371.9	-503.8	582.4	547.7	34.73	16.768					
7,050.0	7,012.7	7,035.3	6,959.3	17.2	19.0	81.11	347.4	-503.8	583.9	549.3	34.59	16.880					
7,100.0	7,057.6	7,078.9	6,994.0	17.1	18.9	80.18	321.1	-503.8	585.5	551.1	34.42	17.009					
7,150.0	7,101.0	7,122.0	7,026.8	17.0	18.8	79.29	293.2	-503.8	587.2	553.0	34.23	17.153					
7,200.0	7,142.7	7,164.8	7,057.8	16.9	18.7	78.44	263.7	-503.8	588.9	554.9	34.03	17.305					
7,250.0	7,182.5	7,207.2	7,086.8	16.9	18.6	77.64	232.7	-503.8	590.7	556.8	33.83	17.462					
7,300.0	7,220.2	7,250.0	7,114.3	16.8	18.5	76.88	199.9	-503.8	592.4	558.8	33.62	17.619					
7,350.0	7,255.8	7,291.1	7,139.0	16.7	18.4	76.20	167.0	-503.8	594.1	560.7	33.44	17.766					
7,400.0	7,288.9	7,332.7	7,162.0	16.7	18.3	75.55	132.5	-503.8	595.8	562.5	33.29	17.898					
7,450.0	7,319.5	7,374.0	7,183.1	16.7	18.2	74.96	96.9	-503.8	597.4	564.2	33.17	18.008					
7,500.0	7,347.4	7,415.2	7,202.1	16.7	18.1	74.42	60.4	-503.8	598.9	565.8	33.11	18.090					
7,550.0	7,372.6	7,456.1	7,219.0	16.7	18.0	73.94	23.2	-503.8	600.3	567.2	33.10	18.135					
7,600.0	7,394.9	7,500.0	7,235.0	16.8	18.0	73.49	-17.7	-503.8	601.5	568.4	33.17	18.136					
7,650.0	7,414.3	7,537.5	7,246.7	16.9	17.9	73.15	-53.4	-503.8	602.6	569.3	33.31	18.092					
7,700.0	7,430.5	7,578.1	7,257.4	17.1	17.8	72.85	-92.5	-503.8	603.6	570.0	33.54	17.997					
7,750.0	7,443.7	7,618.5	7,266.0	17.3	17.8	72.60	-132.0	-503.8	604.3	570.5	33.85	17.852					
7,800.0	7,453.6	7,658.8	7,272.5	17.5	17.8	72.42	-171.8	-503.8	604.9	570.7	34.26	17.656					
7,850.0	7,460.4	7,700.0	7,276.9	17.8	18.0	72.29	-212.7	-503.8	605.3	570.6	34.76	17.413					
7,900.0	7,463.9	7,739.4	7,279.0	18.2	18.3	72.22	-252.0	-503.8	605.6	570.2	35.35	17.131					
7,923.4	7,464.4	7,758.2	7,279.4	18.4	18.5	72.21	-270.9	-503.8	605.6	569.9	35.65	16.987					
8,000.0	7,464.9	7,833.1	7,279.0	19.0	19.1	72.14	-345.7	-503.8	605.8	569.0	36.83	16.450					
8,100.0	7,465.5	7,933.1	7,278.5	20.0	20.1	72.03	-445.7	-503.8	606.2	567.6	38.61	15.699					
8,200.0	7,466.2	8,033.1	7,278.1	21.1	21.2	71.93	-545.7	-503.8	606.5	565.9	40.65	14.921					

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 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	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		
8,300.0	7,466.8	8,133.1	7,277.6	22.3	22.4	71.83	-645.7	-503.8	606.9	564.0	42.90	14.147		
8,400.0	7,467.5	8,233.0	7,277.1	23.5	23.7	71.73	-745.7	-503.8	607.2	561.9	45.33	13.395		
8,500.0	7,468.1	8,333.0	7,276.6	24.9	25.0	71.63	-845.7	-503.8	607.6	559.7	47.92	12.680		
8,600.0	7,468.8	8,433.0	7,276.1	26.4	26.4	71.53	-945.7	-503.8	608.0	557.3	50.63	12.007		
8,700.0	7,469.4	8,533.0	7,275.6	27.9	27.9	71.43	-1,045.7	-503.8	608.3	554.9	53.46	11.380		
8,800.0	7,470.0	8,633.0	7,275.1	29.4	29.4	71.32	-1,145.6	-503.8	608.7	552.3	56.37	10.798		
8,900.0	7,470.7	8,733.0	7,274.6	31.0	31.0	71.22	-1,245.6	-503.8	609.0	549.7	59.36	10.260		
9,000.0	7,471.3	8,833.0	7,274.1	32.6	32.6	71.12	-1,345.6	-503.8	609.4	547.0	62.42	9.763		
9,100.0	7,472.0	8,933.0	7,273.7	34.3	34.2	71.02	-1,445.6	-503.8	609.8	544.3	65.53	9.305		
9,200.0	7,472.6	9,033.0	7,273.2	36.0	35.9	70.92	-1,545.6	-503.8	610.2	541.5	68.69	8.882		
9,300.0	7,473.3	9,133.0	7,272.7	37.7	37.5	70.82	-1,645.6	-503.8	610.5	538.6	71.89	8.492		
9,400.0	7,473.9	9,233.0	7,272.2	39.4	39.2	70.72	-1,745.6	-503.8	610.9	535.8	75.13	8.131		
9,500.0	7,474.6	9,333.0	7,271.7	41.1	41.0	70.62	-1,845.6	-503.8	611.3	532.9	78.40	7.797		
9,600.0	7,475.2	9,433.0	7,271.2	42.9	42.7	70.52	-1,945.6	-503.8	611.7	530.0	81.69	7.488		
9,700.0	7,475.9	9,533.0	7,270.7	44.6	44.5	70.42	-2,045.6	-503.8	612.0	527.0	85.00	7.200		
9,800.0	7,476.5	9,633.0	7,270.2	46.4	46.2	70.32	-2,145.6	-503.8	612.4	524.1	88.33	6.933		
9,900.0	7,477.1	9,732.9	7,269.7	48.2	48.0	70.22	-2,245.6	-503.8	612.8	521.1	91.68	6.684		
10,000.0	7,477.8	9,832.9	7,269.3	50.0	49.8	70.12	-2,345.6	-503.8	613.2	518.1	95.05	6.451		
10,100.0	7,478.4	9,932.9	7,268.8	51.8	51.6	70.02	-2,445.5	-503.8	613.6	515.1	98.43	6.234		
10,200.0	7,479.1	10,032.9	7,268.3	53.6	53.4	69.92	-2,545.5	-503.8	614.0	512.1	101.81	6.030		
10,300.0	7,479.7	10,132.9	7,267.8	55.5	55.2	69.82	-2,645.5	-503.8	614.3	509.1	105.21	5.839		
10,400.0	7,480.4	10,232.9	7,267.3	57.3	57.0	69.72	-2,745.5	-503.8	614.7	506.1	108.62	5.660		
10,500.0	7,481.0	10,332.9	7,266.8	59.1	58.8	69.62	-2,845.5	-503.8	615.1	503.1	112.03	5.491		
10,600.0	7,481.7	10,432.9	7,266.3	61.0	60.6	69.52	-2,945.5	-503.8	615.5	500.1	115.45	5.332		
10,700.0	7,482.3	10,532.9	7,265.8	62.8	62.5	69.42	-3,045.5	-503.8	615.9	497.1	118.87	5.181		
10,800.0	7,483.0	10,632.9	7,265.4	64.7	64.3	69.33	-3,145.5	-503.8	616.3	494.0	122.30	5.039		
10,900.0	7,483.6	10,732.9	7,264.9	66.5	66.2	69.23	-3,245.5	-503.8	616.7	491.0	125.73	4.905		
11,000.0	7,484.3	10,832.9	7,264.4	68.4	68.0	69.13	-3,345.5	-503.8	617.1	488.0	129.16	4.778		
11,100.0	7,484.9	10,932.9	7,263.9	70.2	69.9	69.03	-3,445.5	-503.8	617.5	484.9	132.60	4.657		
11,200.0	7,485.5	11,032.9	7,263.4	72.1	71.7	68.93	-3,545.5	-503.8	617.9	481.9	136.04	4.542		
11,300.0	7,486.2	11,132.9	7,262.9	73.9	73.6	68.83	-3,645.5	-503.8	618.3	478.9	139.48	4.433		
11,400.0	7,486.8	11,232.9	7,262.4	75.8	75.4	68.74	-3,745.4	-503.8	618.8	475.8	142.92	4.329		
11,500.0	7,487.5	11,332.8	7,261.9	77.7	77.3	68.64	-3,845.4	-503.8	619.2	472.8	146.36	4.230		
11,600.0	7,488.1	11,432.8	7,261.4	79.5	79.2	68.54	-3,945.4	-503.8	619.6	469.8	149.80	4.136		
11,700.0	7,488.8	11,532.8	7,261.0	81.4	81.0	68.44	-4,045.4	-503.8	620.0	466.8	153.24	4.046		
11,800.0	7,489.4	11,632.8	7,260.5	83.3	82.9	68.35	-4,145.4	-503.8	620.4	463.7	156.68	3.960		
11,890.2	7,490.0	11,723.0	7,260.0	85.0	84.6	68.26	-4,235.6	-503.8	620.8	461.0	159.78	3.885 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	Offset TVD Reference:	Offset Datum

Offset Design											Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4		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	-127.99	-54.6	-70.0	88.8						
100.0	100.0	100.0	100.0	0.1	0.1	-127.99	-54.6	-70.0	88.8	88.6	0.22	394.966			
200.0	200.0	200.0	200.0	0.3	0.3	-127.99	-54.6	-70.0	88.8	88.1	0.67	131.655			
300.0	300.0	300.0	300.0	0.6	0.6	-127.99	-54.6	-70.0	88.8	87.7	1.12	78.993			
400.0	400.0	400.0	400.0	0.8	0.8	-127.99	-54.6	-70.0	88.8	87.2	1.57	56.424			
500.0	500.0	500.0	500.0	1.0	1.0	-127.99	-54.6	-70.0	88.8	86.8	2.02	43.885			
600.0	600.0	600.0	600.0	1.2	1.2	-127.99	-54.6	-70.0	88.8	86.3	2.47	35.906			
700.0	700.0	700.0	700.0	1.5	1.5	-127.99	-54.6	-70.0	88.8	85.9	2.92	30.382			
800.0	800.0	800.0	800.0	1.7	1.7	-127.99	-54.6	-70.0	88.8	85.4	3.37	26.331			
900.0	900.0	900.0	900.0	1.9	1.9	-127.99	-54.6	-70.0	88.8	85.0	3.82	23.233			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-127.99	-54.6	-70.0	88.8	84.5	4.27	20.788 CC			
1,100.0	1,100.0	1,099.5	1,099.5	2.4	2.4	-127.46	-54.1	-70.7	89.0	84.3	4.71	18.890 ES			
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	-125.88	-52.7	-72.8	89.9	84.7	5.15	17.442			
1,300.0	1,300.0	1,298.4	1,298.2	2.8	2.8	-123.33	-50.2	-76.3	91.4	85.8	5.59	16.336			
1,400.0	1,400.0	1,397.5	1,397.2	3.0	3.0	-119.91	-46.8	-81.3	93.8	87.8	6.04	15.531			
1,500.0	1,500.0	1,496.5	1,495.9	3.3	3.2	-115.80	-42.4	-87.6	97.4	90.9	6.49	15.004			
1,600.0	1,600.0	1,595.1	1,594.1	3.5	3.5	-111.21	-37.0	-95.3	102.4	95.5	6.95	14.738			
1,700.0	1,700.0	1,693.4	1,691.7	3.7	3.7	-106.39	-30.7	-104.4	109.1	101.7	7.41	14.722 SF			
1,800.0	1,800.0	1,791.3	1,788.8	3.9	4.0	-101.56	-23.5	-114.7	117.6	109.8	7.88	14.936			
1,900.0	1,900.0	1,888.8	1,885.2	4.2	4.3	-105.64	-15.3	-126.4	128.4	120.1	8.32	15.435			
2,000.0	2,000.0	1,985.8	1,981.0	4.4	4.6	-102.18	-6.3	-139.4	141.5	132.7	8.78	16.110			
2,100.0	2,099.9	2,082.5	2,076.0	4.6	4.9	-99.53	3.6	-153.6	156.7	147.4	9.25	16.931			
2,200.0	2,199.7	2,178.6	2,170.3	4.8	5.2	-97.57	14.4	-169.1	173.6	163.9	9.73	17.851			
2,300.0	2,299.4	2,276.5	2,266.1	5.1	5.6	-96.23	26.0	-185.7	191.9	181.6	10.22	18.780			
2,400.0	2,398.9	2,374.7	2,362.2	5.3	6.0	-95.56	37.6	-202.4	210.3	199.6	10.72	19.625			
2,472.1	2,470.5	2,445.6	2,431.5	5.5	6.3	-95.41	46.0	-214.4	223.7	212.6	11.09	20.178			
2,500.0	2,498.3	2,473.0	2,458.3	5.5	6.4	-95.45	49.2	-219.0	228.9	217.7	11.23	20.379			
2,600.0	2,597.6	2,571.2	2,554.4	5.8	6.8	-95.58	60.8	-235.7	247.6	235.8	11.77	21.046			
2,700.0	2,696.9	2,669.5	2,650.6	6.0	7.2	-95.69	72.4	-252.4	266.3	254.0	12.31	21.638			
2,800.0	2,796.2	2,767.7	2,746.7	6.3	7.6	-95.78	84.0	-269.1	284.9	272.1	12.85	22.167			
2,900.0	2,895.5	2,865.9	2,842.8	6.6	8.0	-95.86	95.7	-285.7	303.6	290.2	13.41	22.640			
3,000.0	2,994.8	2,964.2	2,938.9	6.8	8.4	-95.94	107.3	-302.4	322.3	308.3	13.97	23.066			
3,100.0	3,094.1	3,062.4	3,035.0	7.1	8.8	-96.00	118.9	-319.1	341.0	326.4	14.54	23.449			
3,200.0	3,193.5	3,160.7	3,131.1	7.4	9.2	-96.06	130.5	-335.8	359.6	344.5	15.11	23.796			
3,300.0	3,292.8	3,258.9	3,227.3	7.6	9.7	-96.11	142.1	-352.4	378.3	362.6	15.69	24.111			
3,400.0	3,392.1	3,357.2	3,323.4	7.9	10.1	-96.16	153.7	-369.1	397.0	380.7	16.27	24.397			
3,500.0	3,491.4	3,455.4	3,419.5	8.2	10.5	-96.21	165.4	-385.8	415.6	398.8	16.86	24.659			
3,600.0	3,590.7	3,553.6	3,515.6	8.5	10.9	-96.24	177.0	-402.5	434.3	416.9	17.44	24.898			
3,700.0	3,690.0	3,651.9	3,611.7	8.8	11.4	-96.28	188.6	-419.2	453.0	435.0	18.03	25.118			
3,800.0	3,789.3	3,750.1	3,707.8	9.1	11.8	-96.31	200.2	-435.8	471.7	453.0	18.63	25.320			
3,900.0	3,888.6	3,848.4	3,803.9	9.3	12.2	-96.35	211.8	-452.5	490.3	471.1	19.22	25.507			
4,000.0	3,988.0	3,946.6	3,900.1	9.6	12.7	-96.37	223.4	-469.2	509.0	489.2	19.82	25.679			
4,100.0	4,087.3	4,044.8	3,996.2	9.9	13.1	-96.40	235.1	-485.9	527.7	507.3	20.42	25.839			
4,200.0	4,186.6	4,143.1	4,092.3	10.2	13.5	-96.43	246.7	-502.5	546.4	525.3	21.02	25.988			
4,300.0	4,285.9	4,241.3	4,188.4	10.5	14.0	-96.45	258.3	-519.2	565.0	543.4	21.63	26.126			
4,400.0	4,385.2	4,339.6	4,284.5	10.8	14.4	-96.47	269.9	-535.9	583.7	561.5	22.23	26.255			
4,500.0	4,484.5	4,437.8	4,380.6	11.1	14.8	-96.49	281.5	-552.6	602.4	579.5	22.84	26.376			
4,600.0	4,583.8	4,536.0	4,476.8	11.4	15.3	-96.51	293.1	-569.2	621.0	597.6	23.45	26.489			
4,700.0	4,683.1	4,634.3	4,572.9	11.7	15.7	-96.53	304.7	-585.9	639.7	615.7	24.05	26.594			
4,800.0	4,782.5	4,732.5	4,669.0	12.0	16.2	-96.55	316.4	-602.6	658.4	633.7	24.66	26.694			
4,900.0	4,881.8	4,830.8	4,765.1	12.3	16.6	-96.56	328.0	-619.3	677.1	651.8	25.28	26.787			

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 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	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	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,000.0	4,981.1	4,929.0	4,861.2	12.6	17.0	-96.58	339.6	-635.9	695.7	669.9	25.89	26.875			
5,100.0	5,080.4	5,027.2	4,957.3	12.9	17.5	-96.59	351.2	-652.6	714.4	687.9	26.50	26.958			
5,200.0	5,179.7	5,125.5	5,053.5	13.2	17.9	-96.60	362.8	-669.3	733.1	706.0	27.11	27.037			
5,300.0	5,279.0	5,223.7	5,149.6	13.5	18.4	-96.62	374.4	-686.0	751.8	724.0	27.73	27.111			
5,400.0	5,378.3	5,322.0	5,245.7	13.8	18.8	-96.63	386.1	-702.6	770.4	742.1	28.34	27.181			
5,500.0	5,477.7	5,420.2	5,341.8	14.1	19.2	-96.64	397.7	-719.3	789.1	760.2	28.96	27.248			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	Offset TVD Reference:	Offset Datum

Offset Design												Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-323 - Wellbore #1 - Plan #2 (5		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	-125.87	-18.2	-25.2	31.1								
100.0	100.0	100.0	100.0	0.1	0.1	-125.87	-18.2	-25.2	31.1	30.9	0.22	138.296					
200.0	200.0	200.0	200.0	0.3	0.3	-125.87	-18.2	-25.2	31.1	30.4	0.67	46.099					
300.0	300.0	300.0	300.0	0.6	0.6	-125.87	-18.2	-25.2	31.1	30.0	1.12	27.659					
400.0	400.0	400.0	400.0	0.8	0.8	-125.87	-18.2	-25.2	31.1	29.5	1.57	19.757					
500.0	500.0	500.0	500.0	1.0	1.0	-125.87	-18.2	-25.2	31.1	29.1	2.02	15.366					
600.0	600.0	600.0	600.0	1.2	1.2	-125.87	-18.2	-25.2	31.1	28.6	2.47	12.572					
700.0	700.0	700.0	700.0	1.5	1.5	-125.87	-18.2	-25.2	31.1	28.2	2.92	10.638					
800.0	800.0	800.0	800.0	1.7	1.7	-125.87	-18.2	-25.2	31.1	27.7	3.37	9.220					
900.0	900.0	900.0	900.0	1.9	1.9	-125.87	-18.2	-25.2	31.1	27.3	3.82	8.135					
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-125.87	-18.2	-25.2	31.1	26.8	4.27	7.279					
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-125.87	-18.2	-25.2	31.1	26.4	4.72	6.586					
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-125.87	-18.2	-25.2	31.1	25.9	5.17	6.013					
1,300.0	1,300.0	1,300.1	1,300.1	2.8	2.8	-124.30	-17.4	-25.5	30.9	25.3	5.62	5.496					
1,400.0	1,400.0	1,400.2	1,400.1	3.0	3.0	-119.48	-15.0	-26.5	30.4	24.3	6.07	5.011					
1,498.2	1,498.2	1,498.3	1,498.2	3.3	3.3	-111.41	-11.0	-28.0	30.1	23.6	6.51	4.626 CC					
1,500.0	1,500.0	1,500.1	1,500.0	3.3	3.3	-111.23	-10.9	-28.1	30.1	23.6	6.51	4.620 ES					
1,600.0	1,600.0	1,599.9	1,599.6	3.5	3.5	-99.79	-5.2	-30.3	30.7	23.8	6.96	4.412					
1,700.0	1,700.0	1,699.4	1,698.8	3.7	3.7	-86.48	2.0	-33.1	33.2	25.8	7.42	4.478					
1,800.0	1,800.0	1,798.6	1,797.5	3.9	4.0	-73.45	10.9	-36.6	38.3	30.4	7.87	4.859					
1,900.0	1,900.0	1,897.6	1,895.8	4.2	4.2	-71.80	21.3	-40.7	45.8	37.5	8.32	5.503					
2,000.0	2,000.0	1,996.7	1,994.1	4.4	4.5	-65.38	33.1	-45.3	54.9	46.1	8.78	6.252					
2,100.0	2,099.9	2,096.2	2,092.8	4.6	4.7	-62.04	45.2	-50.0	63.8	54.6	9.23	6.909					
2,200.0	2,199.7	2,195.9	2,191.6	4.8	5.0	-60.71	57.3	-54.8	72.0	62.3	9.70	7.428					
2,300.0	2,299.4	2,295.6	2,290.5	5.1	5.3	-60.74	69.4	-59.5	79.4	69.2	10.16	7.812					
2,400.0	2,398.9	2,395.4	2,389.4	5.3	5.6	-61.78	81.5	-64.3	86.0	75.3	10.64	8.075					
2,472.1	2,470.5	2,467.3	2,460.7	5.5	5.8	-63.04	90.3	-67.7	90.2	79.2	11.00	8.200					
2,500.0	2,498.3	2,495.1	2,488.3	5.5	5.9	-63.61	93.7	-69.0	91.8	80.6	11.14	8.238					
2,600.0	2,597.6	2,594.9	2,587.3	5.8	6.2	-65.50	105.8	-73.8	97.5	85.8	11.65	8.368					
2,700.0	2,696.9	2,694.7	2,686.2	6.0	6.5	-67.18	117.9	-78.5	103.3	91.1	12.17	8.489					
2,800.0	2,796.2	2,794.5	2,785.1	6.3	6.8	-68.68	130.0	-83.3	109.2	96.5	12.70	8.599					
2,900.0	2,895.5	2,894.3	2,884.1	6.6	7.1	-70.02	142.2	-88.1	115.2	101.9	13.23	8.701					
3,000.0	2,994.8	2,994.1	2,983.0	6.8	7.4	-71.23	154.3	-92.8	121.2	107.4	13.78	8.794					
3,100.0	3,094.1	3,093.9	3,081.9	7.1	7.7	-72.33	166.4	-97.6	127.2	112.9	14.33	8.880					
3,200.0	3,193.5	3,193.7	3,180.9	7.4	8.0	-73.32	178.5	-102.3	133.3	118.4	14.88	8.959					
3,300.0	3,292.8	3,293.4	3,279.8	7.6	8.3	-74.23	190.7	-107.1	139.5	124.0	15.44	9.031					
3,400.0	3,392.1	3,393.2	3,378.7	7.9	8.6	-75.07	202.8	-111.8	145.6	129.6	16.01	9.098					
3,500.0	3,491.4	3,493.0	3,477.7	8.2	8.9	-75.83	214.9	-116.6	151.8	135.3	16.58	9.160					
3,600.0	3,590.7	3,592.8	3,576.6	8.5	9.2	-76.53	227.0	-121.3	158.1	140.9	17.15	9.217					
3,700.0	3,690.0	3,692.6	3,675.6	8.8	9.6	-77.19	239.2	-126.1	164.3	146.6	17.73	9.270					
3,800.0	3,789.3	3,792.4	3,774.5	9.1	9.9	-77.79	251.3	-130.8	170.6	152.3	18.31	9.319					
3,900.0	3,888.6	3,892.2	3,873.4	9.3	10.2	-78.35	263.4	-135.6	176.9	158.0	18.89	9.365					
4,000.0	3,988.0	3,992.0	3,972.4	9.6	10.5	-78.87	275.5	-140.3	183.2	163.7	19.47	9.408					
4,100.0	4,087.3	4,091.7	4,071.3	9.9	10.8	-79.36	287.7	-145.1	189.5	169.4	20.06	9.447					
4,200.0	4,186.6	4,191.5	4,170.2	10.2	11.1	-79.81	299.8	-149.8	195.8	175.2	20.65	9.485					
4,300.0	4,285.9	4,291.3	4,269.2	10.5	11.5	-80.24	311.9	-154.6	202.2	180.9	21.24	9.520					
4,400.0	4,385.2	4,391.1	4,368.1	10.8	11.8	-80.64	324.0	-159.4	208.5	186.7	21.83	9.552					
4,500.0	4,484.5	4,490.9	4,467.0	11.1	12.1	-81.02	336.2	-164.1	214.9	192.5	22.42	9.583					
4,600.0	4,583.8	4,590.7	4,566.0	11.4	12.4	-81.37	348.3	-168.9	221.2	198.2	23.02	9.612					
4,700.0	4,683.1	4,690.5	4,664.9	11.7	12.7	-81.71	360.4	-173.6	227.6	204.0	23.61	9.639					
4,800.0	4,782.5	4,790.3	4,763.8	12.0	13.1	-82.03	372.5	-178.4	234.0	209.8	24.21	9.665					

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 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	Offset TVD Reference:	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-323 - Wellbore #1 - Plan #2 (5										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			
4,900.0	4,881.8	4,890.1	4,862.8	12.3	13.4	-82.33	384.7	-183.1	240.4	215.6	24.81	9.689			
5,000.0	4,981.1	4,989.8	4,961.7	12.6	13.7	-82.61	396.8	-187.9	246.8	221.4	25.41	9.712			
5,100.0	5,080.4	5,089.6	5,060.6	12.9	14.0	-82.88	408.9	-192.6	253.2	227.2	26.01	9.734			
5,200.0	5,179.7	5,189.4	5,159.6	13.2	14.4	-83.14	421.0	-197.4	259.6	233.0	26.61	9.755			
5,300.0	5,279.0	5,289.2	5,258.5	13.5	14.7	-83.39	433.2	-202.1	266.0	238.8	27.22	9.774			
5,400.0	5,378.3	5,389.0	5,357.4	13.8	15.0	-83.62	445.3	-206.9	272.4	244.6	27.82	9.793			
5,500.0	5,477.7	5,488.8	5,456.4	14.1	15.3	-83.84	457.4	-211.6	278.9	250.4	28.42	9.811			
5,600.0	5,577.0	5,590.4	5,557.1	14.4	15.6	-84.09	469.6	-216.4	285.2	256.2	29.02	9.826			
5,700.0	5,676.3	5,696.3	5,662.5	14.7	15.9	-84.80	479.6	-220.3	289.9	260.3	29.59	9.797			
5,800.0	5,775.6	5,802.2	5,768.1	15.0	16.1	-86.13	486.0	-222.8	292.7	262.5	30.16	9.702			
5,900.0	5,874.9	5,907.6	5,873.5	15.3	16.3	-88.06	488.7	-223.9	293.6	262.8	30.73	9.553			
5,987.4	5,961.7	5,995.8	5,961.7	15.5	16.4	-90.06	488.8	-223.9	293.4	262.2	31.22	9.400			
6,000.0	5,974.2	6,008.3	5,974.2	15.6	16.4	-90.34	488.8	-223.9	293.5	262.2	31.29	9.379			
6,100.0	6,073.5	6,107.6	6,073.5	15.9	16.6	-92.61	488.8	-223.9	293.8	261.9	31.86	9.222			
6,191.8	6,164.7	6,198.8	6,164.7	16.1	16.8	-94.68	488.8	-223.9	294.4	262.1	32.36	9.098			
6,200.0	6,172.8	6,206.9	6,172.8	16.2	16.8	-94.87	488.8	-223.9	294.5	262.1	32.41	9.088			
6,300.0	6,272.4	6,306.4	6,272.4	16.4	17.0	-96.75	488.8	-223.9	295.5	262.6	32.87	8.991			
6,400.0	6,372.2	6,406.3	6,372.2	16.6	17.1	-97.95	488.8	-223.9	296.3	263.0	33.28	8.904			
6,500.0	6,472.1	6,506.2	6,472.1	16.8	17.3	-98.48	488.8	-223.9	296.7	263.0	33.65	8.818			
6,527.9	6,500.0	6,534.1	6,500.0	16.8	17.4	-90.04	488.8	-223.9	296.7	263.0	33.74	8.794			
6,600.0	6,572.1	6,606.2	6,572.1	16.9	17.5	-90.04	488.8	-223.9	296.7	262.7	34.00	8.728			
6,631.0	6,603.1	6,637.2	6,603.1	17.0	17.5	-90.10	488.5	-223.9	296.7	262.6	34.11	8.700			
6,700.0	6,672.1	6,705.8	6,671.5	17.1	17.6	-91.08	483.4	-223.9	296.8	262.5	34.32	8.648			
6,728.3	6,700.5	6,733.5	6,699.0	17.2	17.6	-91.81	479.6	-223.9	296.9	262.5	34.39	8.632			
6,750.0	6,722.1	6,754.6	6,719.8	17.2	17.6	87.55	476.1	-223.9	297.0	262.6	34.44	8.623			
6,800.0	6,772.0	6,803.0	6,767.0	17.2	17.6	86.10	465.8	-223.9	297.4	262.9	34.50	8.620			
6,850.0	6,821.6	6,850.9	6,813.1	17.3	17.6	84.67	452.7	-223.9	298.0	263.5	34.51	8.636			
6,900.0	6,870.7	6,898.4	6,857.9	17.3	17.5	83.28	436.9	-223.9	298.8	264.3	34.47	8.670			
6,950.0	6,919.0	6,945.5	6,901.2	17.3	17.5	81.92	418.5	-223.9	299.7	265.4	34.38	8.720			
7,000.0	6,966.4	6,992.2	6,943.0	17.2	17.4	80.61	397.6	-223.9	300.8	266.6	34.24	8.785			
7,050.0	7,012.7	7,038.5	6,983.1	17.2	17.3	79.35	374.4	-223.9	302.0	267.9	34.07	8.863			
7,100.0	7,057.6	7,084.5	7,021.4	17.1	17.2	78.15	349.1	-223.9	303.3	269.4	33.87	8.953			
7,150.0	7,101.0	7,130.2	7,057.9	17.0	17.2	77.00	321.6	-223.9	304.6	271.0	33.65	9.052			
7,200.0	7,142.7	7,175.5	7,092.5	16.9	17.1	75.91	292.3	-223.9	306.0	272.6	33.42	9.159			
7,250.0	7,182.5	7,220.6	7,125.1	16.9	17.0	74.89	261.1	-223.9	307.5	274.3	33.17	9.268			
7,300.0	7,220.2	7,265.5	7,155.6	16.8	16.9	73.93	228.3	-223.9	308.9	276.0	32.94	9.378			
7,350.0	7,255.8	7,310.1	7,184.0	16.7	16.9	73.04	193.9	-223.9	310.3	277.6	32.72	9.485			
7,400.0	7,288.9	7,354.4	7,210.2	16.7	16.8	72.23	158.1	-223.9	311.7	279.2	32.52	9.584			
7,450.0	7,319.5	7,400.0	7,234.9	16.7	16.8	71.46	119.8	-223.9	313.0	280.7	32.37	9.670			
7,500.0	7,347.4	7,442.6	7,255.9	16.7	16.8	70.80	82.8	-223.9	314.3	282.0	32.28	9.737			
7,550.0	7,372.6	7,486.4	7,275.3	16.7	16.8	70.20	43.5	-223.9	315.4	283.2	32.24	9.783			
7,600.0	7,394.9	7,530.1	7,292.4	16.8	16.8	69.68	3.3	-223.9	316.5	284.2	32.28	9.803			
7,650.0	7,414.3	7,573.7	7,307.1	16.9	16.9	69.23	-37.8	-223.9	317.4	285.0	32.40	9.795			
7,700.0	7,430.5	7,617.2	7,319.5	17.1	17.0	68.85	-79.4	-223.9	318.2	285.6	32.62	9.756			
7,750.0	7,443.7	7,660.6	7,329.4	17.3	17.2	68.54	-121.7	-223.9	318.8	285.9	32.92	9.685			
7,800.0	7,453.6	7,703.9	7,336.9	17.5	17.4	68.32	-164.3	-223.9	319.3	286.0	33.32	9.582			
7,850.0	7,460.4	7,750.0	7,342.2	17.8	17.7	68.16	-210.1	-223.9	319.7	285.8	33.84	9.446			
7,851.5	7,460.5	7,750.0	7,342.2	17.9	17.7	68.16	-210.1	-223.9	319.7	285.8	33.85	9.444			
7,900.0	7,463.9	7,790.4	7,344.6	18.2	18.0	68.09	-250.5	-223.9	319.8	285.4	34.42	9.291			
7,923.4	7,464.4	7,810.7	7,345.0	18.4	18.2	68.07	-270.7	-223.9	319.8	285.1	34.73	9.209			

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 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	Offset TVD Reference:	Offset Datum

Offset Design										Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-323 - Wellbore #1 - Plan #2 (5			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		
8,000.0	7,464.9	7,886.0	7,344.7	19.0	18.8	67.94	-346.1	-223.9	320.1	284.3	35.89	8.921			
8,100.0	7,465.5	7,986.0	7,344.2	20.0	19.7	67.76	-446.1	-223.9	320.6	282.9	37.64	8.516			
8,200.0	7,466.2	8,086.0	7,343.7	21.1	20.8	67.58	-546.1	-223.9	321.0	281.3	39.64	8.098			
8,300.0	7,466.8	8,186.0	7,343.3	22.3	22.0	67.40	-646.0	-223.9	321.4	279.6	41.84	7.682			
8,400.0	7,467.5	8,286.0	7,342.8	23.5	23.3	67.22	-746.0	-223.9	321.8	277.6	44.21	7.279			
8,500.0	7,468.1	8,386.0	7,342.4	24.9	24.7	67.04	-846.0	-223.9	322.2	275.5	46.73	6.896			
	8,600.0	7,468.8	8,486.0	7,341.9	26.4	26.1	66.86	-946.0	-223.9	322.7	273.3	49.36	6.537		
	8,700.0	7,469.4	8,586.0	7,341.5	27.9	27.6	66.68	-1,046.0	-223.9	323.1	271.0	52.10	6.202		
	8,800.0	7,470.0	8,686.0	7,341.0	29.4	29.2	66.50	-1,146.0	-223.9	323.6	268.6	54.92	5.891		
	8,900.0	7,470.7	8,786.0	7,340.6	31.0	30.8	66.32	-1,246.0	-223.9	324.0	266.2	57.81	5.604		
	9,000.0	7,471.3	8,886.0	7,340.1	32.6	32.4	66.14	-1,346.0	-223.9	324.4	263.7	60.76	5.340		
9,100.0	7,472.0	8,986.0	7,339.7	34.3	34.0	65.97	-1,446.0	-223.9	324.9	261.1	63.76	5.096			
9,200.0	7,472.6	9,085.9	7,339.2	36.0	35.7	65.79	-1,546.0	-223.9	325.3	258.5	66.79	4.871			
9,300.0	7,473.3	9,185.9	7,338.8	37.7	37.4	65.61	-1,646.0	-223.9	325.8	255.9	69.87	4.663			
9,400.0	7,473.9	9,285.9	7,338.3	39.4	39.1	65.44	-1,746.0	-223.9	326.2	253.3	72.97	4.471			
9,500.0	7,474.6	9,385.9	7,337.8	41.1	40.9	65.26	-1,846.0	-223.9	326.7	250.6	76.09	4.293			
9,600.0	7,475.2	9,485.9	7,337.4	42.9	42.6	65.09	-1,946.0	-223.9	327.2	247.9	79.24	4.129			
9,700.0	7,475.9	9,585.9	7,336.9	44.6	44.4	64.91	-2,045.9	-223.9	327.6	245.2	82.40	3.976			
9,800.0	7,476.5	9,685.9	7,336.5	46.4	46.2	64.74	-2,145.9	-223.9	328.1	242.5	85.58	3.834			
9,900.0	7,477.1	9,785.9	7,336.0	48.2	47.9	64.57	-2,245.9	-223.9	328.6	239.8	88.77	3.701			
10,000.0	7,477.8	9,885.9	7,335.6	50.0	49.7	64.39	-2,345.9	-223.9	329.0	237.1	91.96	3.578			
10,100.0	7,478.4	9,985.9	7,335.1	51.8	51.6	64.22	-2,445.9	-223.9	329.5	234.3	95.17	3.462			
10,200.0	7,479.1	10,085.9	7,334.7	53.6	53.4	64.05	-2,545.9	-223.9	330.0	231.6	98.38	3.354			
10,300.0	7,479.7	10,185.9	7,334.2	55.5	55.2	63.88	-2,645.9	-223.9	330.5	228.9	101.59	3.253			
10,400.0	7,480.4	10,285.9	7,333.8	57.3	57.0	63.71	-2,745.9	-223.9	331.0	226.2	104.81	3.158			
10,500.0	7,481.0	10,385.9	7,333.3	59.1	58.8	63.54	-2,845.9	-223.9	331.4	223.4	108.02	3.068			
10,600.0	7,481.7	10,485.9	7,332.9	61.0	60.7	63.37	-2,945.9	-223.9	331.9	220.7	111.24	2.984			
10,700.0	7,482.3	10,585.9	7,332.4	62.8	62.5	63.20	-3,045.9	-223.9	332.4	218.0	114.46	2.904			
10,800.0	7,483.0	10,685.8	7,332.0	64.7	64.4	63.03	-3,145.9	-223.9	332.9	215.3	117.68	2.829			
10,900.0	7,483.6	10,785.8	7,331.5	66.5	66.2	62.86	-3,245.9	-223.9	333.4	212.5	120.90	2.758			
11,000.0	7,484.3	10,885.8	7,331.0	68.4	68.1	62.69	-3,345.9	-223.9	333.9	209.8	124.11	2.691			
11,100.0	7,484.9	10,985.8	7,330.6	70.2	69.9	62.52	-3,445.8	-223.9	334.4	207.1	127.32	2.627			
11,200.0	7,485.5	11,085.8	7,330.1	72.1	71.8	62.36	-3,545.8	-223.9	334.9	204.4	130.53	2.566			
11,300.0	7,486.2	11,185.8	7,329.7	73.9	73.7	62.19	-3,645.8	-223.9	335.5	201.7	133.73	2.508			
11,400.0	7,486.8	11,285.8	7,329.2	75.8	75.5	62.02	-3,745.8	-223.9	336.0	199.0	136.93	2.454			
11,500.0	7,487.5	11,385.8	7,328.8	77.7	77.4	61.86	-3,845.8	-223.9	336.5	196.4	140.13	2.401			
11,600.0	7,488.1	11,485.8	7,328.3	79.5	79.3	61.69	-3,945.8	-223.9	337.0	193.7	143.32	2.351			
11,700.0	7,488.8	11,585.8	7,327.9	81.4	81.1	61.53	-4,045.8	-223.9	337.5	191.0	146.51	2.304			
11,800.0	7,489.4	11,685.8	7,327.4	83.3	83.0	61.37	-4,145.8	-223.9	338.1	188.4	149.69	2.258			
11,890.2	7,490.0	11,775.9	7,327.0	85.0	84.7	61.22	-4,235.9	-223.9	338.5	186.0	152.55	2.219 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	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	50.86	18.2	22.4	28.9					
100.0	100.0	100.0	100.0	0.1	0.1	50.86	18.2	22.4	28.9	28.6	0.22	128.425		
200.0	200.0	200.0	200.0	0.3	0.3	50.86	18.2	22.4	28.9	28.2	0.67	42.808		
300.0	300.0	300.0	300.0	0.6	0.6	50.86	18.2	22.4	28.9	27.7	1.12	25.685		
400.0	400.0	400.0	400.0	0.8	0.8	50.86	18.2	22.4	28.9	27.3	1.57	18.346		
500.0	500.0	500.0	500.0	1.0	1.0	50.86	18.2	22.4	28.9	26.8	2.02	14.269		
600.0	600.0	600.0	600.0	1.2	1.2	50.86	18.2	22.4	28.9	26.4	2.47	11.675		
700.0	700.0	700.0	700.0	1.5	1.5	50.86	18.2	22.4	28.9	25.9	2.92	9.879		
800.0	800.0	800.0	800.0	1.7	1.7	50.86	18.2	22.4	28.9	25.5	3.37	8.562		
900.0	900.0	900.0	900.0	1.9	1.9	50.86	18.2	22.4	28.9	25.0	3.82	7.554		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	50.86	18.2	22.4	28.9	24.6	4.27	6.759 CC, ES		
1,100.0	1,100.0	1,099.5	1,099.5	2.4	2.4	50.41	18.9	22.9	29.7	25.0	4.72	6.298		
1,200.0	1,200.0	1,199.0	1,198.9	2.6	2.6	49.21	21.0	24.4	32.2	27.1	5.16	6.244		
1,300.0	1,300.0	1,298.3	1,298.1	2.8	2.8	47.57	24.6	26.9	36.4	30.8	5.61	6.501		
1,400.0	1,400.0	1,397.4	1,397.1	3.0	3.0	45.82	29.5	30.3	42.4	36.3	6.05	7.004		
1,500.0	1,500.0	1,496.3	1,495.7	3.3	3.3	44.19	35.8	34.8	50.1	43.6	6.50	7.703		
1,600.0	1,600.0	1,595.0	1,593.9	3.5	3.5	42.78	43.4	40.2	59.5	52.5	6.95	8.561		
1,700.0	1,700.0	1,693.2	1,691.5	3.7	3.7	41.59	52.4	46.5	70.6	63.2	7.40	9.547		
1,800.0	1,800.0	1,792.3	1,789.9	3.9	4.0	40.65	62.4	53.6	82.8	75.0	7.85	10.551		
1,900.0	1,900.0	1,891.7	1,888.5	4.2	4.3	31.70	72.3	60.6	94.3	86.0	8.30	11.368		
2,000.0	2,000.0	1,991.1	1,987.2	4.4	4.5	31.82	82.3	67.6	104.3	95.6	8.75	11.927		
2,100.0	2,099.9	2,090.8	2,086.1	4.6	4.8	32.39	92.3	74.7	112.9	103.7	9.20	12.271		
2,200.0	2,199.7	2,190.5	2,185.1	4.8	5.1	33.33	102.3	81.7	120.0	110.3	9.65	12.432		
2,300.0	2,299.4	2,290.3	2,284.1	5.1	5.4	34.62	112.3	88.8	125.7	115.6	10.11	12.436		
2,400.0	2,398.9	2,390.1	2,383.2	5.3	5.7	36.24	122.3	95.9	130.0	119.4	10.56	12.307		
2,472.1	2,470.5	2,462.1	2,454.6	5.5	5.9	37.64	129.5	101.0	132.3	121.4	10.90	12.144		
2,500.0	2,498.3	2,490.0	2,482.3	5.5	6.0	38.22	132.3	102.9	133.1	122.1	11.03	12.069		
2,600.0	2,597.6	2,589.8	2,581.4	5.8	6.3	40.23	142.3	110.0	136.1	124.6	11.51	11.819		
2,700.0	2,696.9	2,689.7	2,680.4	6.0	6.6	42.16	152.3	117.1	139.2	127.2	12.00	11.596		
2,800.0	2,796.2	2,789.5	2,779.5	6.3	6.9	44.01	162.4	124.1	142.4	129.9	12.50	11.394		
2,900.0	2,895.5	2,889.4	2,878.6	6.6	7.2	45.77	172.4	131.2	145.8	132.8	13.00	11.213		
3,000.0	2,994.8	2,989.2	2,977.7	6.8	7.5	47.44	182.4	138.3	149.3	135.8	13.51	11.049		
3,100.0	3,094.1	3,089.0	3,076.8	7.1	7.8	49.04	192.4	145.3	152.9	138.9	14.03	10.899		
3,200.0	3,193.5	3,188.9	3,175.9	7.4	8.1	50.57	202.4	152.4	156.7	142.1	14.56	10.763		
3,300.0	3,292.8	3,288.7	3,275.0	7.6	8.4	52.02	212.4	159.5	160.6	145.5	15.09	10.639		
3,400.0	3,392.1	3,388.6	3,374.1	7.9	8.7	53.40	222.4	166.5	164.5	148.9	15.63	10.525		
3,500.0	3,491.4	3,488.4	3,473.2	8.2	9.0	54.72	232.4	173.6	168.6	152.4	16.18	10.421		
3,600.0	3,590.7	3,588.3	3,572.3	8.5	9.3	55.98	242.5	180.7	172.7	156.0	16.73	10.325		
3,700.0	3,690.0	3,688.1	3,671.3	8.8	9.6	57.17	252.5	187.7	176.9	159.6	17.28	10.236		
3,800.0	3,789.3	3,788.0	3,770.4	9.1	9.9	58.31	262.5	194.8	181.2	163.3	17.84	10.155		
3,900.0	3,888.6	3,887.8	3,869.5	9.3	10.3	59.40	272.5	201.9	185.5	167.1	18.41	10.080		
4,000.0	3,988.0	3,987.6	3,968.6	9.6	10.6	60.44	282.5	208.9	190.0	171.0	18.98	10.010		
4,100.0	4,087.3	4,087.5	4,067.7	9.9	10.9	61.43	292.5	216.0	194.4	174.9	19.55	9.946		
4,200.0	4,186.6	4,187.3	4,166.8	10.2	11.2	62.37	302.5	223.1	199.0	178.8	20.13	9.886		
4,300.0	4,285.9	4,287.2	4,265.9	10.5	11.5	63.28	312.5	230.1	203.6	182.8	20.71	9.831		
4,400.0	4,385.2	4,387.0	4,365.0	10.8	11.8	64.14	322.5	237.2	208.2	186.9	21.29	9.779		
4,500.0	4,484.5	4,486.9	4,464.1	11.1	12.1	64.96	332.6	244.3	212.9	191.0	21.87	9.731		
4,600.0	4,583.8	4,586.7	4,563.2	11.4	12.4	65.75	342.6	251.3	217.6	195.1	22.46	9.687		
4,700.0	4,683.1	4,686.6	4,662.2	11.7	12.7	66.51	352.6	258.4	222.3	199.3	23.05	9.645		
4,800.0	4,782.5	4,786.4	4,761.3	12.0	13.1	67.23	362.6	265.5	227.1	203.5	23.64	9.607		
4,900.0	4,881.8	4,886.2	4,860.4	12.3	13.4	67.93	372.6	272.5	232.0	207.7	24.24	9.570		

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 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	Offset TVD Reference:	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W - Fitzsimmons 9M-203 - 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	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation	Warning	
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	Toolface (°)	+N/-S (ft)	+E/-W (ft)	Centres (ft)	Ellipses (ft)	Separation (ft)	Factor		
5,000.0	4,981.1	4,986.1	4,959.5	12.6	13.7	68.59	382.6	279.6	236.8	212.0	24.83	9.537		
5,100.0	5,080.4	5,085.9	5,058.6	12.9	14.0	69.23	392.6	286.7	241.7	216.3	25.43	9.505		
5,200.0	5,179.7	5,185.8	5,157.7	13.2	14.3	69.85	402.6	293.7	246.6	220.6	26.03	9.476		
5,300.0	5,279.0	5,285.6	5,256.8	13.5	14.6	70.43	412.6	300.8	251.6	225.0	26.63	9.448		
5,400.0	5,378.3	5,385.5	5,355.9	13.8	14.9	71.00	422.7	307.9	256.6	229.3	27.23	9.422		
5,500.0	5,477.7	5,485.3	5,455.0	14.1	15.3	71.55	432.7	314.9	261.6	233.7	27.83	9.398		
5,600.0	5,577.0	5,585.2	5,554.0	14.4	15.6	72.07	442.7	322.0	266.6	238.2	28.44	9.375		
5,700.0	5,676.3	5,685.0	5,653.1	14.7	15.9	72.58	452.7	329.1	271.6	242.6	29.04	9.353		
5,800.0	5,775.6	5,784.9	5,752.2	15.0	16.2	73.06	462.7	336.1	276.7	247.1	29.65	9.333		
5,900.0	5,874.9	5,884.9	5,851.5	15.3	16.5	73.53	472.7	343.2	281.8	251.5	30.25	9.314		
6,000.0	5,974.2	5,992.0	5,958.0	15.6	16.8	74.33	481.8	349.6	285.6	254.7	30.84	9.260		
6,100.0	6,073.5	6,098.8	6,064.6	15.9	17.0	75.70	487.5	353.6	286.9	255.5	31.43	9.128		
6,191.8	6,164.7	6,196.6	6,162.3	16.1	17.1	77.48	489.9	355.4	286.2	254.2	31.99	8.947		
6,200.0	6,172.8	6,205.3	6,171.0	16.2	17.2	77.66	490.0	355.4	286.1	254.0	32.03	8.930		
6,300.0	6,272.4	6,306.6	6,272.4	16.4	17.3	79.53	490.1	355.5	284.2	251.7	32.54	8.735		
6,400.0	6,372.2	6,406.4	6,372.2	16.6	17.5	80.75	490.1	355.5	283.2	250.2	32.99	8.583		
6,500.0	6,472.1	6,506.4	6,472.1	16.8	17.7	81.28	490.1	355.5	282.7	249.4	33.37	8.472		
6,527.9	6,500.0	6,534.2	6,500.0	16.8	17.7	89.77	490.1	355.5	282.7	249.2	33.47	8.448		
6,571.3	6,543.5	6,577.7	6,543.5	16.9	17.8	90.00	489.0	355.5	282.7	249.1	33.61	8.411		
6,600.0	6,572.1	6,606.3	6,571.9	16.9	17.8	90.42	486.9	355.5	282.7	249.0	33.71	8.386		
6,700.0	6,672.1	6,703.9	6,668.3	17.1	17.8	93.48	471.8	355.5	283.3	249.2	34.09	8.309		
6,728.3	6,700.5	6,730.7	6,694.4	17.2	17.8	94.74	465.5	355.5	283.7	249.5	34.20	8.298		
6,750.0	6,722.1	6,751.0	6,713.9	17.2	17.8	-84.20	460.2	355.5	284.3	250.0	34.27	8.294		
6,800.0	6,772.0	6,797.2	6,757.9	17.2	17.8	-81.79	446.0	355.5	285.8	251.4	34.38	8.312		
6,850.0	6,821.6	6,842.9	6,800.5	17.3	17.7	-79.46	429.5	355.5	287.9	253.4	34.43	8.360		
6,900.0	6,870.7	6,887.9	6,841.4	17.3	17.7	-77.21	410.7	355.5	290.3	255.9	34.42	8.435		
6,950.0	6,919.0	6,932.4	6,880.6	17.3	17.6	-75.05	389.7	355.5	293.1	258.8	34.34	8.537		
7,000.0	6,966.4	6,976.3	6,918.2	17.2	17.5	-72.99	366.9	355.5	296.3	262.1	34.19	8.665		
7,050.0	7,012.7	7,019.8	6,954.0	17.2	17.5	-71.04	342.2	355.5	299.7	265.7	33.99	8.817		
7,100.0	7,057.6	7,062.9	6,987.9	17.1	17.4	-69.20	315.7	355.5	303.2	269.5	33.73	8.990		
7,150.0	7,101.0	7,105.5	7,020.0	17.0	17.3	-67.48	287.7	355.5	306.9	273.5	33.42	9.184		
7,200.0	7,142.7	7,150.0	7,051.9	16.9	17.2	-65.80	256.6	355.5	310.7	277.6	33.06	9.396		
7,250.0	7,182.5	7,189.7	7,078.6	16.9	17.2	-64.37	227.4	355.5	314.4	281.7	32.70	9.616		
7,300.0	7,220.2	7,231.2	7,105.1	16.8	17.1	-63.00	195.3	355.5	318.2	285.8	32.31	9.846		
7,350.0	7,255.8	7,272.5	7,129.5	16.7	17.0	-61.74	162.0	355.5	321.8	289.9	31.93	10.079		
7,400.0	7,288.9	7,313.6	7,152.0	16.7	17.0	-60.59	127.7	355.5	325.3	293.7	31.55	10.308		
7,450.0	7,319.5	7,350.0	7,170.4	16.7	16.9	-59.64	96.3	355.5	328.6	297.4	31.23	10.524		
7,500.0	7,347.4	7,394.9	7,191.0	16.7	16.8	-58.64	56.3	355.5	331.7	300.7	30.93	10.723		
7,550.0	7,372.6	7,435.3	7,207.5	16.7	16.8	-57.82	19.5	355.5	334.5	303.8	30.72	10.890		
7,600.0	7,394.9	7,475.6	7,222.0	16.8	16.7	-57.11	-18.1	355.5	337.1	306.5	30.58	11.022		
7,650.0	7,414.3	7,515.7	7,234.4	16.9	16.8	-56.50	-56.2	355.5	339.3	308.8	30.56	11.105		
7,700.0	7,430.5	7,555.6	7,244.8	17.1	17.0	-56.00	-94.8	355.5	341.2	310.6	30.63	11.140		
7,750.0	7,443.7	7,600.0	7,253.9	17.3	17.3	-55.56	-138.2	355.5	342.8	312.0	30.84	11.116		
7,800.0	7,453.6	7,635.3	7,259.4	17.5	17.5	-55.29	-173.1	355.5	344.0	312.8	31.15	11.042		
7,850.0	7,460.4	7,675.0	7,263.6	17.8	17.8	-55.08	-212.6	355.5	344.8	313.2	31.60	10.911		
7,900.0	7,463.9	7,714.8	7,265.7	18.2	18.1	-54.97	-252.2	355.5	345.3	313.1	32.18	10.730		
7,923.4	7,464.4	7,733.3	7,266.0	18.4	18.3	-54.95	-270.8	355.5	345.3	312.9	32.49	10.631		
8,000.0	7,464.9	7,808.6	7,265.9	19.0	19.0	-54.86	-346.1	355.5	345.7	312.2	33.58	10.295		
8,100.0	7,465.5	7,908.6	7,265.6	20.0	20.0	-54.73	-446.1	355.5	346.3	311.0	35.23	9.829		
8,200.0	7,466.2	8,008.6	7,265.3	21.1	21.1	-54.61	-546.0	355.5	346.8	309.7	37.08	9.354		

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 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	Offset TVD Reference:	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W - Fitzsimmons 9M-203 - 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		
8,300.0	7,466.8	8,108.6	7,265.0	22.3	22.4	-54.48	-646.0	355.5	347.3	308.2	39.10	8.883		
8,400.0	7,467.5	8,208.6	7,264.7	23.5	23.7	-54.36	-746.0	355.5	347.9	306.6	41.27	8.430		
8,500.0	7,468.1	8,308.6	7,264.5	24.9	25.1	-54.23	-846.0	355.5	348.4	304.9	43.56	7.999		
8,600.0	7,468.8	8,408.6	7,264.2	26.4	26.5	-54.11	-946.0	355.5	349.0	303.0	45.95	7.594		
8,700.0	7,469.4	8,508.6	7,263.9	27.9	28.1	-53.99	-1,046.0	355.5	349.5	301.1	48.43	7.216		
8,800.0	7,470.0	8,608.6	7,263.6	29.4	29.6	-53.87	-1,146.0	355.5	350.1	299.1	50.98	6.866		
8,900.0	7,470.7	8,708.6	7,263.3	31.0	31.2	-53.74	-1,246.0	355.5	350.6	297.0	53.59	6.542		
9,000.0	7,471.3	8,808.5	7,263.1	32.6	32.8	-53.62	-1,346.0	355.5	351.1	294.9	56.26	6.242		
9,100.0	7,472.0	8,908.5	7,262.8	34.3	34.5	-53.50	-1,446.0	355.5	351.7	292.7	58.96	5.965		
9,200.0	7,472.6	9,008.5	7,262.5	36.0	36.2	-53.38	-1,546.0	355.5	352.2	290.5	61.70	5.709		
9,300.0	7,473.3	9,108.5	7,262.2	37.7	37.9	-53.26	-1,646.0	355.5	352.8	288.3	64.47	5.472		
9,400.0	7,473.9	9,208.5	7,261.9	39.4	39.6	-53.14	-1,746.0	355.5	353.4	286.1	67.26	5.253		
9,500.0	7,474.6	9,308.5	7,261.7	41.1	41.3	-53.02	-1,846.0	355.5	353.9	283.8	70.08	5.050		
9,600.0	7,475.2	9,408.5	7,261.4	42.9	43.1	-52.90	-1,946.0	355.5	354.5	281.6	72.91	4.862		
9,700.0	7,475.9	9,508.5	7,261.1	44.6	44.9	-52.78	-2,046.0	355.5	355.0	279.3	75.76	4.686		
9,800.0	7,476.5	9,608.5	7,260.8	46.4	46.6	-52.66	-2,146.0	355.5	355.6	277.0	78.62	4.523		
9,900.0	7,477.1	9,708.5	7,260.5	48.2	48.4	-52.54	-2,246.0	355.5	356.1	274.7	81.49	4.371		
10,000.0	7,477.8	9,808.5	7,260.3	50.0	50.2	-52.43	-2,346.0	355.5	356.7	272.3	84.36	4.228		
10,100.0	7,478.4	9,908.5	7,260.0	51.8	52.0	-52.31	-2,446.0	355.5	357.3	270.0	87.25	4.095		
10,200.0	7,479.1	10,008.5	7,259.7	53.6	53.8	-52.19	-2,546.0	355.5	357.8	267.7	90.14	3.970		
10,300.0	7,479.7	10,108.5	7,259.4	55.5	55.7	-52.07	-2,646.0	355.5	358.4	265.4	93.03	3.853		
10,400.0	7,480.4	10,208.5	7,259.2	57.3	57.5	-51.96	-2,745.9	355.5	359.0	263.1	95.93	3.742		
10,500.0	7,481.0	10,308.5	7,258.9	59.1	59.3	-51.84	-2,845.9	355.5	359.6	260.7	98.82	3.638		
10,600.0	7,481.7	10,408.5	7,258.6	61.0	61.2	-51.73	-2,945.9	355.5	360.1	258.4	101.72	3.540		
10,700.0	7,482.3	10,508.5	7,258.3	62.8	63.0	-51.61	-3,045.9	355.5	360.7	256.1	104.62	3.448		
10,800.0	7,483.0	10,608.5	7,258.0	64.7	64.9	-51.50	-3,145.9	355.5	361.3	253.8	107.52	3.360		
10,900.0	7,483.6	10,708.5	7,257.8	66.5	66.7	-51.38	-3,245.9	355.5	361.8	251.4	110.42	3.277		
11,000.0	7,484.3	10,808.5	7,257.5	68.4	68.6	-51.27	-3,345.9	355.5	362.4	249.1	113.32	3.198		
11,100.0	7,484.9	10,908.5	7,257.2	70.2	70.4	-51.15	-3,445.9	355.5	363.0	246.8	116.21	3.124		
11,200.0	7,485.5	11,008.5	7,256.9	72.1	72.3	-51.04	-3,545.9	355.5	363.6	244.5	119.10	3.053		
11,300.0	7,486.2	11,108.4	7,256.6	73.9	74.1	-50.93	-3,645.9	355.5	364.2	242.2	121.99	2.985		
11,400.0	7,486.8	11,208.4	7,256.4	75.8	76.0	-50.81	-3,745.9	355.5	364.8	239.9	124.88	2.921		
11,500.0	7,487.5	11,308.4	7,256.1	77.7	77.9	-50.70	-3,845.9	355.5	365.3	237.6	127.76	2.860		
11,600.0	7,488.1	11,408.4	7,255.8	79.5	79.7	-50.59	-3,945.9	355.5	365.9	235.3	130.64	2.801		
11,700.0	7,488.8	11,508.4	7,255.5	81.4	81.6	-50.48	-4,045.9	355.5	366.5	233.0	133.51	2.745		
11,800.0	7,489.4	11,608.4	7,255.2	83.3	83.5	-50.37	-4,145.9	355.5	367.1	230.7	136.38	2.692		
11,890.2	7,490.0	11,695.6	7,255.0	85.0	85.1	-50.27	-4,233.0	355.5	367.6	228.7	138.93	2.646 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	Offset TVD Reference:	Offset Datum

Offset Design Ft. Lupton Pad Sec.9-T1N-R66W - Ft. Lupton Highlands USX WW09-18D - Ft. Lupton Highlands USX W														Offset Site Error:	0.0 ft
Survey Program: 352-Reference														Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
7,700.0	7,430.5	7,534.6	7,464.9	17.1	20.4	-69.92	-659.2	552.2	775.3	741.5	33.71	22.996			
7,750.0	7,443.7	7,547.5	7,477.8	17.3	20.4	-75.30	-659.2	552.2	737.9	703.0	34.87	21.163			
7,800.0	7,453.6	7,557.2	7,487.5	17.5	20.4	-80.31	-659.1	552.2	701.3	665.5	35.80	19.590			
7,850.0	7,460.4	7,563.6	7,493.9	17.8	20.4	-84.78	-659.0	552.2	666.0	629.5	36.51	18.242			
7,900.0	7,463.9	7,566.7	7,497.0	18.2	20.4	-88.55	-659.0	552.2	632.4	595.3	37.03	17.076			
7,923.4	7,464.4	7,567.1	7,497.4	18.4	20.4	-90.06	-659.0	552.2	617.4	580.1	37.23	16.581			
8,000.0	7,464.9	7,567.1	7,497.4	19.0	20.4	-90.06	-659.0	552.2	572.2	534.3	37.87	15.111			
8,100.0	7,465.5	7,567.0	7,497.3	20.0	20.4	-90.05	-659.0	552.2	524.3	485.5	38.82	13.506			
8,200.0	7,466.2	7,567.0	7,497.3	21.1	20.4	-90.05	-659.0	552.2	492.4	452.5	39.91	12.337			
8,300.0	7,466.8	7,567.0	7,497.3	22.3	20.4	-90.05	-659.0	552.2	479.5	438.4	41.11	11.665			
8,312.4	7,466.9	7,567.0	7,497.3	22.4	20.4	-90.05	-659.0	552.2	479.4	438.1	41.27	11.615 CC, ES			
8,400.0	7,467.5	7,567.0	7,497.3	23.5	20.4	-90.04	-659.0	552.2	487.3	444.9	42.41	11.492 SF			
8,500.0	7,468.1	7,566.9	7,497.2	24.9	20.4	-90.04	-659.0	552.2	514.8	471.0	43.78	11.758			
8,600.0	7,468.8	7,566.9	7,497.2	26.4	20.4	-90.04	-659.0	552.2	559.0	513.8	45.22	12.361			
8,700.0	7,469.4	7,566.9	7,497.2	27.9	20.4	-90.03	-659.0	552.2	616.5	569.7	46.72	13.194			
8,800.0	7,470.0	7,566.8	7,497.2	29.4	20.4	-90.03	-659.0	552.2	683.8	635.5	48.27	14.165			
8,900.0	7,470.7	7,566.8	7,497.1	31.0	20.4	-90.03	-659.0	552.2	758.3	708.5	49.86	15.209			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Fitzsimmons 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5003.0ft (RKB - 13')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Fitzsimmons 9M-443
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 9M-443
Project:	SEC.9-T1N-R66W	TVD Reference:	WELL @ 5003.0ft (RKB - 13')
Reference Site:	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	MD Reference:	WELL @ 5003.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Fitzsimmons 9M-443	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 (5-01-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5003.0ft (RKB - 13')
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