

# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Fitzsimmons 9J-323**

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

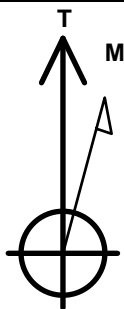
Ground Elevation: 4990.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1269679.47	3200360.88	40.071440	-104.784060	

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

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' E & W Hardline(9J-323)	1.0	-2240.6	-198.7	Rectangle (Sides: L3955.8 W100.0)
SHL 557'FNL & 2136'FWL	1.0	0.0	0.0	Point
BHL 500'FSL & 1912'FWL	7327.0	-4218.5	-198.7	Point



Azimuths to True North  
Magnetic North: 8.32°

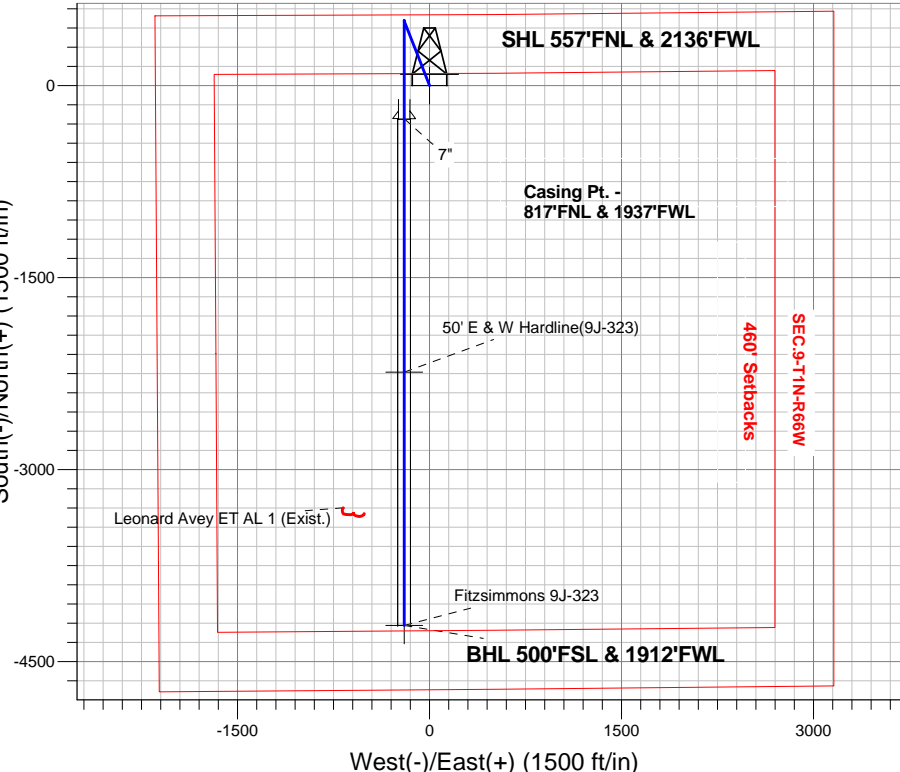
Magnetic Field  
Strength: 52546.3snT  
Dip Angle: 66.65°  
Date: 5/4/2015  
Model: IGRF2010

Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W  
Fitzsimmons 9J-323  
Plan #2 (5-01-15)  
8:37, May 04 2015

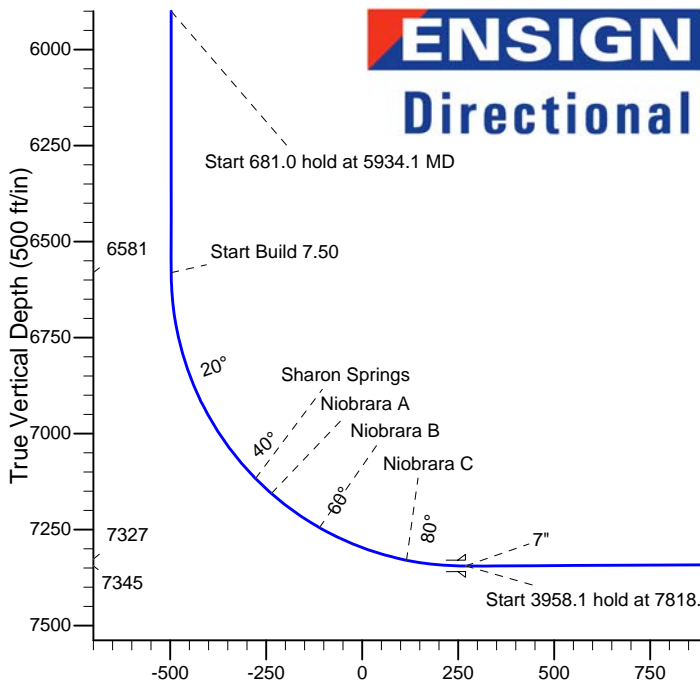
## ANNOTATIONS

TVD	MD	Annotation
1200.0	1200.0	KOP - Start Build 1.00
5526.1	5559.1	Start Drop -2.00
5900.0	5934.1	Start 681.0 hold at 5934.1 MD
6581.0	6615.1	Start Build 7.50
7345.0	7818.6	Start 3958.1 hold at 7818.6 MD
7327.0	11776.7	TD at 11776.7

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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1949.9	7.50	338.60	1947.8	45.6	-17.9	1.00	338.60	-44.7	
4	5559.1	7.50	338.60	5526.1	484.2	-189.8	0.00	0.00	-474.7	
5	5934.1	0.00	0.00	5900.0	507.0	-198.7	2.00	180.00	-497.1	
6	6615.1	0.00	0.00	6581.0	507.0	-198.7	0.00	0.00	-497.1	
7	7818.6	90.26	180.00	7345.0	-260.4	-198.7	7.50	180.00	269.5	
8	11776.7	90.26	180.00	7327.0	-4218.5	-198.7	0.00	0.00	4223.2	BHL 500'FSL & 1912'FWL

BHL 500'FSL & 1912'FWL

TD at 11776.7

Vertical Section at 182.70° (500 ft/in)



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.9-T1N-R66W**

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

**Fitzsimmons 9J-323**

**Wellbore #1**

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

## **Standard Planning Report**

**04 May, 2015**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Project:</b>	SEC.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (5-01-15)		

<b>Project</b>	SEC.9-T1N-R66W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	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 9J-323					
Well Position	+N-S	18.2 ft	Northing:	1,269,679.47 ft	Latitude:	40.071440
	+E-W	22.4 ft	Easting:	3,200,360.88 ft	Longitude:	-104.784060
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,990.0 ft

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

<b>Design</b>	Plan #2 (5-01-15)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	182.70

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,949.9	7.50	338.60	1,947.8	45.6	-17.9	1.00	1.00	0.00	338.60	
5,559.1	7.50	338.60	5,526.1	484.2	-189.8	0.00	0.00	0.00	0.00	
5,934.1	0.00	0.00	5,900.0	507.0	-198.7	2.00	-2.00	0.00	180.00	
6,615.1	0.00	0.00	6,581.0	507.0	-198.7	0.00	0.00	0.00	0.00	
7,818.6	90.26	180.00	7,345.0	-260.4	-198.7	7.50	7.50	0.00	180.00	
11,776.7	90.26	180.00	7,327.0	-4,218.5	-198.7	0.00	0.00	0.00	0.00	BHL 500'FSL & 191

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Project:</b>	SEC.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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
<b>SHL 557'FNL &amp; 2136'FWL - 50' E &amp; W Hardline(9J-323)</b>									
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
<b>KOP - Start Build 1.00</b>									
1,300.0	1.00	338.60	1,300.0	0.8	-0.3	-0.8	1.00	1.00	0.00
1,400.0	2.00	338.60	1,400.0	3.2	-1.3	-3.2	1.00	1.00	0.00
1,500.0	3.00	338.60	1,499.9	7.3	-2.9	-7.2	1.00	1.00	0.00
1,600.0	4.00	338.60	1,599.7	13.0	-5.1	-12.7	1.00	1.00	0.00
1,700.0	5.00	338.60	1,699.4	20.3	-8.0	-19.9	1.00	1.00	0.00
1,800.0	6.00	338.60	1,798.9	29.2	-11.5	-28.7	1.00	1.00	0.00
1,900.0	7.00	338.60	1,898.3	39.8	-15.6	-39.0	1.00	1.00	0.00
1,949.9	7.50	338.60	1,947.8	45.6	-17.9	-44.7	1.00	1.00	0.00
2,000.0	7.50	338.60	1,997.4	51.7	-20.3	-50.7	0.00	0.00	0.00
2,100.0	7.50	338.60	2,096.6	63.9	-25.0	-62.6	0.00	0.00	0.00
2,200.0	7.50	338.60	2,195.7	76.0	-29.8	-74.5	0.00	0.00	0.00
2,300.0	7.50	338.60	2,294.9	88.2	-34.6	-86.4	0.00	0.00	0.00
2,400.0	7.50	338.60	2,394.0	100.3	-39.3	-98.4	0.00	0.00	0.00
2,500.0	7.50	338.60	2,493.2	112.5	-44.1	-110.3	0.00	0.00	0.00
2,600.0	7.50	338.60	2,592.3	124.6	-48.8	-122.2	0.00	0.00	0.00
2,700.0	7.50	338.60	2,691.4	136.8	-53.6	-134.1	0.00	0.00	0.00
2,800.0	7.50	338.60	2,790.6	148.9	-58.4	-146.0	0.00	0.00	0.00
2,900.0	7.50	338.60	2,889.7	161.1	-63.1	-157.9	0.00	0.00	0.00
3,000.0	7.50	338.60	2,988.9	173.2	-67.9	-169.8	0.00	0.00	0.00
3,100.0	7.50	338.60	3,088.0	185.4	-72.7	-181.7	0.00	0.00	0.00
3,200.0	7.50	338.60	3,187.2	197.5	-77.4	-193.7	0.00	0.00	0.00
3,300.0	7.50	338.60	3,286.3	209.7	-82.2	-205.6	0.00	0.00	0.00
3,400.0	7.50	338.60	3,385.5	221.8	-87.0	-217.5	0.00	0.00	0.00
3,500.0	7.50	338.60	3,484.6	234.0	-91.7	-229.4	0.00	0.00	0.00
3,600.0	7.50	338.60	3,583.7	246.1	-96.5	-241.3	0.00	0.00	0.00
3,700.0	7.50	338.60	3,682.9	258.3	-101.2	-253.2	0.00	0.00	0.00
3,800.0	7.50	338.60	3,782.0	270.4	-106.0	-265.1	0.00	0.00	0.00
3,900.0	7.50	338.60	3,881.2	282.6	-110.8	-277.1	0.00	0.00	0.00
4,000.0	7.50	338.60	3,980.3	294.7	-115.5	-289.0	0.00	0.00	0.00
4,100.0	7.50	338.60	4,079.5	306.9	-120.3	-300.9	0.00	0.00	0.00
4,200.0	7.50	338.60	4,178.6	319.0	-125.1	-312.8	0.00	0.00	0.00
4,221.6	7.50	338.60	4,200.0	321.7	-126.1	-315.4	0.00	0.00	0.00
<b>Parkman</b>									
4,300.0	7.50	338.60	4,277.8	331.2	-129.8	-324.7	0.00	0.00	0.00
4,400.0	7.50	338.60	4,376.9	343.3	-134.6	-336.6	0.00	0.00	0.00
4,500.0	7.50	338.60	4,476.0	355.5	-139.3	-348.5	0.00	0.00	0.00

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<b>Project:</b>	SEC.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	7.50	338.60	4,575.2	367.6	-144.1	-360.5	0.00	0.00	0.00
4,655.3	7.50	338.60	4,630.0	374.4	-146.7	-367.0	0.00	0.00	0.00
<b>Sussex</b>									
4,700.0	7.50	338.60	4,674.3	379.8	-148.9	-372.4	0.00	0.00	0.00
4,800.0	7.50	338.60	4,773.5	391.9	-153.6	-384.3	0.00	0.00	0.00
4,900.0	7.50	338.60	4,872.6	404.1	-158.4	-396.2	0.00	0.00	0.00
5,000.0	7.50	338.60	4,971.8	416.2	-163.2	-408.1	0.00	0.00	0.00
5,100.0	7.50	338.60	5,070.9	428.4	-167.9	-420.0	0.00	0.00	0.00
5,129.3	7.50	338.60	5,100.0	432.0	-169.3	-423.5	0.00	0.00	0.00
<b>Shannon</b>									
5,200.0	7.50	338.60	5,170.1	440.5	-172.7	-431.9	0.00	0.00	0.00
5,300.0	7.50	338.60	5,269.2	452.7	-177.5	-443.8	0.00	0.00	0.00
5,400.0	7.50	338.60	5,368.4	464.9	-182.2	-455.8	0.00	0.00	0.00
5,500.0	7.50	338.60	5,467.5	477.0	-187.0	-467.7	0.00	0.00	0.00
5,559.1	7.50	338.60	5,526.1	484.2	-189.8	-474.7	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,600.0	6.68	338.60	5,566.7	488.9	-191.6	-479.3	2.00	-2.00	0.00
5,700.0	4.68	338.60	5,666.2	498.1	-195.3	-488.4	2.00	-2.00	0.00
5,800.0	2.68	338.60	5,766.0	504.1	-197.6	-494.2	2.00	-2.00	0.00
5,900.0	0.68	338.60	5,865.9	506.8	-198.7	-496.9	2.00	-2.00	0.00
5,934.1	0.00	0.00	5,900.0	507.0	-198.7	-497.1	2.00	-2.00	0.00
<b>Start 681.0 hold at 5934.1 MD</b>									
6,000.0	0.00	0.00	5,965.9	507.0	-198.7	-497.1	0.00	0.00	0.00
6,100.0	0.00	0.00	6,065.9	507.0	-198.7	-497.1	0.00	0.00	0.00
6,200.0	0.00	0.00	6,165.9	507.0	-198.7	-497.1	0.00	0.00	0.00
6,300.0	0.00	0.00	6,265.9	507.0	-198.7	-497.1	0.00	0.00	0.00
6,400.0	0.00	0.00	6,365.9	507.0	-198.7	-497.1	0.00	0.00	0.00
6,500.0	0.00	0.00	6,465.9	507.0	-198.7	-497.1	0.00	0.00	0.00
6,600.0	0.00	0.00	6,565.9	507.0	-198.7	-497.1	0.00	0.00	0.00
6,615.1	0.00	0.00	6,581.0	507.0	-198.7	-497.1	0.00	0.00	0.00
<b>Start Build 7.50</b>									
6,700.0	6.37	180.00	6,665.7	502.3	-198.7	-492.4	7.50	7.50	0.00
6,800.0	13.87	180.00	6,764.1	484.7	-198.7	-474.8	7.50	7.50	0.00
6,900.0	21.37	180.00	6,859.4	454.5	-198.7	-444.6	7.50	7.50	0.00
7,000.0	28.87	180.00	6,949.8	412.1	-198.7	-402.3	7.50	7.50	0.00
7,100.0	36.37	180.00	7,034.0	358.2	-198.7	-348.5	7.50	7.50	0.00
7,200.0	43.87	180.00	7,110.4	293.8	-198.7	-284.1	7.50	7.50	0.00
7,209.2	44.55	180.00	7,117.0	287.4	-198.7	-277.8	7.50	7.50	0.00
<b>Sharon Springs</b>									
7,266.0	48.82	180.00	7,156.0	246.1	-198.7	-236.4	7.50	7.50	0.00
<b>Niobrara A</b>									
7,300.0	51.37	180.00	7,177.8	220.0	-198.7	-210.4	7.50	7.50	0.00
7,400.0	58.87	180.00	7,234.9	138.0	-198.7	-128.5	7.50	7.50	0.00
7,419.9	60.36	180.00	7,245.0	120.9	-198.7	-111.4	7.50	7.50	0.00
<b>Niobrara B</b>									
7,500.0	66.37	180.00	7,280.9	49.3	-198.7	-39.9	7.50	7.50	0.00
7,600.0	73.87	180.00	7,314.9	-44.7	-198.7	54.0	7.50	7.50	0.00
7,663.6	78.64	180.00	7,330.0	-106.5	-198.7	115.7	7.50	7.50	0.00
<b>Niobrara C</b>									
7,700.0	81.37	180.00	7,336.3	-142.3	-198.7	151.5	7.50	7.50	0.00
7,800.0	88.87	180.00	7,344.8	-241.8	-198.7	250.9	7.50	7.50	0.00

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<b>Project:</b>	SEC.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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)
7,818.3	90.24	180.00	7,345.0	-260.1	-198.7	269.2	7.50	7.50	0.00
7"									
7,818.6	90.26	180.00	7,345.0	-260.4	-198.7	269.5	6.83	6.83	0.00
Start 3958.1 hold at 7818.6 MD									
7,900.0	90.26	180.00	7,344.6	-341.8	-198.7	350.8	0.00	0.00	0.00
8,000.0	90.26	180.00	7,344.1	-441.8	-198.7	450.7	0.00	0.00	0.00
8,100.0	90.26	180.00	7,343.7	-541.8	-198.7	550.6	0.00	0.00	0.00
8,200.0	90.26	180.00	7,343.2	-641.8	-198.7	650.5	0.00	0.00	0.00
8,300.0	90.26	180.00	7,342.8	-741.8	-198.7	750.4	0.00	0.00	0.00
8,400.0	90.26	180.00	7,342.3	-841.8	-198.7	850.3	0.00	0.00	0.00
8,500.0	90.26	180.00	7,341.9	-941.8	-198.7	950.1	0.00	0.00	0.00
8,600.0	90.26	180.00	7,341.4	-1,041.8	-198.7	1,050.0	0.00	0.00	0.00
8,700.0	90.26	180.00	7,341.0	-1,141.8	-198.7	1,149.9	0.00	0.00	0.00
8,800.0	90.26	180.00	7,340.5	-1,241.8	-198.7	1,249.8	0.00	0.00	0.00
8,900.0	90.26	180.00	7,340.1	-1,341.8	-198.7	1,349.7	0.00	0.00	0.00
9,000.0	90.26	180.00	7,339.6	-1,441.8	-198.7	1,449.6	0.00	0.00	0.00
9,100.0	90.26	180.00	7,339.1	-1,541.8	-198.7	1,549.5	0.00	0.00	0.00
9,200.0	90.26	180.00	7,338.7	-1,641.8	-198.7	1,649.4	0.00	0.00	0.00
9,300.0	90.26	180.00	7,338.2	-1,741.8	-198.7	1,749.2	0.00	0.00	0.00
9,400.0	90.26	180.00	7,337.8	-1,841.8	-198.7	1,849.1	0.00	0.00	0.00
9,500.0	90.26	180.00	7,337.3	-1,941.8	-198.7	1,949.0	0.00	0.00	0.00
9,600.0	90.26	180.00	7,336.9	-2,041.8	-198.7	2,048.9	0.00	0.00	0.00
9,700.0	90.26	180.00	7,336.4	-2,141.8	-198.7	2,148.8	0.00	0.00	0.00
9,800.0	90.26	180.00	7,336.0	-2,241.8	-198.7	2,248.7	0.00	0.00	0.00
9,900.0	90.26	180.00	7,335.5	-2,341.8	-198.7	2,348.6	0.00	0.00	0.00
10,000.0	90.26	180.00	7,335.1	-2,441.8	-198.7	2,448.5	0.00	0.00	0.00
10,100.0	90.26	180.00	7,334.6	-2,541.8	-198.7	2,548.4	0.00	0.00	0.00
10,200.0	90.26	180.00	7,334.2	-2,641.8	-198.7	2,648.2	0.00	0.00	0.00
10,300.0	90.26	180.00	7,333.7	-2,741.8	-198.7	2,748.1	0.00	0.00	0.00
10,400.0	90.26	180.00	7,333.2	-2,841.8	-198.7	2,848.0	0.00	0.00	0.00
10,500.0	90.26	180.00	7,332.8	-2,941.8	-198.7	2,947.9	0.00	0.00	0.00
10,600.0	90.26	180.00	7,332.3	-3,041.8	-198.7	3,047.8	0.00	0.00	0.00
10,700.0	90.26	180.00	7,331.9	-3,141.8	-198.7	3,147.7	0.00	0.00	0.00
10,800.0	90.26	180.00	7,331.4	-3,241.8	-198.7	3,247.6	0.00	0.00	0.00
10,900.0	90.26	180.00	7,331.0	-3,341.8	-198.7	3,347.5	0.00	0.00	0.00
11,000.0	90.26	180.00	7,330.5	-3,441.8	-198.7	3,447.3	0.00	0.00	0.00
11,100.0	90.26	180.00	7,330.1	-3,541.8	-198.7	3,547.2	0.00	0.00	0.00
11,200.0	90.26	180.00	7,329.6	-3,641.8	-198.7	3,647.1	0.00	0.00	0.00
11,300.0	90.26	180.00	7,329.2	-3,741.8	-198.7	3,747.0	0.00	0.00	0.00
11,400.0	90.26	180.00	7,328.7	-3,841.8	-198.7	3,846.9	0.00	0.00	0.00
11,500.0	90.26	180.00	7,328.3	-3,941.8	-198.7	3,946.8	0.00	0.00	0.00
11,600.0	90.26	180.00	7,327.8	-4,041.8	-198.7	4,046.7	0.00	0.00	0.00
11,700.0	90.26	180.00	7,327.3	-4,141.8	-198.7	4,146.6	0.00	0.00	0.00
11,776.7	90.26	180.00	7,327.0	-4,218.5	-198.7	4,223.2	0.00	0.00	0.00
BHL 500'FSL & 1912'FWL									

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Project:</b>	SEC.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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 & 1912'I - plan hits target center - Point	0.00	0.00	7,327.0	-4,218.5	-198.7	1,265,459.70	3,200,196.20	40.059860	-104.784770
SHL 557'FNL & 2136' - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,269,679.49	3,200,360.88	40.071440	-104.784060
50' E & W Hardline(9J - plan misses target center by 2249.4ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Rectangle (sides W3,955.8 H100.0 D0.0)	0.00	0.00	1.0	-2,240.6	-198.7	1,267,437.43	3,200,180.28	40.065289	-104.784770

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,818.3	7,345.0	7"	7	7-1/2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,221.6	4,200.0	Parkman		0.00		
4,655.3	4,630.0	Sussex		0.00		
5,129.3	5,100.0	Shannon		0.00		
7,209.2	7,117.0	Sharon Springs		0.00		
7,266.0	7,156.0	Niobrara A		0.00		
7,419.9	7,245.0	Niobrara B		0.00		
7,663.6	7,330.0	Niobrara C		0.00		
	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	
1,200.0	1,200.0	0.0	0.0	KOP - Start Build 1.00	
5,559.1	5,526.1	45.6	-17.9	Start Drop -2.00	
5,934.1	5,900.0	484.2	-189.8	Start 681.0 hold at 5934.1 MD	
6,615.1	6,581.0	507.0	-198.7	Start Build 7.50	
7,818.6	7,345.0	507.0	-198.7	Start 3958.1 hold at 7818.6 MD	
11,776.7	7,327.0	-260.4	-198.7	TD at 11776.7	



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.9-T1N-R66W**

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

**Fitzsimmons 9J-323**

**Wellbore #1**

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

## **Anticollision Report**

**04 May, 2015**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2 (5-01-15)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 800.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b> 5/4/2015			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,776.7	Plan #2 (5-01-15) (Wellbore #1)	MWD	MWD - Standard

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (ft)</b>	<b>Offset Measured Depth (ft)</b>	<b>Distance Between Centres (ft)</b>	<b>Distance Between Ellipses (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
<b>Existing Wells Sec.9-T1N-R66W</b>						
Leonard Avey ET AL 1 (Exist.) - Wellbore #1 - Wellbore #	10,859.9	7,330.3	476.2	393.1	5.731	CC, ES
Leonard Avey ET AL 1 (Exist.) - Wellbore #1 - Wellbore #	10,900.0	7,330.1	477.9	394.0	5.700	SF
<b>Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W</b>						
Fitzsimmons 9J-223 - Wellbore #1 - Plan #2 (5-01-15)	800.0	800.0	28.9	25.5	8.561	CC
Fitzsimmons 9J-223 - Wellbore #1 - Plan #2 (5-01-15)	1,000.0	999.9	29.2	24.9	6.851	ES
Fitzsimmons 9J-223 - Wellbore #1 - Plan #2 (5-01-15)	11,776.7	11,720.3	287.8	122.2	1.738	SF
Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4-30-15)	1,000.0	1,000.0	57.7	53.5	13.517	CC
Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4-30-15)	1,100.0	1,099.7	58.0	53.3	12.299	ES
Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4-30-15)	11,776.7	11,848.8	627.0	458.4	3.718	SF
Fitzsimmons 9M-203 - Wellbore #1 - Plan #2 (5-01-15)	1,000.0	1,000.0	59.9	55.7	14.032	CC, ES
Fitzsimmons 9M-203 - Wellbore #1 - Plan #2 (5-01-15)	11,776.7	11,695.6	583.9	415.2	3.462	SF
Fitzsimmons 9M-443 - Wellbore #1 - Plan #2 (5-01-15)	1,498.3	1,498.2	30.1	23.6	4.626	CC
Fitzsimmons 9M-443 - Wellbore #1 - Plan #2 (5-01-15)	1,500.0	1,499.9	30.1	23.6	4.621	ES
Fitzsimmons 9M-443 - Wellbore #1 - Plan #2 (5-01-15)	11,776.7	11,890.3	338.5	186.3	2.224	SF

<b>Offset Design</b>												
Existing Wells Sec.9-T1N-R66W - Leonard Avey ET AL 1 (Exist.) - Wellbore #1 - Wellbore #1												
Survey Program: 100-NS-GYRO-MS												
Reference Offset Semi Major Axis												
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
10,300.0	7,333.7	7,333.3	7,328.5	57.3	15.6	90.16	-3,301.7	-675.0	735.0	662.3	72.77	10.101
10,400.0	7,333.2	7,332.7	7,327.9	59.1	15.6	90.09	-3,301.7	-675.0	662.0	587.4	74.60	8.875
10,500.0	7,332.8	7,332.2	7,327.4	60.9	15.6	90.03	-3,301.7	-674.9	596.9	520.5	76.44	7.809
10,600.0	7,332.3	7,331.7	7,326.8	62.8	15.6	89.96	-3,301.7	-674.9	542.5	464.2	78.28	6.930
10,700.0	7,331.9	7,331.1	7,326.3	64.6	15.6	89.90	-3,301.7	-674.9	502.3	422.2	80.13	6.269
10,800.0	7,331.4	7,330.6	7,325.8	66.5	15.6	89.83	-3,301.7	-674.9	480.0	398.0	81.98	5.854
10,859.9	7,331.2	7,330.3	7,325.5	67.6	15.6	89.79	-3,301.7	-674.9	476.2	393.1	83.10	5.731 CC, ES
10,900.0	7,331.0	7,330.1	7,325.2	68.3	15.6	89.77	-3,301.7	-674.9	477.9	394.0	83.84	5.700 SF
11,000.0	7,330.5	7,329.5	7,324.7	70.2	15.6	89.71	-3,301.7	-674.9	496.4	410.7	85.70	5.792
11,100.0	7,330.1	7,329.0	7,324.2	72.1	15.6	89.64	-3,301.7	-674.9	533.3	445.7	87.56	6.091
11,200.0	7,329.6	7,328.5	7,323.7	73.9	15.6	89.58	-3,301.7	-674.9	585.2	495.7	89.42	6.544

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Existing Wells Sec.9-T1N-R66W - Leonard Avey ET AL 1 (Exist.) - Wellbore #1 - Wellbore #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 100-NS-GYRO-MS													<b>Offset Well Error:</b>	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 +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
11,300.0	7,329.2	7,328.0	7,323.2	75.8	15.6	89.52	-3,301.7	-674.9	648.4	557.1	91.29	7.103		
11,400.0	7,328.7	7,327.5	7,322.7	77.7	15.6	89.46	-3,301.7	-674.9	720.0	626.9	93.16	7.729		
11,500.0	7,328.3	7,327.0	7,322.1	79.5	15.6	89.40	-3,301.7	-674.9	797.8	702.7	95.03	8.395		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	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	-129.13	-18.2	-22.4	28.9						
100.0	100.0	100.0	100.0	0.1	0.1	-129.13	-18.2	-22.4	28.9	28.6	0.22	128.413			
200.0	200.0	200.0	200.0	0.3	0.3	-129.13	-18.2	-22.4	28.9	28.2	0.67	42.804			
300.0	300.0	300.0	300.0	0.6	0.6	-129.13	-18.2	-22.4	28.9	27.7	1.12	25.683			
400.0	400.0	400.0	400.0	0.8	0.8	-129.13	-18.2	-22.4	28.9	27.3	1.57	18.345			
500.0	500.0	500.0	500.0	1.0	1.0	-129.13	-18.2	-22.4	28.9	26.8	2.02	14.268			
600.0	600.0	600.0	600.0	1.2	1.2	-129.13	-18.2	-22.4	28.9	26.4	2.47	11.674			
700.0	700.0	700.0	700.0	1.5	1.5	-129.13	-18.2	-22.4	28.9	25.9	2.92	9.878			
800.0	800.0	800.0	800.0	1.7	1.7	-129.13	-18.2	-22.4	28.9	25.5	3.37	8.561 CC			
900.0	900.0	900.0	900.0	1.9	1.9	-127.40	-17.6	-23.0	28.9	25.1	3.82	7.572			
1,000.0	1,000.0	999.9	999.8	2.1	2.1	-122.27	-15.6	-24.7	29.2	24.9	4.26	6.851 ES			
1,100.0	1,100.0	1,099.7	1,099.5	2.4	2.4	-114.08	-12.3	-27.5	30.2	25.5	4.71	6.411			
1,200.0	1,200.0	1,199.3	1,199.0	2.6	2.6	-103.78	-7.7	-31.5	32.5	27.3	5.15	6.303			
1,300.0	1,300.0	1,298.7	1,298.1	2.8	2.8	-72.77	-1.9	-36.7	36.5	30.9	5.61	6.507			
1,400.0	1,400.0	1,398.0	1,396.9	3.0	3.1	-65.68	5.3	-42.9	41.8	35.7	6.06	6.896			
1,500.0	1,499.9	1,497.2	1,495.5	3.3	3.3	-60.70	13.7	-50.2	48.0	41.5	6.51	7.371			
1,600.0	1,599.7	1,596.3	1,593.7	3.5	3.6	-57.30	23.4	-58.7	54.9	48.0	6.97	7.878			
1,700.0	1,699.4	1,696.0	1,692.5	3.7	3.9	-55.57	33.7	-67.7	61.6	54.2	7.44	8.279			
1,800.0	1,798.9	1,795.9	1,791.4	4.0	4.2	-55.39	44.1	-76.7	67.3	59.4	7.92	8.499			
1,900.0	1,898.3	1,895.7	1,890.3	4.2	4.5	-56.37	54.4	-85.7	72.1	63.7	8.42	8.559			
1,949.9	1,947.8	1,945.6	1,939.7	4.3	4.6	-57.24	59.5	-90.2	74.1	65.4	8.68	8.538			
2,000.0	1,997.4	1,995.6	1,989.3	4.5	4.8	-58.22	64.7	-94.8	76.0	67.1	8.95	8.501			
2,100.0	2,096.6	2,095.5	2,088.2	4.7	5.1	-60.04	75.0	-103.8	80.0	70.5	9.49	8.429			
2,200.0	2,195.7	2,195.4	2,187.2	5.0	5.4	-61.68	85.4	-112.8	83.9	73.9	10.04	8.361			
2,300.0	2,294.9	2,295.3	2,286.1	5.3	5.7	-63.18	95.7	-121.8	88.0	77.4	10.61	8.298			
2,400.0	2,394.0	2,395.2	2,385.1	5.6	6.0	-64.54	106.0	-130.8	92.1	80.9	11.18	8.238			
2,500.0	2,493.2	2,495.1	2,484.0	5.9	6.4	-65.78	116.4	-139.8	96.3	84.5	11.76	8.182			
2,600.0	2,592.3	2,595.0	2,583.0	6.2	6.7	-66.93	126.7	-148.8	100.5	88.1	12.36	8.130			
2,700.0	2,691.4	2,694.9	2,681.9	6.5	7.0	-67.98	137.0	-157.9	104.7	91.7	12.95	8.081			
2,800.0	2,790.6	2,794.8	2,780.9	6.8	7.3	-68.94	147.4	-166.9	109.0	95.4	13.56	8.035			
2,900.0	2,889.7	2,894.7	2,879.8	7.1	7.7	-69.84	157.7	-175.9	113.2	99.1	14.17	7.992			
3,000.0	2,988.9	2,994.6	2,978.8	7.4	8.0	-70.67	168.0	-184.9	117.6	102.8	14.78	7.952			
3,100.0	3,088.0	3,094.4	3,077.7	7.7	8.3	-71.44	178.4	-193.9	121.9	106.5	15.40	7.915			
3,200.0	3,187.2	3,194.3	3,176.7	8.0	8.7	-72.16	188.7	-202.9	126.3	110.2	16.02	7.880			
3,300.0	3,286.3	3,294.2	3,275.6	8.3	9.0	-72.83	199.0	-212.0	130.6	114.0	16.65	7.847			
3,400.0	3,385.5	3,394.1	3,374.5	8.6	9.3	-73.45	209.4	-221.0	135.0	117.8	17.28	7.816			
3,500.0	3,484.6	3,494.0	3,473.5	9.0	9.7	-74.04	219.7	-230.0	139.5	121.5	17.91	7.787			
3,600.0	3,583.7	3,593.9	3,572.4	9.3	10.0	-74.59	230.0	-239.0	143.9	125.3	18.54	7.760			
3,700.0	3,682.9	3,693.8	3,671.4	9.6	10.3	-75.11	240.4	-248.0	148.3	129.1	19.18	7.735			
3,800.0	3,782.0	3,793.7	3,770.3	9.9	10.7	-75.59	250.7	-257.0	152.8	133.0	19.81	7.711			
3,900.0	3,881.2	3,893.6	3,869.3	10.2	11.0	-76.05	261.0	-266.1	157.2	136.8	20.45	7.688			
4,000.0	3,980.3	3,993.5	3,968.2	10.5	11.3	-76.49	271.4	-275.1	161.7	140.6	21.09	7.667			
4,100.0	4,079.5	4,093.4	4,067.2	10.9	11.7	-76.90	281.7	-284.1	166.2	144.4	21.73	7.647			
4,200.0	4,178.6	4,193.3	4,166.1	11.2	12.0	-77.29	292.0	-293.1	170.7	148.3	22.37	7.628			
4,300.0	4,277.8	4,293.2	4,265.1	11.5	12.3	-77.66	302.4	-302.1	175.2	152.1	23.02	7.610			
4,400.0	4,376.9	4,393.1	4,364.0	11.8	12.7	-78.01	312.7	-311.1	179.7	156.0	23.66	7.593			
4,500.0	4,476.0	4,492.9	4,463.0	12.1	13.0	-78.34	323.0	-320.2	184.2	159.9	24.31	7.577			
4,600.0	4,575.2	4,592.8	4,561.9	12.5	13.3	-78.66	333.4	-329.2	188.7	163.7	24.95	7.562			
4,700.0	4,674.3	4,692.7	4,660.9	12.8	13.7	-78.96	343.7	-338.2	193.2	167.6	25.60	7.547			
4,800.0	4,773.5	4,792.6	4,759.8	13.1	14.0	-79.25	354.0	-347.2	197.7	171.5	26.25	7.533			
4,900.0	4,872.6	4,892.5	4,858.7	13.4	14.4	-79.53	364.4	-356.2	202.2	175.4	26.89	7.520			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	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		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
							+N/-S (ft)	+E/-W (ft)								
5,000.0	4,971.8	4,992.4	4,957.7	13.7	14.7	-79.79	374.7	-365.2	206.8	179.2	27.54	7.508				
5,100.0	5,070.9	5,092.3	5,056.6	14.1	15.0	-80.04	385.0	-374.3	211.3	183.1	28.19	7.496				
5,200.0	5,170.1	5,192.2	5,155.6	14.4	15.4	-80.29	395.4	-383.3	215.9	187.0	28.84	7.484				
5,300.0	5,269.2	5,292.1	5,254.5	14.7	15.7	-80.52	405.7	-392.3	220.4	190.9	29.49	7.473				
5,400.0	5,368.4	5,392.0	5,353.5	15.0	16.0	-80.74	416.0	-401.3	224.9	194.8	30.14	7.463				
5,500.0	5,467.5	5,491.9	5,452.4	15.4	16.4	-80.96	426.4	-410.3	229.5	198.7	30.79	7.453				
5,559.1	5,526.1	5,550.9	5,510.9	15.6	16.6	-81.08	432.5	-415.6	232.2	201.0	31.18	7.447				
5,600.0	5,566.7	5,591.8	5,551.4	15.7	16.7	-81.13	436.7	-419.3	234.1	202.7	31.43	7.449				
5,700.0	5,666.2	5,691.6	5,650.3	15.9	17.1	-80.67	447.0	-428.3	239.2	207.2	31.94	7.489				
5,800.0	5,766.0	5,791.3	5,749.0	16.1	17.4	-79.45	457.3	-437.3	244.8	212.5	32.35	7.568				
5,900.0	5,865.9	5,890.7	5,847.4	16.3	17.7	-77.54	467.6	-446.3	251.4	218.7	32.68	7.694				
5,934.1	5,900.0	5,924.5	5,880.9	16.3	17.8	-98.15	471.1	-449.4	253.9	221.1	32.76	7.749				
6,000.0	5,965.9	5,989.7	5,945.6	16.4	18.1	-96.48	477.9	-455.3	259.0	226.0	32.92	7.865				
6,100.0	6,065.9	6,091.0	6,046.0	16.6	18.4	-94.06	488.1	-464.2	266.9	233.7	33.17	8.046				
6,200.0	6,165.9	6,196.6	6,151.0	16.8	18.6	-92.20	496.5	-471.5	273.4	240.0	33.40	8.185				
6,300.0	6,265.9	6,302.9	6,257.0	16.9	18.8	-91.03	502.0	-476.3	277.8	244.1	33.67	8.249				
6,400.0	6,365.9	6,409.6	6,363.6	17.1	19.0	-90.51	504.5	-478.5	279.8	245.8	33.98	8.235				
6,500.0	6,465.9	6,511.9	6,465.9	17.3	19.2	-90.47	504.7	-478.7	279.9	245.6	34.32	8.157				
6,544.5	6,510.4	6,556.4	6,510.4	17.4	19.2	-90.47	504.7	-478.7	279.9	245.5	34.48	8.119				
6,600.0	6,565.9	6,611.7	6,565.7	17.5	19.3	-90.81	503.0	-478.7	279.9	245.3	34.69	8.071				
6,615.1	6,581.0	6,626.7	6,580.6	17.5	19.3	-91.04	501.9	-478.7	280.0	245.2	34.75	8.057				
6,650.0	6,615.9	6,661.1	6,614.9	17.6	19.3	88.35	498.2	-478.7	280.0	245.2	34.88	8.028				
6,700.0	6,665.7	6,710.3	6,663.4	17.6	19.3	87.49	490.2	-478.7	280.2	245.2	35.01	8.002				
6,750.0	6,715.2	6,759.2	6,711.0	17.6	19.3	86.65	479.2	-478.7	280.4	245.3	35.09	7.991				
6,800.0	6,764.1	6,807.9	6,757.6	17.6	19.3	85.82	465.3	-478.7	280.7	245.6	35.11	7.994				
6,850.0	6,812.2	6,856.3	6,803.0	17.6	19.2	85.02	448.5	-478.7	281.0	245.9	35.08	8.010				
6,900.0	6,859.4	6,904.5	6,847.1	17.5	19.2	84.23	429.0	-478.7	281.4	246.4	35.00	8.038				
6,950.0	6,905.3	6,952.4	6,889.6	17.5	19.1	83.48	406.8	-478.7	281.8	246.9	34.88	8.078				
7,000.0	6,949.8	7,000.0	6,930.3	17.4	19.0	82.76	382.2	-478.7	282.2	247.5	34.72	8.127				
7,050.0	6,992.8	7,047.7	6,969.5	17.3	18.9	82.06	355.1	-478.7	282.6	248.1	34.54	8.183				
7,100.0	7,034.0	7,095.1	7,006.7	17.2	18.8	81.40	325.7	-478.7	283.1	248.8	34.34	8.245				
7,150.0	7,073.3	7,142.3	7,041.9	17.1	18.7	80.78	294.3	-478.7	283.6	249.5	34.13	8.310				
7,200.0	7,110.4	7,189.3	7,075.0	17.0	18.6	80.20	260.9	-478.7	284.1	250.2	33.92	8.375				
7,250.0	7,145.3	7,236.2	7,105.8	16.9	18.5	79.66	225.6	-478.7	284.6	250.8	33.73	8.436				
7,300.0	7,177.8	7,282.9	7,134.3	16.9	18.4	79.17	188.6	-478.7	285.0	251.4	33.57	8.490				
7,350.0	7,207.7	7,329.5	7,160.5	16.8	18.3	78.71	150.0	-478.7	285.4	252.0	33.45	8.533				
7,400.0	7,234.9	7,376.0	7,184.2	16.8	18.2	78.31	110.0	-478.7	285.9	252.5	33.39	8.561				
7,450.0	7,259.4	7,422.4	7,205.4	16.8	18.1	77.95	68.7	-478.7	286.2	252.8	33.39	8.572				
7,500.0	7,280.9	7,468.7	7,224.0	16.8	18.0	77.64	26.4	-478.7	286.6	253.1	33.48	8.560				
7,550.0	7,299.4	7,514.9	7,239.9	16.8	17.9	77.37	-17.0	-478.7	286.9	253.2	33.65	8.526				
7,600.0	7,314.9	7,561.1	7,253.2	17.0	17.9	77.16	-61.2	-478.7	287.1	253.2	33.91	8.467				
7,650.0	7,327.2	7,607.2	7,263.8	17.2	17.8	76.99	-106.1	-478.7	287.3	253.0	34.27	8.383				
7,700.0	7,336.3	7,653.3	7,271.7	17.4	17.8	76.88	-151.5	-478.7	287.4	252.7	34.73	8.276				
7,750.0	7,342.2	7,700.0	7,276.9	17.7	18.1	76.81	-197.9	-478.7	287.5	252.2	35.29	8.146				
7,755.4	7,342.6	7,704.3	7,277.2	17.8	18.1	76.81	-202.2	-478.7	287.5	252.1	35.36	8.131				
7,800.0	7,344.8	7,745.4	7,279.2	18.1	18.4	76.80	-243.2	-478.7	287.5	251.6	35.95	7.999				
7,818.6	7,345.0	7,762.5	7,279.4	18.2	18.5	76.81	-260.3	-478.7	287.5	251.3	36.21	7.940				
7,837.2	7,344.9	7,780.9	7,279.3	18.4	18.7	76.81	-278.7	-478.7	287.5	251.0	36.50	7.877				
7,900.0	7,344.6	7,843.7	7,279.0	18.9	19.2	76.81	-341.5	-478.7	287.5	250.0	37.52	7.662				
8,000.0	7,344.1	7,943.7	7,278.5	19.9	20.2	76.80	-441.5	-478.7	287.5	248.1	39.38	7.301				

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	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			
8,100.0	7,343.7	8,043.7	7,278.0	21.0	21.3	76.79	-541.5	-478.7	287.5	246.0	41.49	6.930			
8,200.0	7,343.2	8,143.7	7,277.5	22.2	22.5	76.78	-641.5	-478.7	287.5	243.7	43.82	6.561			
8,300.0	7,342.8	8,243.7	7,277.0	23.5	23.8	76.78	-741.5	-478.7	287.5	241.2	46.34	6.205			
8,400.0	7,342.3	8,343.7	7,276.5	24.9	25.2	76.77	-841.5	-478.7	287.5	238.5	49.01	5.867			
8,500.0	7,341.9	8,443.7	7,276.0	26.3	26.6	76.76	-941.5	-478.7	287.6	235.7	51.82	5.549			
8,600.0	7,341.4	8,543.7	7,275.5	27.8	28.1	76.76	-1,041.5	-478.7	287.6	232.8	54.74	5.254			
8,700.0	7,341.0	8,643.7	7,275.1	29.4	29.6	76.75	-1,141.5	-478.7	287.6	229.8	57.75	4.980			
8,800.0	7,340.5	8,743.7	7,274.6	31.0	31.2	76.74	-1,241.5	-478.7	287.6	226.7	60.85	4.726			
8,900.0	7,340.1	8,843.7	7,274.1	32.6	32.8	76.74	-1,341.5	-478.7	287.6	223.6	64.01	4.493			
9,000.0	7,339.6	8,943.7	7,273.6	34.3	34.4	76.73	-1,441.5	-478.7	287.6	220.4	67.23	4.278			
9,100.0	7,339.1	9,043.7	7,273.1	35.9	36.1	76.72	-1,541.5	-478.7	287.6	217.1	70.51	4.079			
9,200.0	7,338.7	9,143.7	7,272.6	37.6	37.8	76.72	-1,641.5	-478.7	287.6	213.8	73.83	3.896			
9,300.0	7,338.2	9,243.7	7,272.1	39.4	39.5	76.71	-1,741.5	-478.7	287.6	210.4	77.18	3.726			
9,400.0	7,337.8	9,343.7	7,271.6	41.1	41.2	76.70	-1,841.5	-478.7	287.6	207.1	80.57	3.570			
9,500.0	7,337.3	9,443.7	7,271.1	42.9	42.9	76.70	-1,941.5	-478.7	287.6	203.6	84.00	3.424			
9,600.0	7,336.9	9,543.7	7,270.7	44.6	44.7	76.69	-2,041.5	-478.7	287.6	200.2	87.44	3.290			
9,700.0	7,336.4	9,643.7	7,270.2	46.4	46.4	76.68	-2,141.5	-478.7	287.7	196.7	90.91	3.164			
9,800.0	7,336.0	9,743.7	7,269.7	48.2	48.2	76.68	-2,241.5	-478.7	287.7	193.3	94.40	3.047			
9,900.0	7,335.5	9,843.7	7,269.2	50.0	50.0	76.67	-2,341.5	-478.7	287.7	189.8	97.91	2.938			
10,000.0	7,335.1	9,943.7	7,268.7	51.8	51.8	76.66	-2,441.5	-478.7	287.7	186.2	101.44	2.836			
10,100.0	7,334.6	10,043.7	7,268.2	53.6	53.6	76.66	-2,541.5	-478.7	287.7	182.7	104.98	2.740			
10,200.0	7,334.2	10,143.7	7,267.7	55.4	55.4	76.65	-2,641.5	-478.7	287.7	179.2	108.53	2.651			
10,300.0	7,333.7	10,243.7	7,267.2	57.3	57.2	76.64	-2,741.5	-478.7	287.7	175.6	112.10	2.566			
10,400.0	7,333.2	10,343.7	7,266.7	59.1	59.1	76.64	-2,841.5	-478.7	287.7	172.0	115.68	2.487			
10,500.0	7,332.8	10,443.7	7,266.3	60.9	60.9	76.63	-2,941.5	-478.7	287.7	168.5	119.26	2.412			
10,600.0	7,332.3	10,543.7	7,265.8	62.8	62.7	76.62	-3,041.5	-478.7	287.7	164.9	122.86	2.342			
10,700.0	7,331.9	10,643.7	7,265.3	64.6	64.6	76.62	-3,141.5	-478.7	287.7	161.3	126.46	2.275			
10,800.0	7,331.4	10,743.7	7,264.8	66.5	66.4	76.61	-3,241.5	-478.7	287.7	157.7	130.07	2.212			
10,900.0	7,331.0	10,843.7	7,264.3	68.3	68.2	76.60	-3,341.5	-478.7	287.7	154.1	133.69	2.152			
11,000.0	7,330.5	10,943.7	7,263.8	70.2	70.1	76.60	-3,441.5	-478.7	287.8	150.4	137.31	2.096			
11,100.0	7,330.1	11,043.7	7,263.3	72.1	72.0	76.59	-3,541.5	-478.7	287.8	146.8	140.94	2.042			
11,200.0	7,329.6	11,143.7	7,262.8	73.9	73.8	76.58	-3,641.5	-478.7	287.8	143.2	144.58	1.990			
11,300.0	7,329.2	11,243.7	7,262.3	75.8	75.7	76.57	-3,741.5	-478.7	287.8	139.6	148.22	1.942			
11,400.0	7,328.7	11,343.7	7,261.9	77.7	77.5	76.57	-3,841.5	-478.7	287.8	135.9	151.87	1.895			
11,500.0	7,328.3	11,443.7	7,261.4	79.5	79.4	76.56	-3,941.5	-478.7	287.8	132.3	155.52	1.851			
11,600.0	7,327.8	11,543.7	7,260.9	81.4	81.3	76.55	-4,041.5	-478.7	287.8	128.6	159.17	1.808			
11,700.0	7,327.3	11,643.7	7,260.4	83.3	83.1	76.55	-4,141.5	-478.7	287.8	125.0	162.83	1.768			
11,776.7	7,327.0	11,720.3	7,260.0	84.7	84.6	76.54	-4,218.1	-478.7	287.8	122.2	165.63	1.738 SF			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	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	-129.13	-36.4	-44.8	57.7							
100.0	100.0	100.0	100.0	0.1	0.1	-129.13	-36.4	-44.8	57.7	57.5	0.22	256.815				
200.0	200.0	200.0	200.0	0.3	0.3	-129.13	-36.4	-44.8	57.7	57.0	0.67	85.605				
300.0	300.0	300.0	300.0	0.6	0.6	-129.13	-36.4	-44.8	57.7	56.6	1.12	51.363				
400.0	400.0	400.0	400.0	0.8	0.8	-129.13	-36.4	-44.8	57.7	56.1	1.57	36.688				
500.0	500.0	500.0	500.0	1.0	1.0	-129.13	-36.4	-44.8	57.7	55.7	2.02	28.535				
600.0	600.0	600.0	600.0	1.2	1.2	-129.13	-36.4	-44.8	57.7	55.3	2.47	23.347				
700.0	700.0	700.0	700.0	1.5	1.5	-129.13	-36.4	-44.8	57.7	54.8	2.92	19.755				
800.0	800.0	800.0	800.0	1.7	1.7	-129.13	-36.4	-44.8	57.7	54.4	3.37	17.121				
900.0	900.0	900.0	900.0	1.9	1.9	-129.13	-36.4	-44.8	57.7	53.9	3.82	15.107				
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-129.13	-36.4	-44.8	57.7	53.5	4.27	13.517 CC				
1,100.0	1,100.0	1,099.7	1,099.7	2.4	2.4	-128.30	-35.9	-45.5	58.0	53.3	4.71	12.299 ES				
1,200.0	1,200.0	1,199.4	1,199.3	2.6	2.6	-125.87	-34.4	-47.6	58.8	53.6	5.15	11.409				
1,300.0	1,300.0	1,298.9	1,298.8	2.8	2.8	-101.38	-32.0	-51.2	60.5	54.9	5.59	10.820				
1,400.0	1,400.0	1,398.4	1,398.1	3.0	3.0	-98.60	-28.5	-56.1	63.4	57.4	6.04	10.505				
1,500.0	1,499.9	1,497.8	1,497.2	3.3	3.2	-96.22	-24.1	-62.5	67.5	61.0	6.49	10.397				
1,600.0	1,599.7	1,597.1	1,596.0	3.5	3.5	-94.28	-18.7	-70.3	72.6	65.6	6.95	10.444				
1,700.0	1,699.4	1,696.2	1,694.5	3.7	3.7	-92.77	-12.3	-79.4	78.7	71.3	7.42	10.606				
1,800.0	1,798.9	1,795.2	1,792.6	4.0	4.0	-91.65	-4.9	-90.0	85.9	78.0	7.91	10.852				
1,900.0	1,898.3	1,894.0	1,890.4	4.2	4.3	-90.87	3.4	-101.9	94.0	85.6	8.43	11.155				
1,949.9	1,947.8	1,943.3	1,939.0	4.3	4.4	-90.58	7.9	-108.4	98.4	89.7	8.69	11.320				
2,000.0	1,997.4	1,992.7	1,987.7	4.5	4.6	-90.28	12.6	-115.2	103.1	94.1	8.97	11.498				
2,100.0	2,096.6	2,091.1	2,084.5	4.7	4.9	-89.21	22.8	-129.8	113.2	103.6	9.53	11.877				
2,200.0	2,195.7	2,189.3	2,180.8	5.0	5.3	-87.68	33.9	-145.7	124.2	114.1	10.10	12.297				
2,300.0	2,294.9	2,288.5	2,277.8	5.3	5.7	-86.08	45.6	-162.5	135.9	125.2	10.69	12.714				
2,400.0	2,394.0	2,387.7	2,374.9	5.6	6.0	-84.72	57.3	-179.4	147.7	136.5	11.29	13.086				
2,500.0	2,493.2	2,487.0	2,472.0	5.9	6.4	-83.57	69.1	-196.2	159.6	147.7	11.90	13.418				
2,600.0	2,592.3	2,586.2	2,569.1	6.2	6.8	-82.58	80.8	-213.1	171.5	159.0	12.51	13.717				
2,700.0	2,691.4	2,685.5	2,666.2	6.5	7.2	-81.71	92.5	-229.9	183.5	170.4	13.12	13.987				
2,800.0	2,790.6	2,784.7	2,763.3	6.8	7.6	-80.96	104.3	-246.8	195.5	181.8	13.74	14.231				
2,900.0	2,889.7	2,883.9	2,860.4	7.1	8.1	-80.29	116.0	-263.6	207.6	193.2	14.36	14.452				
3,000.0	2,988.9	2,983.2	2,957.5	7.4	8.5	-79.69	127.7	-280.5	219.6	204.6	14.99	14.654				
3,100.0	3,088.0	3,082.4	3,054.6	7.7	8.9	-79.16	139.5	-297.3	231.7	216.1	15.61	14.839				
3,200.0	3,187.2	3,181.7	3,151.7	8.0	9.3	-78.67	151.2	-314.2	243.8	227.6	16.24	15.009				
3,300.0	3,286.3	3,280.9	3,248.8	8.3	9.8	-78.24	162.9	-331.0	255.9	239.0	16.88	15.165				
3,400.0	3,385.5	3,380.2	3,345.9	8.6	10.2	-77.84	174.7	-347.8	268.1	250.5	17.51	15.309				
3,500.0	3,484.6	3,479.4	3,443.0	9.0	10.6	-77.48	186.4	-364.7	280.2	262.0	18.14	15.442				
3,600.0	3,583.7	3,578.7	3,540.1	9.3	11.1	-77.15	198.1	-381.5	292.3	273.6	18.78	15.566				
3,700.0	3,682.9	3,677.9	3,637.2	9.6	11.5	-76.84	209.9	-398.4	304.5	285.1	19.42	15.681				
3,800.0	3,782.0	3,777.2	3,734.3	9.9	11.9	-76.56	221.6	-415.2	316.7	296.6	20.06	15.788				
3,900.0	3,881.2	3,876.4	3,831.4	10.2	12.4	-76.30	233.4	-432.1	328.8	308.2	20.70	15.889				
4,000.0	3,980.3	3,975.6	3,928.5	10.5	12.8	-76.06	245.1	-448.9	341.0	319.7	21.34	15.983				
4,100.0	4,079.5	4,074.9	4,025.6	10.9	13.2	-75.83	256.8	-465.8	353.2	331.2	21.98	16.071				
4,200.0	4,178.6	4,174.1	4,122.7	11.2	13.7	-75.62	268.6	-482.6	365.4	342.8	22.62	16.153				
4,300.0	4,277.8	4,273.4	4,219.8	11.5	14.1	-75.42	280.3	-499.5	377.6	354.3	23.26	16.231				
4,400.0	4,376.9	4,372.6	4,316.9	11.8	14.6	-75.24	292.0	-516.3	389.8	365.9	23.91	16.305				
4,500.0	4,476.0	4,471.9	4,414.0	12.1	15.0	-75.06	303.8	-533.2	402.0	377.5	24.55	16.374				
4,600.0	4,575.2	4,571.1	4,511.1	12.5	15.4	-74.90	315.5	-550.0	414.2	389.0	25.20	16.440				
4,700.0	4,674.3	4,670.4	4,608.2	12.8	15.9	-74.75	327.2	-566.8	426.4	400.6	25.84	16.502				
4,800.0	4,773.5	4,769.6	4,705.3	13.1	16.3	-74.60	339.0	-583.7	438.6	412.2	26.49	16.561				
4,900.0	4,872.6	4,868.9	4,802.4	13.4	16.8	-74.46	350.7	-600.5	450.9	423.7	27.13	16.617				

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	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			
5,000.0	4,971.8	4,968.1	4,899.5	13.7	17.2	-74.33	362.4	-617.4	463.1	435.3	27.78	16.670			
5,100.0	5,070.9	5,067.3	4,996.6	14.1	17.7	-74.21	374.2	-634.2	475.3	446.9	28.43	16.720			
5,200.0	5,170.1	5,166.6	5,093.7	14.4	18.1	-74.09	385.9	-651.1	487.5	458.4	29.07	16.769			
5,300.0	5,269.2	5,265.8	5,190.8	14.7	18.5	-73.98	397.6	-667.9	499.7	470.0	29.72	16.815			
5,400.0	5,368.4	5,365.1	5,287.9	15.0	19.0	-73.87	409.4	-684.8	512.0	481.6	30.37	16.859			
5,500.0	5,467.5	5,464.3	5,385.0	15.4	19.4	-73.77	421.1	-701.6	524.2	493.2	31.02	16.901			
5,559.1	5,526.1	5,523.0	5,442.4	15.6	19.7	-73.71	428.0	-711.6	531.4	500.0	31.40	16.925			
5,600.0	5,566.7	5,563.6	5,482.0	15.7	19.9	-73.74	432.8	-718.5	536.5	504.9	31.65	16.949			
5,700.0	5,666.2	5,662.6	5,579.0	15.9	20.3	-73.59	444.6	-735.3	549.6	517.4	32.19	17.075			
5,800.0	5,766.0	5,761.3	5,675.6	16.1	20.8	-73.13	456.2	-752.0	563.8	531.2	32.65	17.268			
5,900.0	5,865.9	5,859.6	5,771.7	16.3	21.2	-72.40	467.8	-768.7	579.1	546.1	33.03	17.531			
5,934.1	5,900.0	5,893.0	5,804.4	16.3	21.4	-93.50	471.8	-774.4	584.6	551.5	33.15	17.637			
6,000.0	5,965.9	5,969.7	5,879.6	16.4	21.6	-92.60	480.3	-786.6	594.8	561.5	33.32	17.849			
6,100.0	6,065.9	6,088.5	5,996.8	16.6	22.0	-91.49	491.3	-802.4	607.8	574.1	33.63	18.075			
6,200.0	6,165.9	6,208.6	6,116.0	16.8	22.3	-90.70	499.5	-814.2	617.5	583.6	33.94	18.192			
6,300.0	6,265.9	6,329.7	6,236.8	16.9	22.5	-90.19	504.9	-821.9	623.9	589.6	34.27	18.203			
6,400.0	6,365.9	6,451.5	6,358.5	17.1	22.7	-89.96	507.4	-825.5	626.8	592.2	34.62	18.106			
6,500.0	6,465.9	6,558.9	6,465.9	17.3	22.8	-89.95	507.6	-825.8	627.0	592.0	34.97	17.930			
6,600.0	6,565.9	6,658.9	6,565.9	17.5	23.0	-89.95	507.6	-825.8	627.0	591.7	35.32	17.752			
6,615.1	6,581.0	6,674.0	6,581.0	17.5	23.0	-89.95	507.6	-825.8	627.0	591.6	35.37	17.726			
6,650.0	6,615.9	6,709.0	6,615.9	17.6	23.0	90.10	507.2	-825.8	627.0	591.5	35.47	17.678			
6,700.0	6,665.7	6,759.0	6,665.9	17.6	23.1	90.17	504.1	-825.8	627.0	591.5	35.54	17.640			
6,750.0	6,715.2	6,809.2	6,715.6	17.6	23.1	90.24	497.7	-825.8	627.0	591.5	35.57	17.629			
6,800.0	6,764.1	6,859.4	6,764.9	17.6	23.1	90.32	488.1	-825.8	627.0	591.5	35.54	17.642			
6,850.0	6,812.2	6,909.6	6,813.5	17.6	23.1	90.39	475.2	-825.8	627.0	591.6	35.47	17.679			
6,900.0	6,859.4	6,959.9	6,861.1	17.5	23.0	90.46	459.2	-825.8	627.0	591.7	35.35	17.736			
6,950.0	6,905.3	7,010.3	6,907.7	17.5	23.0	90.52	440.0	-825.8	627.0	591.8	35.21	17.810			
7,000.0	6,949.8	7,060.7	6,952.9	17.4	22.9	90.59	417.8	-825.8	627.0	592.0	35.03	17.898			
7,050.0	6,992.8	7,111.1	6,996.6	17.3	22.8	90.65	392.6	-825.8	627.1	592.2	34.84	17.996			
7,100.0	7,034.0	7,161.6	7,038.6	17.2	22.7	90.71	364.6	-825.8	627.1	592.4	34.65	18.100			
7,150.0	7,073.3	7,212.1	7,078.6	17.1	22.6	90.77	333.8	-825.8	627.1	592.6	34.45	18.203			
7,200.0	7,110.4	7,262.7	7,116.6	17.0	22.5	90.82	300.4	-825.8	627.1	592.8	34.27	18.301			
7,250.0	7,145.3	7,313.3	7,152.3	16.9	22.4	90.87	264.5	-825.8	627.1	593.0	34.11	18.386			
7,300.0	7,177.8	7,364.0	7,185.6	16.9	22.3	90.92	226.4	-825.8	627.1	593.1	33.98	18.452			
7,350.0	7,207.7	7,414.7	7,216.3	16.8	22.1	90.96	186.1	-825.8	627.1	593.2	33.91	18.494			
7,400.0	7,234.9	7,465.4	7,244.3	16.8	22.0	91.00	143.8	-825.8	627.1	593.2	33.89	18.504			
7,450.0	7,259.4	7,516.1	7,269.4	16.8	21.9	91.04	99.7	-825.8	627.1	593.2	33.94	18.477			
7,500.0	7,280.9	7,566.9	7,291.6	16.8	21.8	91.07	54.0	-825.8	627.1	593.1	34.07	18.409			
7,550.0	7,299.4	7,617.7	7,310.6	16.8	21.7	91.09	7.0	-825.8	627.1	592.9	34.27	18.298			
7,600.0	7,314.9	7,668.5	7,326.5	17.0	21.7	91.11	-41.2	-825.8	627.1	592.6	34.57	18.143			
7,650.0	7,327.2	7,719.3	7,339.2	17.2	21.6	91.13	-90.4	-825.8	627.1	592.2	34.95	17.944			
7,700.0	7,336.3	7,770.1	7,348.6	17.4	21.6	91.14	-140.4	-825.8	627.1	591.7	35.42	17.706			
7,750.0	7,342.2	7,820.9	7,354.6	17.7	21.6	91.14	-190.8	-825.8	627.1	591.2	35.98	17.431			
7,800.0	7,344.8	7,871.8	7,357.3	18.1	21.7	91.14	-241.6	-825.8	627.1	590.5	36.62	17.127			
7,818.6	7,345.0	7,890.6	7,357.4	18.2	21.7	91.14	-260.5	-825.8	627.1	590.3	36.87	17.008			
7,900.0	7,344.6	7,972.1	7,356.8	18.9	22.0	91.12	-341.9	-825.8	627.1	589.0	38.15	16.438			
8,000.0	7,344.1	8,072.1	7,356.1	19.9	22.5	91.09	-441.9	-825.8	627.1	587.1	39.98	15.686			
8,100.0	7,343.7	8,172.1	7,355.3	21.0	23.4	91.06	-541.9	-825.8	627.1	585.0	42.08	14.904			
8,200.0	7,343.2	8,272.1	7,354.5	22.2	24.4	91.03	-641.9	-825.8	627.1	582.7	44.41	14.121			
8,300.0	7,342.8	8,372.1	7,353.8	23.5	25.5	91.00	-741.9	-825.8	627.1	580.2	46.94	13.361			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	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		
8,400.0	7,342.3	8,472.1	7,353.0	24.9	26.7	90.97	-841.9	-825.8	627.1	577.5	49.63	12.635			
8,500.0	7,341.9	8,572.1	7,352.2	26.3	28.1	90.95	-941.9	-825.8	627.1	574.6	52.47	11.952			
8,600.0	7,341.4	8,672.1	7,351.5	27.8	29.5	90.92	-1,041.9	-825.8	627.1	571.7	55.43	11.314			
8,700.0	7,341.0	8,772.1	7,350.7	29.4	30.9	90.89	-1,141.9	-825.8	627.1	568.6	58.49	10.722			
8,800.0	7,340.5	8,872.1	7,349.9	31.0	32.4	90.86	-1,241.9	-825.8	627.1	565.5	61.63	10.175			
8,900.0	7,340.1	8,972.1	7,349.1	32.6	33.9	90.83	-1,341.9	-825.8	627.1	562.2	64.85	9.669			
9,000.0	7,339.6	9,072.1	7,348.4	34.3	35.5	90.80	-1,441.9	-825.8	627.1	558.9	68.14	9.203			
9,100.0	7,339.1	9,172.1	7,347.6	35.9	37.1	90.77	-1,541.9	-825.8	627.1	555.6	71.47	8.773			
9,200.0	7,338.7	9,272.1	7,346.8	37.6	38.7	90.74	-1,641.9	-825.8	627.1	552.2	74.86	8.377			
9,300.0	7,338.2	9,372.1	7,346.1	39.4	40.4	90.72	-1,741.9	-825.8	627.1	548.8	78.29	8.010			
9,400.0	7,337.8	9,472.1	7,345.3	41.1	42.1	90.69	-1,841.9	-825.8	627.1	545.3	81.75	7.671			
9,500.0	7,337.3	9,572.1	7,344.5	42.9	43.8	90.66	-1,941.9	-825.8	627.1	541.8	85.24	7.356			
9,600.0	7,336.9	9,672.1	7,343.8	44.6	45.5	90.63	-2,041.9	-825.8	627.1	538.3	88.77	7.064			
9,700.0	7,336.4	9,772.1	7,343.0	46.4	47.2	90.60	-2,141.9	-825.8	627.0	534.7	92.31	6.793			
9,800.0	7,336.0	9,872.1	7,342.2	48.2	49.0	90.57	-2,241.9	-825.8	627.0	531.2	95.88	6.540			
9,900.0	7,335.5	9,972.1	7,341.5	50.0	50.7	90.54	-2,341.9	-825.8	627.0	527.6	99.47	6.304			
10,000.0	7,335.1	10,072.1	7,340.7	51.8	52.5	90.52	-2,441.9	-825.8	627.0	524.0	103.08	6.083			
10,100.0	7,334.6	10,172.1	7,339.9	53.6	54.2	90.49	-2,541.9	-825.8	627.0	520.3	106.70	5.877			
10,200.0	7,334.2	10,272.1	7,339.2	55.4	56.0	90.46	-2,641.9	-825.8	627.0	516.7	110.34	5.683			
10,300.0	7,333.7	10,372.1	7,338.4	57.3	57.8	90.43	-2,741.8	-825.8	627.0	513.0	113.99	5.501			
10,400.0	7,333.2	10,472.1	7,337.6	59.1	59.6	90.40	-2,841.8	-825.8	627.0	509.4	117.65	5.330			
10,500.0	7,332.8	10,572.1	7,336.9	60.9	61.4	90.37	-2,941.8	-825.8	627.0	505.7	121.32	5.168			
10,600.0	7,332.3	10,672.1	7,336.1	62.8	63.2	90.34	-3,041.8	-825.8	627.0	502.0	125.00	5.016			
10,700.0	7,331.9	10,772.1	7,335.3	64.6	65.0	90.31	-3,141.8	-825.8	627.0	498.3	128.69	4.872			
10,800.0	7,331.4	10,872.1	7,334.6	66.5	66.9	90.29	-3,241.8	-825.8	627.0	494.6	132.39	4.736			
10,900.0	7,331.0	10,972.1	7,333.8	68.3	68.7	90.26	-3,341.8	-825.8	627.0	490.9	136.10	4.607			
11,000.0	7,330.5	11,072.1	7,333.0	70.2	70.5	90.23	-3,441.8	-825.8	627.0	487.2	139.81	4.485			
11,100.0	7,330.1	11,172.1	7,332.3	72.1	72.4	90.20	-3,541.8	-825.8	627.0	483.5	143.53	4.369			
11,200.0	7,329.6	11,272.1	7,331.5	73.9	74.2	90.17	-3,641.8	-825.8	627.0	479.8	147.25	4.258			
11,300.0	7,329.2	11,372.1	7,330.7	75.8	76.0	90.14	-3,741.8	-825.8	627.0	476.0	150.98	4.153			
11,400.0	7,328.7	11,472.1	7,329.9	77.7	77.9	90.11	-3,841.8	-825.8	627.0	472.3	154.72	4.053			
11,500.0	7,328.3	11,572.1	7,329.2	79.5	79.7	90.08	-3,941.8	-825.8	627.0	468.6	158.46	3.957			
11,600.0	7,327.8	11,672.1	7,328.4	81.4	81.6	90.06	-4,041.8	-825.8	627.0	464.8	162.20	3.866			
11,700.0	7,327.3	11,772.1	7,327.6	83.3	83.5	90.03	-4,141.8	-825.8	627.0	461.1	165.95	3.778			
11,776.7	7,327.0	11,848.8	7,327.1	84.7	84.7	90.01	-4,218.5	-825.8	627.0	458.4	168.65	3.718 SF			



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	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				
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	266.613				
200.0	200.0	200.0	200.0	0.3	0.3	52.56	36.4	47.6	59.9	59.3	0.67	88.871				
300.0	300.0	300.0	300.0	0.6	0.6	52.56	36.4	47.6	59.9	58.8	1.12	53.323				
400.0	400.0	400.0	400.0	0.8	0.8	52.56	36.4	47.6	59.9	58.4	1.57	38.088				
500.0	500.0	500.0	500.0	1.0	1.0	52.56	36.4	47.6	59.9	57.9	2.02	29.624				
600.0	600.0	600.0	600.0	1.2	1.2	52.56	36.4	47.6	59.9	57.5	2.47	24.238				
700.0	700.0	700.0	700.0	1.5	1.5	52.56	36.4	47.6	59.9	57.0	2.92	20.509				
800.0	800.0	800.0	800.0	1.7	1.7	52.56	36.4	47.6	59.9	56.6	3.37	17.774				
900.0	900.0	900.0	900.0	1.9	1.9	52.56	36.4	47.6	59.9	56.1	3.82	15.683				
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	52.56	36.4	47.6	59.9	55.7	4.27	14.032 CC, ES				
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.4	52.32	37.1	48.1	60.8	56.0	4.72	12.884				
1,200.0	1,200.0	1,197.9	1,197.9	2.6	2.6	51.63	39.2	49.5	63.2	58.1	5.16	12.260				
1,300.0	1,300.0	1,296.8	1,296.7	2.8	2.8	72.68	42.7	52.0	67.1	61.5	5.60	11.984				
1,400.0	1,400.0	1,395.5	1,395.2	3.0	3.0	73.28	47.6	55.4	72.1	66.1	6.04	11.939				
1,500.0	1,499.9	1,494.1	1,493.5	3.3	3.2	74.63	53.8	59.9	78.3	71.9	6.49	12.076				
1,600.0	1,599.7	1,592.4	1,591.4	3.5	3.5	76.50	61.4	65.2	85.8	78.9	6.94	12.366				
1,700.0	1,699.4	1,690.5	1,688.9	3.7	3.7	78.69	70.4	71.5	94.6	87.2	7.40	12.786				
1,800.0	1,798.9	1,789.7	1,787.3	4.0	4.0	81.20	80.3	78.6	104.2	96.3	7.87	13.239				
1,900.0	1,898.3	1,889.1	1,885.9	4.2	4.3	84.15	90.3	85.6	113.8	105.4	8.35	13.617				
1,949.9	1,947.8	1,938.7	1,935.1	4.3	4.4	85.75	95.3	89.1	118.6	110.0	8.61	13.784				
2,000.0	1,997.4	1,988.4	1,984.5	4.5	4.5	87.37	100.2	92.6	123.6	114.7	8.86	13.945				
2,100.0	2,096.6	2,087.7	2,083.0	4.7	4.8	90.25	110.2	99.6	133.7	124.3	9.38	14.253				
2,200.0	2,195.7	2,187.0	2,181.5	5.0	5.1	92.71	120.2	106.7	144.1	134.2	9.91	14.541				
2,300.0	2,294.9	2,286.2	2,280.1	5.3	5.4	94.85	130.1	113.7	154.8	144.3	10.45	14.808				
2,400.0	2,394.0	2,385.5	2,378.6	5.6	5.7	96.70	140.1	120.7	165.6	154.6	11.00	15.055				
2,500.0	2,493.2	2,484.8	2,477.1	5.9	6.0	98.33	150.0	127.8	176.6	165.1	11.56	15.283				
2,600.0	2,592.3	2,584.1	2,575.6	6.2	6.3	99.76	160.0	134.8	187.7	175.6	12.12	15.493				
2,700.0	2,691.4	2,683.3	2,674.2	6.5	6.6	101.04	169.9	141.8	199.0	186.3	12.68	15.687				
2,800.0	2,790.6	2,782.6	2,772.7	6.8	6.9	102.18	179.9	148.8	210.3	197.0	13.25	15.865				
2,900.0	2,889.7	2,881.9	2,871.2	7.1	7.2	103.20	189.8	155.9	221.7	207.8	13.83	16.030				
3,000.0	2,988.9	2,981.2	2,969.7	7.4	7.5	104.12	199.8	162.9	233.1	218.7	14.40	16.183				
3,100.0	3,088.0	3,080.4	3,068.3	7.7	7.8	104.95	209.7	169.9	244.6	229.6	14.98	16.325				
3,200.0	3,187.2	3,179.7	3,166.8	8.0	8.1	105.72	219.7	176.9	256.1	240.6	15.57	16.456				
3,300.0	3,286.3	3,279.0	3,265.3	8.3	8.4	106.41	229.7	184.0	267.7	251.6	16.15	16.579				
3,400.0	3,385.5	3,378.3	3,363.8	8.6	8.7	107.05	239.6	191.0	279.4	262.6	16.73	16.693				
3,500.0	3,484.6	3,477.5	3,462.4	9.0	9.0	107.63	249.6	198.0	291.0	273.7	17.32	16.800				
3,600.0	3,583.7	3,576.8	3,560.9	9.3	9.3	108.17	259.5	205.0	302.7	284.8	17.91	16.900				
3,700.0	3,682.9	3,676.1	3,659.4	9.6	9.6	108.67	269.5	212.1	314.4	295.9	18.50	16.994				
3,800.0	3,782.0	3,775.4	3,757.9	9.9	9.9	109.14	279.4	219.1	326.1	307.0	19.09	17.082				
3,900.0	3,881.2	3,874.6	3,856.5	10.2	10.2	109.57	289.4	226.1	337.9	318.2	19.68	17.165				
4,000.0	3,980.3	3,973.9	3,955.0	10.5	10.5	109.98	299.3	233.2	349.6	329.4	20.28	17.243				
4,100.0	4,079.5	4,073.2	4,053.5	10.9	10.8	110.35	309.3	240.2	361.4	340.5	20.87	17.317				
4,200.0	4,178.6	4,172.5	4,152.0	11.2	11.1	110.71	319.2	247.2	373.2	351.7	21.47	17.387				
4,300.0	4,277.8	4,271.8	4,250.6	11.5	11.5	111.04	329.2	254.2	385.0	363.0	22.06	17.453				
4,400.0	4,376.9	4,371.0	4,349.1	11.8	11.8	111.35	339.2	261.3	396.8	374.2	22.66	17.516				
4,500.0	4,476.0	4,470.3	4,447.6	12.1	12.1	111.64	349.1	268.3	408.7	385.4	23.25	17.575				
4,600.0	4,575.2	4,569.6	4,546.1	12.5	12.4	111.92	359.1	275.3	420.5	396.7	23.85	17.631				
4,700.0	4,674.3	4,668.9	4,644.7	12.8	12.7	112.18	369.0	282.3	432.4	407.9	24.45	17.685				
4,800.0	4,773.5	4,768.1	4,743.2	13.1	13.0	112.43	379.0	289.4	444.2	419.2	25.05	17.736				
4,900.0	4,872.6	4,867.4	4,841.7	13.4	13.3	112.67	388.9	296.4	456.1	430.5	25.65	17.785				

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	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		
5,000.0	4,971.8	4,966.7	4,940.2	13.7	13.6	112.89	398.9	303.4	468.0	441.7	26.24	17.832		
5,100.0	5,070.9	5,066.0	5,038.8	14.1	13.9	113.10	408.8	310.4	479.9	453.0	26.84	17.876		
5,200.0	5,170.1	5,165.2	5,137.3	14.4	14.2	113.30	418.8	317.5	491.7	464.3	27.44	17.919		
5,300.0	5,269.2	5,264.5	5,235.8	14.7	14.6	113.50	428.7	324.5	503.6	475.6	28.04	17.959		
5,400.0	5,368.4	5,363.8	5,334.4	15.0	14.9	113.68	438.7	331.5	515.5	486.9	28.64	17.998		
5,500.0	5,467.5	5,463.1	5,432.9	15.4	15.2	113.86	448.7	338.6	527.4	498.2	29.24	18.036		
5,559.1	5,526.1	5,521.8	5,491.1	15.6	15.4	113.96	454.5	342.7	534.5	504.9	29.60	18.057		
5,600.0	5,566.7	5,562.4	5,531.4	15.7	15.5	114.08	458.6	345.6	539.2	509.4	29.84	18.071		
5,700.0	5,666.2	5,661.8	5,630.1	15.9	15.8	114.14	468.6	352.6	549.9	519.5	30.37	18.104		
5,800.0	5,766.0	5,761.3	5,728.8	16.1	16.1	113.84	478.6	359.7	559.1	528.2	30.87	18.111		
5,900.0	5,865.9	5,860.6	5,827.4	16.3	16.4	113.21	488.5	366.7	567.0	535.6	31.33	18.097		
5,934.1	5,900.0	5,896.1	5,862.6	16.3	16.5	91.51	492.0	369.2	569.3	537.9	31.48	18.088		
6,000.0	5,965.9	5,969.9	5,936.0	16.4	16.7	90.86	498.4	373.7	573.2	541.5	31.74	18.062		
6,100.0	6,065.9	6,082.5	6,048.4	16.6	16.9	90.19	505.1	378.4	577.4	545.2	32.13	17.969		
6,200.0	6,165.9	6,195.7	6,161.4	16.8	17.1	89.89	508.1	380.5	579.3	546.8	32.50	17.823		
6,300.0	6,265.9	6,300.2	6,265.9	16.9	17.3	89.87	508.3	380.7	579.4	546.6	32.85	17.637		
6,400.0	6,365.9	6,400.2	6,365.9	17.1	17.5	89.87	508.3	380.7	579.4	546.2	33.22	17.443		
6,500.0	6,465.9	6,500.2	6,465.9	17.3	17.6	89.87	508.3	380.7	579.4	545.8	33.59	17.252		
6,571.7	6,537.6	6,571.9	6,537.6	17.4	17.8	89.95	507.5	380.7	579.4	545.6	33.83	17.126		
6,600.0	6,565.9	6,600.1	6,565.8	17.5	17.8	90.13	505.7	380.7	579.4	545.5	33.92	17.083		
6,615.1	6,581.0	6,615.1	6,580.7	17.5	17.8	90.27	504.3	380.7	579.4	545.5	33.96	17.063		
6,650.0	6,615.9	6,649.6	6,615.0	17.6	17.8	-89.38	499.9	380.7	579.5	545.4	34.04	17.024		
6,700.0	6,665.7	6,698.8	6,663.3	17.6	17.8	-88.88	491.1	380.7	579.5	545.4	34.09	16.999		
6,750.0	6,715.2	6,747.7	6,710.7	17.6	17.8	-88.38	479.3	380.7	579.7	545.6	34.10	16.998		
6,800.0	6,764.1	6,796.2	6,757.0	17.6	17.8	-87.90	464.6	380.7	579.8	545.8	34.06	17.022		
6,850.0	6,812.2	6,844.5	6,801.9	17.6	17.7	-87.42	447.0	380.7	580.0	546.0	33.99	17.066		
6,900.0	6,859.4	6,892.4	6,845.4	17.5	17.7	-86.95	426.8	380.7	580.2	546.4	33.88	17.128		
6,950.0	6,905.3	6,940.2	6,887.4	17.5	17.6	-86.50	404.1	380.7	580.5	546.8	33.74	17.206		
7,000.0	6,949.8	6,987.6	6,927.6	17.4	17.5	-86.07	378.9	380.7	580.8	547.2	33.58	17.295		
7,050.0	6,992.8	7,034.8	6,966.0	17.3	17.4	-85.65	351.4	380.7	581.1	547.7	33.41	17.391		
7,100.0	7,034.0	7,081.8	7,002.4	17.2	17.4	-85.25	321.7	380.7	581.4	548.2	33.25	17.488		
7,150.0	7,073.3	7,128.6	7,036.8	17.1	17.3	-84.87	290.0	380.7	581.8	548.7	33.09	17.583		
7,200.0	7,110.4	7,175.2	7,069.0	17.0	17.2	-84.52	256.4	380.7	582.1	549.2	32.95	17.668		
7,250.0	7,145.3	7,221.6	7,099.1	16.9	17.1	-84.18	221.1	380.7	582.4	549.6	32.84	17.737		
7,300.0	7,177.8	7,267.8	7,126.8	16.9	17.0	-83.87	184.1	380.7	582.8	550.0	32.77	17.786		
7,350.0	7,207.7	7,313.9	7,152.2	16.8	17.0	-83.58	145.7	380.7	583.1	550.3	32.75	17.806		
7,400.0	7,234.9	7,359.8	7,175.1	16.8	16.9	-83.32	105.9	380.7	583.4	550.6	32.78	17.794		
7,450.0	7,259.4	7,405.6	7,195.6	16.8	16.8	-83.09	64.9	380.7	583.7	550.8	32.89	17.745		
7,500.0	7,280.9	7,450.0	7,213.0	16.8	16.8	-82.89	24.1	380.7	583.9	550.9	33.07	17.657		
7,550.0	7,299.4	7,496.9	7,228.8	16.8	16.7	-82.70	-20.0	380.7	584.2	550.8	33.34	17.522		
7,600.0	7,314.9	7,542.4	7,241.6	17.0	16.9	-82.55	-63.7	380.7	584.4	550.7	33.69	17.345		
7,650.0	7,327.2	7,587.8	7,251.7	17.2	17.2	-82.43	-108.0	380.7	584.5	550.4	34.12	17.129		
7,700.0	7,336.3	7,633.2	7,259.1	17.4	17.5	-82.34	-152.8	380.7	584.6	550.0	34.64	16.876		
7,750.0	7,342.2	7,678.5	7,263.9	17.7	17.9	-82.28	-197.9	380.7	584.7	549.5	35.25	16.590		
7,800.0	7,344.8	7,723.9	7,266.0	18.1	18.2	-82.25	-243.1	380.7	584.8	548.8	35.92	16.278		
7,818.6	7,345.0	7,740.9	7,266.0	18.2	18.4	-82.24	-260.2	380.7	584.8	548.6	36.19	16.156		
7,900.0	7,344.6	7,822.4	7,265.8	18.9	19.1	-82.26	-341.6	380.7	584.8	547.2	37.57	15.562		
8,000.0	7,344.1	7,922.4	7,265.5	19.9	20.2	-82.27	-441.6	380.7	584.7	545.2	39.52	14.795		
8,100.0	7,343.7	8,022.4	7,265.3	21.0	21.3	-82.29	-541.6	380.7	584.7	543.0	41.73	14.013		
8,200.0	7,343.2	8,122.4	7,265.0	22.2	22.6	-82.31	-641.6	380.7	584.7	540.5	44.15	13.244		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	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	7,342.8	8,222.4	7,264.7	23.5	23.9	-82.33	-741.6	380.7	584.7	537.9	46.75	12.505		
8,400.0	7,342.3	8,322.4	7,264.4	24.9	25.3	-82.34	-841.6	380.7	584.6	535.1	49.52	11.807		
8,500.0	7,341.9	8,422.4	7,264.1	26.3	26.8	-82.36	-941.6	380.7	584.6	532.2	52.41	11.155		
8,600.0	7,341.4	8,522.4	7,263.9	27.8	28.3	-82.38	-1,041.6	380.7	584.6	529.2	55.41	10.550		
8,700.0	7,341.0	8,622.4	7,263.6	29.4	29.8	-82.39	-1,141.6	380.7	584.6	526.1	58.51	9.991		
8,800.0	7,340.5	8,722.4	7,263.3	31.0	31.4	-82.41	-1,241.6	380.7	584.5	522.9	61.69	9.476		
8,900.0	7,340.1	8,822.4	7,263.0	32.6	33.1	-82.43	-1,341.6	380.7	584.5	519.6	64.93	9.002		
9,000.0	7,339.6	8,922.4	7,262.7	34.3	34.7	-82.44	-1,441.6	380.7	584.5	516.3	68.23	8.566		
9,100.0	7,339.1	9,022.4	7,262.5	35.9	36.4	-82.46	-1,541.6	380.7	584.5	512.9	71.59	8.165		
9,200.0	7,338.7	9,122.4	7,262.2	37.6	38.1	-82.48	-1,641.6	380.7	584.5	509.5	74.98	7.795		
9,300.0	7,338.2	9,222.4	7,261.9	39.4	39.8	-82.50	-1,741.6	380.7	584.4	506.0	78.42	7.453		
9,400.0	7,337.8	9,322.4	7,261.6	41.1	41.6	-82.51	-1,841.6	380.7	584.4	502.5	81.88	7.137		
9,500.0	7,337.3	9,422.4	7,261.3	42.9	43.3	-82.53	-1,941.6	380.7	584.4	499.0	85.38	6.845		
9,600.0	7,336.9	9,522.4	7,261.1	44.6	45.1	-82.55	-2,041.6	380.7	584.4	495.5	88.90	6.573		
9,700.0	7,336.4	9,622.4	7,260.8	46.4	46.9	-82.56	-2,141.6	380.7	584.3	491.9	92.45	6.321		
9,800.0	7,336.0	9,722.4	7,260.5	48.2	48.7	-82.58	-2,241.6	380.7	584.3	488.3	96.01	6.086		
9,900.0	7,335.5	9,822.4	7,260.2	50.0	50.5	-82.60	-2,341.6	380.7	584.3	484.7	99.60	5.867		
10,000.0	7,335.1	9,922.4	7,260.0	51.8	52.3	-82.61	-2,441.6	380.7	584.3	481.1	103.19	5.662		
10,100.0	7,334.6	10,022.4	7,259.7	53.6	54.1	-82.63	-2,541.6	380.7	584.2	477.4	106.81	5.470		
10,200.0	7,334.2	10,122.4	7,259.4	55.4	55.9	-82.65	-2,641.6	380.7	584.2	473.8	110.44	5.290		
10,300.0	7,333.7	10,222.4	7,259.1	57.3	57.7	-82.66	-2,741.6	380.7	584.2	470.1	114.08	5.121		
10,400.0	7,333.2	10,322.4	7,258.8	59.1	59.6	-82.68	-2,841.6	380.7	584.2	466.5	117.73	4.962		
10,500.0	7,332.8	10,422.4	7,258.6	60.9	61.4	-82.70	-2,941.6	380.7	584.2	462.8	121.39	4.812		
10,600.0	7,332.3	10,522.4	7,258.3	62.8	63.3	-82.72	-3,041.6	380.7	584.1	459.1	125.06	4.671		
10,700.0	7,331.9	10,622.4	7,258.0	64.6	65.1	-82.73	-3,141.6	380.7	584.1	455.4	128.73	4.537		
10,800.0	7,331.4	10,722.4	7,257.7	66.5	67.0	-82.75	-3,241.6	380.7	584.1	451.7	132.42	4.411		
10,900.0	7,331.0	10,822.4	7,257.4	68.3	68.8	-82.77	-3,341.6	380.7	584.1	448.0	136.11	4.291		
11,000.0	7,330.5	10,922.4	7,257.2	70.2	70.7	-82.78	-3,441.6	380.7	584.0	444.2	139.81	4.177		
11,100.0	7,330.1	11,022.4	7,256.9	72.1	72.5	-82.80	-3,541.6	380.7	584.0	440.5	143.52	4.069		
11,200.0	7,329.6	11,122.4	7,256.6	73.9	74.4	-82.82	-3,641.6	380.7	584.0	436.8	147.23	3.967		
11,300.0	7,329.2	11,222.4	7,256.3	75.8	76.3	-82.83	-3,741.6	380.7	584.0	433.0	150.94	3.869		
11,400.0	7,328.7	11,322.4	7,256.0	77.7	78.1	-82.85	-3,841.6	380.7	584.0	429.3	154.66	3.776		
11,500.0	7,328.3	11,422.4	7,255.8	79.5	80.0	-82.87	-3,941.6	380.7	583.9	425.6	158.39	3.687		
11,600.0	7,327.8	11,522.4	7,255.5	81.4	81.9	-82.89	-4,041.6	380.7	583.9	421.8	162.12	3.602		
11,700.0	7,327.3	11,622.4	7,255.2	83.3	83.7	-82.90	-4,141.6	380.7	583.9	418.0	165.85	3.521		
11,756.4	7,327.1	11,678.7	7,255.0	84.3	84.8	-82.91	-4,198.0	380.7	583.9	415.9	167.96	3.476		
11,776.7	7,327.0	11,695.6	7,255.0	84.7	85.1	-82.92	-4,214.8	380.7	583.9	415.2	168.65	3.462 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	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	54.13	18.2	25.2	31.1					
100.0	100.0	100.0	100.0	0.1	0.1	54.13	18.2	25.2	31.1	30.9	0.22	138.296		
200.0	200.0	200.0	200.0	0.3	0.3	54.13	18.2	25.2	31.1	30.4	0.67	46.099		
300.0	300.0	300.0	300.0	0.6	0.6	54.13	18.2	25.2	31.1	30.0	1.12	27.659		
400.0	400.0	400.0	400.0	0.8	0.8	54.13	18.2	25.2	31.1	29.5	1.57	19.757		
500.0	500.0	500.0	500.0	1.0	1.0	54.13	18.2	25.2	31.1	29.1	2.02	15.366		
600.0	600.0	600.0	600.0	1.2	1.2	54.13	18.2	25.2	31.1	28.6	2.47	12.572		
700.0	700.0	700.0	700.0	1.5	1.5	54.13	18.2	25.2	31.1	28.2	2.92	10.638		
800.0	800.0	800.0	800.0	1.7	1.7	54.13	18.2	25.2	31.1	27.7	3.37	9.220		
900.0	900.0	900.0	900.0	1.9	1.9	54.13	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	54.13	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	54.13	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	54.13	18.2	25.2	31.1	25.9	5.17	6.013		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	77.10	18.2	25.2	30.9	25.3	5.62	5.496		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	81.92	18.2	25.2	30.4	24.3	6.07	5.012		
1,498.3	1,498.2	1,498.2	1,498.2	3.3	3.3	90.00	18.2	25.2	30.1	23.6	6.51	4.626 CC		
1,500.0	1,499.9	1,499.9	1,499.9	3.3	3.3	90.16	18.2	25.2	30.1	23.6	6.51	4.621 ES		
1,600.0	1,599.7	1,599.7	1,599.7	3.5	3.5	101.60	18.2	25.2	30.7	23.8	6.96	4.413		
1,700.0	1,699.4	1,699.4	1,699.4	3.7	3.7	114.92	18.2	25.2	33.2	25.8	7.41	4.481		
1,800.0	1,798.9	1,798.9	1,798.9	4.0	3.9	127.97	18.2	25.2	38.3	30.4	7.86	4.869		
1,900.0	1,898.3	1,898.5	1,898.5	4.2	4.2	138.07	19.1	25.3	45.8	37.5	8.30	5.523		
1,949.9	1,947.8	1,948.3	1,948.3	4.3	4.3	141.69	20.1	25.5	50.3	41.8	8.52	5.905		
2,000.0	1,997.4	1,998.3	1,998.2	4.5	4.4	144.46	21.6	25.7	54.9	46.2	8.75	6.283		
2,100.0	2,096.6	2,098.3	2,098.1	4.7	4.6	147.76	25.9	26.3	63.9	54.7	9.20	6.944		
2,200.0	2,195.7	2,198.5	2,198.2	5.0	4.8	149.04	31.9	27.2	72.1	62.5	9.66	7.463		
2,300.0	2,294.9	2,298.9	2,298.2	5.3	5.1	148.96	39.7	28.4	79.5	69.4	10.14	7.844		
2,400.0	2,394.0	2,399.3	2,398.3	5.6	5.3	147.87	49.2	29.8	86.1	75.4	10.62	8.104		
2,500.0	2,493.2	2,499.7	2,497.9	5.9	5.5	146.00	60.4	31.4	91.9	80.8	11.12	8.263		
2,600.0	2,592.3	2,599.5	2,597.0	6.2	5.8	144.10	71.9	33.2	97.6	86.0	11.63	8.390		
2,700.0	2,691.4	2,699.2	2,696.1	6.5	6.0	142.41	83.5	34.9	103.4	91.2	12.15	8.508		
2,800.0	2,790.6	2,799.0	2,795.2	6.8	6.3	140.90	95.1	36.6	109.3	96.6	12.68	8.616		
2,900.0	2,889.7	2,898.8	2,894.3	7.1	6.6	139.55	106.7	38.3	115.2	102.0	13.22	8.715		
3,000.0	2,988.9	2,998.6	2,993.4	7.4	6.8	138.33	118.3	40.0	121.2	107.5	13.76	8.807		
3,100.0	3,088.0	3,098.4	3,092.5	7.7	7.1	137.23	129.8	41.8	127.3	113.0	14.32	8.890		
3,200.0	3,187.2	3,198.2	3,191.6	8.0	7.4	136.23	141.4	43.5	133.4	118.5	14.87	8.968		
3,300.0	3,286.3	3,298.0	3,290.7	8.3	7.6	135.31	153.0	45.2	139.5	124.1	15.43	9.039		
3,400.0	3,385.5	3,397.8	3,389.8	8.6	7.9	134.47	164.6	46.9	145.7	129.7	16.00	9.104		
3,500.0	3,484.6	3,497.5	3,488.9	9.0	8.2	133.70	176.2	48.6	151.9	135.3	16.57	9.165		
3,600.0	3,583.7	3,597.3	3,588.0	9.3	8.5	132.99	187.7	50.4	158.1	140.9	17.15	9.220		
3,700.0	3,682.9	3,697.1	3,687.1	9.6	8.8	132.34	199.3	52.1	164.3	146.6	17.72	9.272		
3,800.0	3,782.0	3,796.9	3,786.2	9.9	9.0	131.73	210.9	53.8	170.6	152.3	18.30	9.320		
3,900.0	3,881.2	3,896.7	3,885.3	10.2	9.3	131.17	222.5	55.5	176.9	158.0	18.89	9.365		
4,000.0	3,980.3	3,996.5	3,984.4	10.5	9.6	130.64	234.1	57.2	183.2	163.7	19.47	9.407		
4,100.0	4,079.5	4,096.3	4,083.5	10.9	9.9	130.15	245.6	59.0	189.5	169.4	20.06	9.446		
4,200.0	4,178.6	4,196.1	4,182.6	11.2	10.2	129.69	257.2	60.7	195.8	175.2	20.65	9.483		
4,300.0	4,277.8	4,295.8	4,281.7	11.5	10.5	129.26	268.8	62.4	202.1	180.9	21.24	9.517		
4,400.0	4,376.9	4,395.6	4,380.8	11.8	10.8	128.86	280.4	64.1	208.5	186.7	21.83	9.549		
4,500.0	4,476.0	4,495.4	4,479.9	12.1	11.1	128.48	292.0	65.8	214.8	192.4	22.43	9.579		
4,600.0	4,575.2	4,595.2	4,579.0	12.5	11.4	128.12	303.5	67.6	221.2	198.2	23.02	9.607		
4,700.0	4,674.3	4,695.0	4,678.1	12.8	11.7	127.78	315.1	69.3	227.6	204.0	23.62	9.634		
4,800.0	4,773.5	4,794.8	4,777.2	13.1	12.0	127.46	326.7	71.0	234.0	209.7	24.22	9.660		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W - Fitzsimmons 9M-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		
4,900.0	4,872.6	4,894.6	4,876.3	13.4	12.3	127.16	338.3	72.7	240.3	215.5	24.82	9.683		
5,000.0	4,971.8	4,994.4	4,975.4	13.7	12.6	126.87	349.9	74.4	246.7	221.3	25.42	9.706		
5,100.0	5,070.9	5,094.2	5,074.5	14.1	12.9	126.60	361.4	76.2	253.1	227.1	26.02	9.728		
5,200.0	5,170.1	5,193.9	5,173.6	14.4	13.1	126.34	373.0	77.9	259.5	232.9	26.63	9.748		
5,300.0	5,269.2	5,293.7	5,272.7	14.7	13.4	126.09	384.6	79.6	266.0	238.7	27.23	9.767		
5,400.0	5,368.4	5,393.5	5,371.8	15.0	13.7	125.86	396.2	81.3	272.4	244.5	27.83	9.786		
5,500.0	5,467.5	5,493.3	5,470.9	15.4	14.0	125.63	407.7	83.0	278.8	250.3	28.44	9.803		
5,559.1	5,526.1	5,552.3	5,529.5	15.6	14.2	125.50	414.6	84.1	282.6	253.8	28.80	9.813		
5,600.0	5,566.7	5,593.1	5,570.0	15.7	14.3	125.41	419.3	84.8	285.0	256.0	29.04	9.816		
5,700.0	5,666.2	5,692.9	5,669.1	15.9	14.6	124.77	430.9	86.5	289.6	260.0	29.60	9.786		
5,800.0	5,766.0	5,792.7	5,768.2	16.1	14.9	123.55	442.5	88.2	292.4	262.2	30.16	9.695		
5,900.0	5,865.9	5,892.2	5,867.1	16.3	15.2	121.77	454.0	89.9	293.4	262.7	30.71	9.554		
5,934.1	5,900.0	5,926.1	5,900.7	16.3	15.3	99.62	458.0	90.5	293.4	262.5	30.89	9.497		
5,985.6	5,951.5	5,977.3	5,951.5	16.4	15.5	98.45	463.9	91.4	293.3	262.1	31.18	9.407		
6,000.0	5,965.9	5,991.6	5,965.7	16.4	15.5	98.12	465.6	91.6	293.3	262.1	31.26	9.383		
6,100.0	6,065.9	6,090.9	6,064.3	16.6	15.8	95.85	477.1	93.3	293.6	261.8	31.83	9.225		
6,200.0	6,165.9	6,190.2	6,163.0	16.8	16.1	93.58	488.6	95.1	294.4	262.0	32.38	9.090		
6,300.0	6,265.9	6,290.7	6,263.0	16.9	16.4	91.63	498.6	96.5	295.4	262.6	32.85	8.992		
6,400.0	6,365.9	6,391.9	6,363.9	17.1	16.6	90.37	505.1	97.5	296.3	263.0	33.27	8.905		
6,500.0	6,465.9	6,493.4	6,465.4	17.3	16.8	89.79	508.1	97.9	296.7	263.0	33.64	8.820		
6,600.0	6,565.9	6,593.9	6,565.9	17.5	16.9	89.75	508.3	98.0	296.7	262.7	33.99	8.730		
6,615.1	6,581.0	6,609.0	6,581.0	17.5	16.9	89.75	508.3	98.0	296.7	262.7	34.04	8.716		
6,650.0	6,615.9	6,643.9	6,615.9	17.6	17.0	-90.40	508.3	98.0	296.7	262.6	34.16	8.685		
6,700.0	6,665.7	6,693.7	6,665.7	17.6	17.1	-91.15	508.3	98.0	296.8	262.5	34.31	8.649		
6,750.0	6,715.2	6,743.5	6,715.5	17.6	17.2	-92.48	508.1	98.0	297.0	262.6	34.44	8.623		
6,800.0	6,764.1	6,794.0	6,765.9	17.6	17.2	-93.97	505.5	98.0	297.4	262.9	34.50	8.620		
6,850.0	6,812.2	6,845.0	6,816.6	17.6	17.3	-95.44	499.4	98.0	298.1	263.6	34.51	8.638		
6,900.0	6,859.4	6,896.6	6,867.3	17.5	17.3	-96.88	489.9	98.0	298.9	264.5	34.46	8.675		
6,950.0	6,905.3	6,948.8	6,917.7	17.5	17.3	-98.30	476.7	98.0	299.9	265.6	34.35	8.732		
7,000.0	6,949.8	7,001.5	6,967.7	17.4	17.2	-99.68	460.0	98.0	301.1	266.9	34.19	8.807		
7,050.0	6,992.8	7,054.8	7,017.0	17.3	17.2	-101.02	439.6	98.0	302.4	268.4	33.99	8.897		
7,100.0	7,034.0	7,108.7	7,065.2	17.2	17.1	-102.30	415.6	98.0	303.8	270.1	33.75	9.002		
7,150.0	7,073.3	7,163.1	7,112.1	17.1	17.0	-103.53	387.9	98.0	305.3	271.8	33.49	9.118		
7,200.0	7,110.4	7,218.2	7,157.3	17.0	16.9	-104.69	356.6	98.0	306.9	273.7	33.21	9.241		
7,250.0	7,145.3	7,273.7	7,200.6	16.9	16.8	-105.78	321.8	98.0	308.5	275.6	32.93	9.367		
7,300.0	7,177.8	7,329.8	7,241.6	16.9	16.8	-106.79	283.6	98.0	310.1	277.4	32.68	9.489		
7,350.0	7,207.7	7,386.4	7,280.0	16.8	16.7	-107.72	242.1	98.0	311.6	279.2	32.45	9.603		
7,400.0	7,234.9	7,443.5	7,315.5	16.8	16.7	-108.57	197.4	98.0	313.1	280.9	32.28	9.700		
7,450.0	7,259.4	7,501.0	7,347.9	16.8	16.7	-109.33	149.9	98.0	314.6	282.4	32.18	9.775		
7,500.0	7,280.9	7,558.9	7,376.7	16.8	16.7	-110.00	99.7	98.0	315.8	283.7	32.17	9.817		
7,550.0	7,299.4	7,617.2	7,401.9	16.8	16.8	-110.57	47.1	98.0	317.0	284.7	32.27	9.824		
7,600.0	7,314.9	7,675.8	7,423.0	17.0	17.0	-111.04	-7.6	98.0	318.0	285.5	32.48	9.791		
7,650.0	7,327.2	7,734.6	7,439.9	17.2	17.2	-111.42	-63.9	98.0	318.8	285.9	32.81	9.717		
7,700.0	7,336.3	7,793.6	7,452.5	17.4	17.5	-111.69	-121.6	98.0	319.3	286.1	33.26	9.600		
7,750.0	7,342.2	7,852.8	7,460.7	17.7	17.9	-111.86	-180.2	98.0	319.7	285.8	33.85	9.443		
7,800.0	7,344.8	7,912.1	7,464.2	18.1	18.3	-111.92	-239.3	98.0	319.8	285.3	34.57	9.252		
7,818.6	7,345.0	7,932.4	7,464.4	18.2	18.4	-111.93	-259.6	98.0	319.9	285.0	34.86	9.177		
7,900.0	7,344.6	8,013.9	7,465.0	18.9	19.1	-112.08	-341.1	98.0	320.2	284.1	36.12	8.866		
8,000.0	7,344.1	8,113.9	7,465.6	19.9	20.1	-112.26	-441.1	98.0	320.6	282.7	37.91	8.458		
8,100.0	7,343.7	8,213.8	7,466.3	21.0	21.2	-112.44	-541.0	98.0	321.0	281.1	39.93	8.039		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	Offset Datum

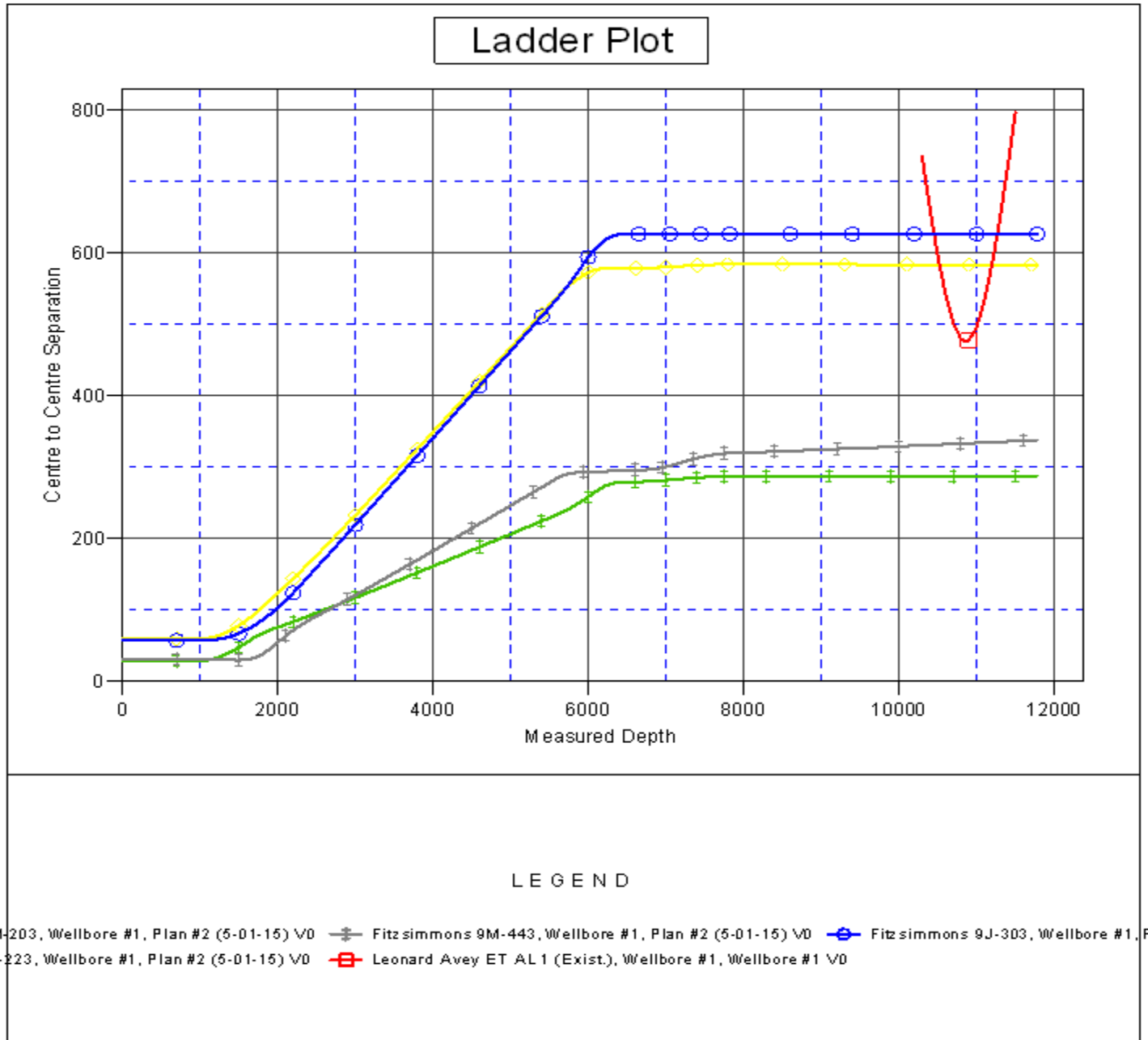
Offset Design													Offset Site Error:	0.0ft
Survey Program: 0-MWD													Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,200.0	7,343.2	8,313.8	7,466.9	22.2	22.4	-112.63	-641.0	98.0	321.5	279.3	42.16	7.625		
8,300.0	7,342.8	8,413.8	7,467.5	23.5	23.7	-112.81	-741.0	98.0	321.9	277.3	44.55	7.225		
8,400.0	7,342.3	8,513.8	7,468.2	24.9	25.1	-112.99	-841.0	98.0	322.3	275.2	47.09	6.845		
8,500.0	7,341.9	8,613.8	7,468.8	26.3	26.6	-113.17	-941.0	98.0	322.7	273.0	49.74	6.489		
8,600.0	7,341.4	8,713.8	7,469.5	27.8	28.1	-113.34	-1,041.0	98.0	323.2	270.7	52.49	6.157		
8,700.0	7,341.0	8,813.8	7,470.1	29.4	29.6	-113.52	-1,141.0	98.0	323.6	268.3	55.32	5.850		
8,800.0	7,340.5	8,913.8	7,470.8	31.0	31.2	-113.70	-1,241.0	98.0	324.0	265.8	58.21	5.566		
8,900.0	7,340.1	9,013.8	7,471.4	32.6	32.8	-113.88	-1,341.0	98.0	324.5	263.3	61.17	5.305		
9,000.0	7,339.6	9,113.8	7,472.1	34.3	34.5	-114.06	-1,441.0	98.0	324.9	260.8	64.17	5.063		
9,100.0	7,339.1	9,213.8	7,472.7	35.9	36.2	-114.23	-1,541.0	98.0	325.4	258.2	67.22	4.841		
9,200.0	7,338.7	9,313.8	7,473.4	37.6	37.9	-114.41	-1,641.0	98.0	325.8	255.5	70.29	4.635		
9,300.0	7,338.2	9,413.8	7,474.0	39.4	39.6	-114.59	-1,740.9	98.0	326.3	252.9	73.40	4.445		
9,400.0	7,337.8	9,513.8	7,474.6	41.1	41.4	-114.76	-1,840.9	98.0	326.8	250.2	76.53	4.270		
9,500.0	7,337.3	9,613.8	7,475.3	42.9	43.1	-114.94	-1,940.9	98.0	327.2	247.5	79.68	4.107		
9,600.0	7,336.9	9,713.8	7,475.9	44.6	44.9	-115.11	-2,040.9	98.0	327.7	244.8	82.84	3.956		
9,700.0	7,336.4	9,813.7	7,476.6	46.4	46.7	-115.28	-2,140.9	98.0	328.2	242.1	86.02	3.815		
9,800.0	7,336.0	9,913.7	7,477.2	48.2	48.5	-115.46	-2,240.9	98.0	328.6	239.4	89.21	3.684		
9,900.0	7,335.5	10,013.7	7,477.9	50.0	50.3	-115.63	-2,340.9	98.0	329.1	236.7	92.41	3.561		
10,000.0	7,335.1	10,113.7	7,478.5	51.8	52.1	-115.80	-2,440.9	98.0	329.6	234.0	95.61	3.447		
10,100.0	7,334.6	10,213.7	7,479.2	53.6	53.9	-115.97	-2,540.9	98.0	330.1	231.2	98.82	3.340		
10,200.0	7,334.2	10,313.7	7,479.8	55.4	55.7	-116.15	-2,640.9	98.0	330.5	228.5	102.04	3.239		
10,300.0	7,333.7	10,413.7	7,480.5	57.3	57.5	-116.32	-2,740.9	98.0	331.0	225.8	105.25	3.145		
10,400.0	7,333.2	10,513.7	7,481.1	59.1	59.4	-116.49	-2,840.9	98.0	331.5	223.0	108.47	3.056		
10,500.0	7,332.8	10,613.7	7,481.7	60.9	61.2	-116.66	-2,940.8	98.0	332.0	220.3	111.69	2.973		
10,600.0	7,332.3	10,713.7	7,482.4	62.8	63.0	-116.83	-3,040.8	98.0	332.5	217.6	114.91	2.894		
10,700.0	7,331.9	10,813.7	7,483.0	64.6	64.9	-116.99	-3,140.8	98.0	333.0	214.9	118.13	2.819		
10,800.0	7,331.4	10,913.7	7,483.7	66.5	66.7	-117.16	-3,240.8	98.0	333.5	212.2	121.34	2.748		
10,900.0	7,331.0	11,013.7	7,484.3	68.3	68.6	-117.33	-3,340.8	98.0	334.0	209.4	124.56	2.682		
11,000.0	7,330.5	11,113.7	7,485.0	70.2	70.5	-117.50	-3,440.8	98.0	334.5	206.7	127.77	2.618		
11,100.0	7,330.1	11,213.7	7,485.6	72.1	72.3	-117.67	-3,540.8	98.0	335.0	204.0	130.98	2.558		
11,200.0	7,329.6	11,313.7	7,486.3	73.9	74.2	-117.83	-3,640.8	98.0	335.5	201.3	134.18	2.501		
11,300.0	7,329.2	11,413.7	7,486.9	75.8	76.0	-118.00	-3,740.8	98.0	336.0	198.7	137.38	2.446		
11,400.0	7,328.7	11,513.6	7,487.6	77.7	77.9	-118.16	-3,840.8	98.0	336.6	196.0	140.58	2.394		
11,500.0	7,328.3	11,613.6	7,488.2	79.5	79.8	-118.33	-3,940.8	98.0	337.1	193.3	143.77	2.345		
11,600.0	7,327.8	11,713.6	7,488.9	81.4	81.7	-118.49	-4,040.8	98.0	337.6	190.7	146.95	2.297		
11,700.0	7,327.3	11,813.6	7,489.5	83.3	83.5	-118.66	-4,140.8	98.0	338.1	188.0	150.08	2.253		
11,776.7	7,327.0	11,890.3	7,490.0	84.7	84.6	-118.78	-4,217.4	98.0	338.5	186.3	152.25	2.224 SF		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	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 9J-323  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.46°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9J-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5003.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9J-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-01-15)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 5003.0ft (RKB - 13')  
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Coordinates are relative to: Fitzsimmons 9J-323  
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