

# PETROLEUM DEVELOPMENT CORP Weld County CO

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

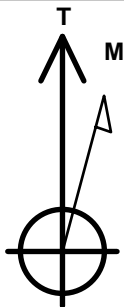
Surface Location: Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4992.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1269248.94	3199826.99	40.070270	-104.785980	
RKB - 13' WELL @ 5005.0ft (RKB - 13')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' E & W Hardline (9E-323)	1.0	-1827.9	-1142.1	Rectangle (Sides: L3957.8 W100.0)
SHL 978'FNL & 1595'FWL	1.0	0.0	0.0	Point
BHL 500'FSL & 429'FWL	7327.0	-3806.8	-1142.1	Point



Azimuths to True North  
Magnetic North: 8.33°

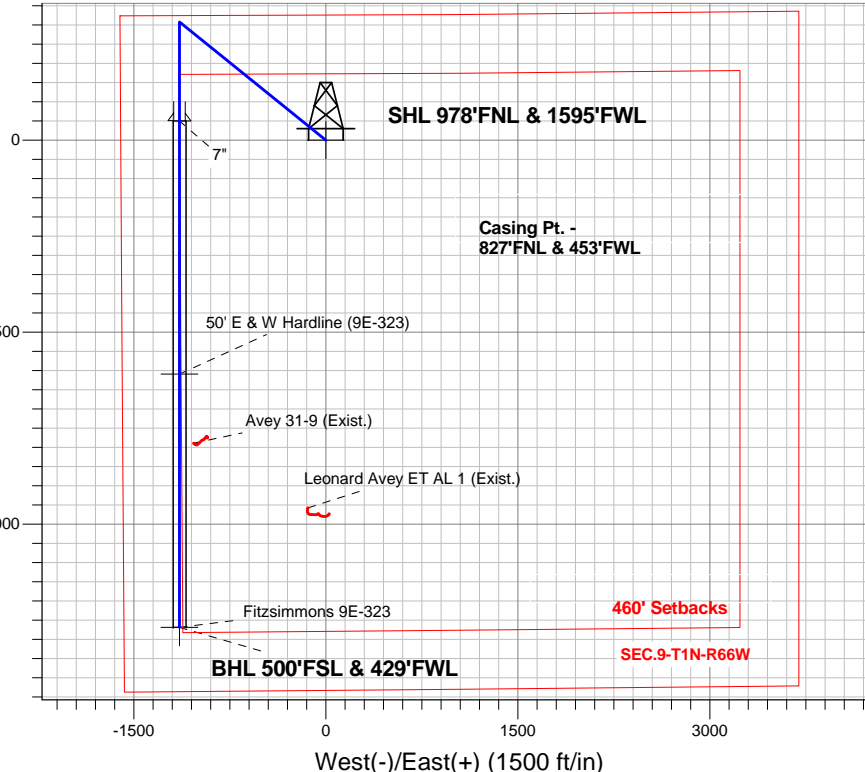
Magnetic Field  
Strength: 52546.3snT  
Dip Angle: 66.65°  
Date: 5/1/2015  
Model: IGRF2010

Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W  
Fitzsimmons 9E-323  
Plan #2 (4-30-15)  
11:01, May 01 2015

## ANNOTATIONS

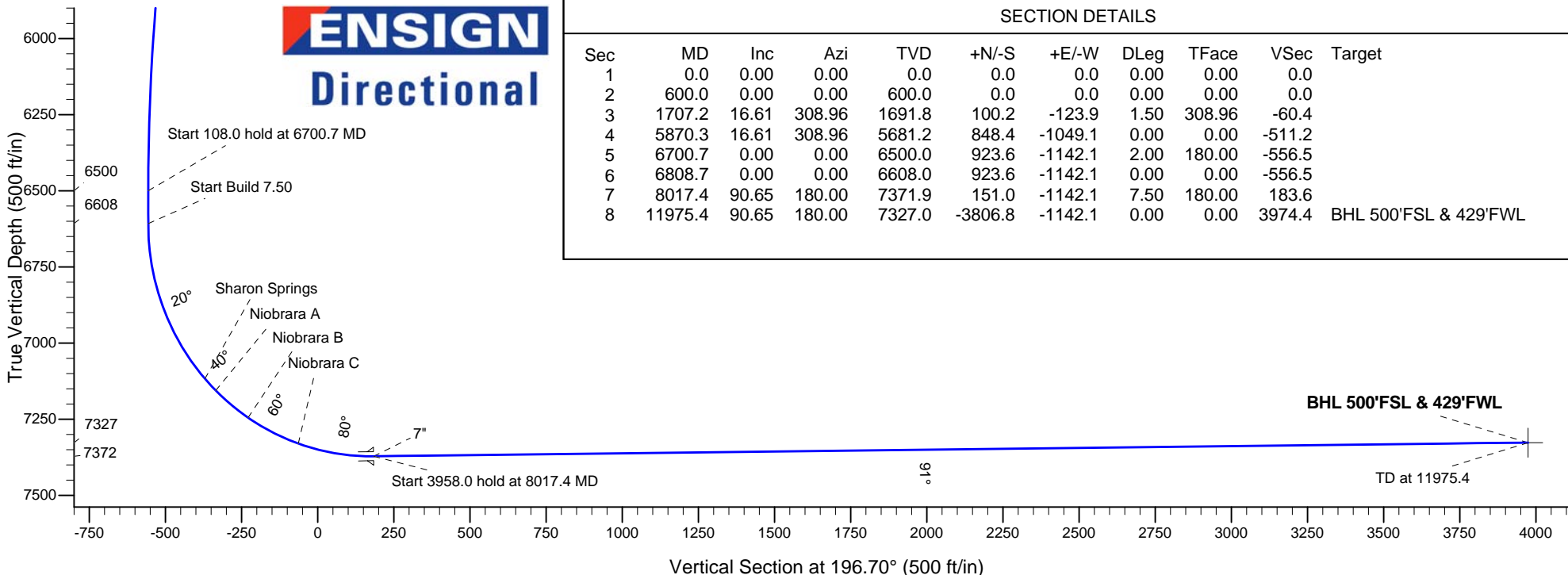
TVD	MD	Annotation
600.0	600.0	KOP - Start Build 1.50
5681.2	5870.3	Start Drop -2.00
6500.0	6700.7	Start 108.0 hold at 6700.7 MD
6608.0	6808.7	Start Build 7.50
7371.9	8017.4	Start 3958.0 hold at 8017.4 MD
7327.0	11975.4	TD at 11975.4

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



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

**ENSIGN**  
Directional



## 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	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0	
3	1707.2	16.61	308.96	1691.8	100.2	-123.9	1.50	308.96	-60.4	
4	5870.3	16.61	308.96	5681.2	848.4	-1049.1	0.00	0.00	-511.2	
5	6700.7	0.00	0.00	6500.0	923.6	-1142.1	2.00	180.00	-556.5	
6	6808.7	0.00	0.00	6608.0	923.6	-1142.1	0.00	0.00	-556.5	
7	8017.4	90.65	180.00	7371.9	151.0	-1142.1	7.50	180.00	183.6	
8	11975.4	90.65	180.00	7327.0	-3806.8	-1142.1	0.00	0.00	3974.4	BHL 500'FSL & 429'FWL



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.9-T1N-R66W**

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

**Fitzsimmons 9E-323**

**Wellbore #1**

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

## **Standard Planning Report**

**01 May, 2015**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9E-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Project:</b>	SEC.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Fitzsimmons 9E-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (4-30-15)		

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

Well	Fitzsimmons 9E-323					
Well Position	+N/-S	0.0 ft	Northing:	1,269,248.94 ft	Latitude:	40.070270
	+E/-W	0.0 ft	Easting:	3,199,826.99 ft	Longitude:	-104.785980
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,992.0 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	5/1/2015	8.33	66.65	52,546

<b>Design</b>	Plan #2 (4-30-15)			
<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	196.70

<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	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,707.2	16.61	308.96	1,691.8	100.2	-123.9	1.50	1.50	0.00	308.96	
5,870.3	16.61	308.96	5,681.2	848.4	-1,049.1	0.00	0.00	0.00	0.00	
6,700.7	0.00	0.00	6,500.0	923.6	-1,142.1	2.00	-2.00	0.00	180.00	
6,808.7	0.00	0.00	6,608.0	923.6	-1,142.1	0.00	0.00	0.00	0.00	
8,017.4	90.65	180.00	7,371.9	151.0	-1,142.1	7.50	7.50	0.00	180.00	
11,975.4	90.65	180.00	7,327.0	-3,806.8	-1,142.1	0.00	0.00	0.00	0.00	BHL 500'FSL & 42°

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9E-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Project:</b>	SEC.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Fitzsimmons 9E-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (4-30-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 978'FNL & 1595'FWL - 50' E & W Hardline (9E-323)									
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
KOP - Start Build 1.50									
700.0	1.50	308.96	700.0	0.8	-1.0	-0.5	1.50	1.50	0.00
800.0	3.00	308.96	799.9	3.3	-4.1	-2.0	1.50	1.50	0.00
900.0	4.50	308.96	899.7	7.4	-9.2	-4.5	1.50	1.50	0.00
1,000.0	6.00	308.96	999.3	13.2	-16.3	-7.9	1.50	1.50	0.00
1,100.0	7.50	308.96	1,098.6	20.5	-25.4	-12.4	1.50	1.50	0.00
1,200.0	9.00	308.96	1,197.5	29.6	-36.6	-17.8	1.50	1.50	0.00
1,300.0	10.50	308.96	1,296.1	40.2	-49.7	-24.2	1.50	1.50	0.00
1,400.0	12.00	308.96	1,394.2	52.5	-64.9	-31.6	1.50	1.50	0.00
1,500.0	13.50	308.96	1,491.7	66.4	-82.1	-40.0	1.50	1.50	0.00
1,600.0	15.00	308.96	1,588.6	81.8	-101.2	-49.3	1.50	1.50	0.00
1,700.0	16.50	308.96	1,684.9	98.9	-122.3	-59.6	1.50	1.50	0.00
1,707.2	16.61	308.96	1,691.8	100.2	-123.9	-60.4	1.50	1.50	0.00
1,800.0	16.61	308.96	1,780.7	116.9	-144.5	-70.4	0.00	0.00	0.00
1,900.0	16.61	308.96	1,876.5	134.9	-166.8	-81.2	0.00	0.00	0.00
2,000.0	16.61	308.96	1,972.3	152.8	-189.0	-92.1	0.00	0.00	0.00
2,100.0	16.61	308.96	2,068.2	170.8	-211.2	-102.9	0.00	0.00	0.00
2,200.0	16.61	308.96	2,164.0	188.8	-233.4	-113.7	0.00	0.00	0.00
2,300.0	16.61	308.96	2,259.8	206.7	-255.7	-124.6	0.00	0.00	0.00
2,400.0	16.61	308.96	2,355.7	224.7	-277.9	-135.4	0.00	0.00	0.00
2,500.0	16.61	308.96	2,451.5	242.7	-300.1	-146.2	0.00	0.00	0.00
2,600.0	16.61	308.96	2,547.3	260.7	-322.3	-157.1	0.00	0.00	0.00
2,700.0	16.61	308.96	2,643.1	278.6	-344.5	-167.9	0.00	0.00	0.00
2,800.0	16.61	308.96	2,739.0	296.6	-366.8	-178.7	0.00	0.00	0.00
2,900.0	16.61	308.96	2,834.8	314.6	-389.0	-189.5	0.00	0.00	0.00
3,000.0	16.61	308.96	2,930.6	332.6	-411.2	-200.4	0.00	0.00	0.00
3,100.0	16.61	308.96	3,026.5	350.5	-433.4	-211.2	0.00	0.00	0.00
3,200.0	16.61	308.96	3,122.3	368.5	-455.7	-222.0	0.00	0.00	0.00
3,300.0	16.61	308.96	3,218.1	386.5	-477.9	-232.9	0.00	0.00	0.00
3,400.0	16.61	308.96	3,313.9	404.5	-500.1	-243.7	0.00	0.00	0.00
3,500.0	16.61	308.96	3,409.8	422.4	-522.3	-254.5	0.00	0.00	0.00
3,600.0	16.61	308.96	3,505.6	440.4	-544.6	-265.3	0.00	0.00	0.00
3,700.0	16.61	308.96	3,601.4	458.4	-566.8	-276.2	0.00	0.00	0.00
3,800.0	16.61	308.96	3,697.2	476.3	-589.0	-287.0	0.00	0.00	0.00
3,900.0	16.61	308.96	3,793.1	494.3	-611.2	-297.8	0.00	0.00	0.00
4,000.0	16.61	308.96	3,888.9	512.3	-633.5	-308.7	0.00	0.00	0.00
4,100.0	16.61	308.96	3,984.7	530.3	-655.7	-319.5	0.00	0.00	0.00
4,200.0	16.61	308.96	4,080.6	548.2	-677.9	-330.3	0.00	0.00	0.00
4,300.0	16.61	308.96	4,176.4	566.2	-700.1	-341.1	0.00	0.00	0.00
4,324.6	16.61	308.96	4,200.0	570.6	-705.6	-343.8	0.00	0.00	0.00
Parkman									
4,400.0	16.61	308.96	4,272.2	584.2	-722.4	-352.0	0.00	0.00	0.00
4,500.0	16.61	308.96	4,368.0	602.2	-744.6	-362.8	0.00	0.00	0.00

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<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Project:</b>	SEC.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Fitzsimmons 9E-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (4-30-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,600.0	16.61	308.96	4,463.9	620.1	-766.8	-373.6	0.00	0.00	0.00
4,700.0	16.61	308.96	4,559.7	638.1	-789.0	-384.5	0.00	0.00	0.00
4,773.4	16.61	308.96	4,630.0	651.3	-805.3	-392.4	0.00	0.00	0.00
<b>Sussex</b>									
4,800.0	16.61	308.96	4,655.5	656.1	-811.3	-395.3	0.00	0.00	0.00
4,900.0	16.61	308.96	4,751.4	674.1	-833.5	-406.1	0.00	0.00	0.00
5,000.0	16.61	308.96	4,847.2	692.0	-855.7	-416.9	0.00	0.00	0.00
5,100.0	16.61	308.96	4,943.0	710.0	-877.9	-427.8	0.00	0.00	0.00
5,200.0	16.61	308.96	5,038.8	728.0	-900.2	-438.6	0.00	0.00	0.00
5,263.8	16.61	308.96	5,100.0	739.4	-914.4	-445.5	0.00	0.00	0.00
<b>Shannon</b>									
5,300.0	16.61	308.96	5,134.7	745.9	-922.4	-449.4	0.00	0.00	0.00
5,400.0	16.61	308.96	5,230.5	763.9	-944.6	-460.3	0.00	0.00	0.00
5,500.0	16.61	308.96	5,326.3	781.9	-966.8	-471.1	0.00	0.00	0.00
5,600.0	16.61	308.96	5,422.2	799.9	-989.1	-481.9	0.00	0.00	0.00
5,700.0	16.61	308.96	5,518.0	817.8	-1,011.3	-492.7	0.00	0.00	0.00
5,800.0	16.61	308.96	5,613.8	835.8	-1,033.5	-503.6	0.00	0.00	0.00
5,870.3	16.61	308.96	5,681.2	848.4	-1,049.1	-511.2	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,900.0	16.01	308.96	5,709.7	853.7	-1,055.6	-514.3	2.00	-2.00	0.00
6,000.0	14.01	308.96	5,806.3	870.0	-1,075.8	-524.2	2.00	-2.00	0.00
6,100.0	12.01	308.96	5,903.7	884.1	-1,093.3	-532.7	2.00	-2.00	0.00
6,200.0	10.01	308.96	6,001.8	896.2	-1,108.1	-539.9	2.00	-2.00	0.00
6,300.0	8.01	308.96	6,100.6	906.0	-1,120.3	-545.9	2.00	-2.00	0.00
6,400.0	6.01	308.96	6,199.9	913.7	-1,129.8	-550.5	2.00	-2.00	0.00
6,500.0	4.01	308.96	6,299.5	919.2	-1,136.6	-553.8	2.00	-2.00	0.00
6,600.0	2.01	308.96	6,399.3	922.5	-1,140.7	-555.8	2.00	-2.00	0.00
6,700.0	0.01	308.96	6,499.3	923.6	-1,142.1	-556.5	2.00	-2.00	0.00
6,700.7	0.00	0.00	6,500.0	923.6	-1,142.1	-556.5	2.00	-2.00	7,291.06
<b>Start 108.0 hold at 6700.7 MD</b>									
6,800.0	0.00	0.00	6,599.3	923.6	-1,142.1	-556.5	0.00	0.00	0.00
6,808.7	0.00	0.00	6,608.0	923.6	-1,142.1	-556.5	0.00	0.00	0.00
<b>Start Build 7.50</b>									
6,900.0	6.85	180.00	6,699.1	918.2	-1,142.1	-551.2	7.50	7.50	0.00
7,000.0	14.35	180.00	6,797.3	899.8	-1,142.1	-533.6	7.50	7.50	0.00
7,100.0	21.85	180.00	6,892.3	868.7	-1,142.1	-503.9	7.50	7.50	0.00
7,200.0	29.35	180.00	6,982.4	825.6	-1,142.1	-462.6	7.50	7.50	0.00
7,300.0	36.85	180.00	7,066.1	771.0	-1,142.1	-410.3	7.50	7.50	0.00
7,365.8	41.78	180.00	7,117.0	729.3	-1,142.1	-370.4	7.50	7.50	0.00
<b>Sharon Springs</b>									
7,400.0	44.35	180.00	7,142.0	706.0	-1,142.1	-348.0	7.50	7.50	0.00
7,419.8	45.83	180.00	7,156.0	691.9	-1,142.1	-334.6	7.50	7.50	0.00
<b>Niobrara A</b>									
7,500.0	51.85	180.00	7,208.7	631.6	-1,142.1	-276.8	7.50	7.50	0.00
7,562.0	56.49	180.00	7,245.0	581.4	-1,142.1	-228.7	7.50	7.50	0.00
<b>Niobrara B</b>									
7,600.0	59.35	180.00	7,265.2	549.1	-1,142.1	-197.8	7.50	7.50	0.00
7,700.0	66.85	180.00	7,310.4	460.0	-1,142.1	-112.4	7.50	7.50	0.00
7,754.4	70.92	180.00	7,330.0	409.3	-1,142.1	-63.9	7.50	7.50	0.00
<b>Niobrara C</b>									
7,800.0	74.35	180.00	7,343.6	365.8	-1,142.1	-22.2	7.50	7.50	0.00

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<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Project:</b>	SEC.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Fitzsimmons 9E-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (4-30-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,900.0	81.85	180.00	7,364.2	268.0	-1,142.1	71.5	7.50	7.50	0.00
8,000.0	89.35	180.00	7,371.9	168.4	-1,142.1	166.9	7.50	7.50	0.00
8,017.4	90.65	180.00	7,371.9	151.0	-1,142.1	183.6	7.49	7.49	0.00
Start 3958.0 hold at 8017.4 MD - 7"									
8,100.0	90.65	180.00	7,371.0	68.4	-1,142.1	262.7	0.00	0.00	0.00
8,200.0	90.65	180.00	7,369.8	-31.6	-1,142.1	358.5	0.00	0.00	0.00
8,300.0	90.65	180.00	7,368.7	-131.6	-1,142.1	454.2	0.00	0.00	0.00
8,400.0	90.65	180.00	7,367.6	-231.6	-1,142.1	550.0	0.00	0.00	0.00
8,500.0	90.65	180.00	7,366.4	-331.6	-1,142.1	645.8	0.00	0.00	0.00
8,600.0	90.65	180.00	7,365.3	-431.6	-1,142.1	741.6	0.00	0.00	0.00
8,700.0	90.65	180.00	7,364.2	-531.6	-1,142.1	837.4	0.00	0.00	0.00
8,800.0	90.65	180.00	7,363.0	-631.6	-1,142.1	933.1	0.00	0.00	0.00
8,900.0	90.65	180.00	7,361.9	-731.6	-1,142.1	1,028.9	0.00	0.00	0.00
9,000.0	90.65	180.00	7,360.8	-831.6	-1,142.1	1,124.7	0.00	0.00	0.00
9,100.0	90.65	180.00	7,359.6	-931.6	-1,142.1	1,220.5	0.00	0.00	0.00
9,200.0	90.65	180.00	7,358.5	-1,031.6	-1,142.1	1,316.2	0.00	0.00	0.00
9,300.0	90.65	180.00	7,357.4	-1,131.6	-1,142.1	1,412.0	0.00	0.00	0.00
9,400.0	90.65	180.00	7,356.2	-1,231.5	-1,142.1	1,507.8	0.00	0.00	0.00
9,500.0	90.65	180.00	7,355.1	-1,331.5	-1,142.1	1,603.6	0.00	0.00	0.00
9,600.0	90.65	180.00	7,353.9	-1,431.5	-1,142.1	1,699.3	0.00	0.00	0.00
9,700.0	90.65	180.00	7,352.8	-1,531.5	-1,142.1	1,795.1	0.00	0.00	0.00
9,800.0	90.65	180.00	7,351.7	-1,631.5	-1,142.1	1,890.9	0.00	0.00	0.00
9,900.0	90.65	180.00	7,350.5	-1,731.5	-1,142.1	1,986.7	0.00	0.00	0.00
10,000.0	90.65	180.00	7,349.4	-1,831.5	-1,142.1	2,082.4	0.00	0.00	0.00
10,100.0	90.65	180.00	7,348.3	-1,931.5	-1,142.1	2,178.2	0.00	0.00	0.00
10,200.0	90.65	180.00	7,347.1	-2,031.5	-1,142.1	2,274.0	0.00	0.00	0.00
10,300.0	90.65	180.00	7,346.0	-2,131.5	-1,142.1	2,369.8	0.00	0.00	0.00
10,400.0	90.65	180.00	7,344.9	-2,231.5	-1,142.1	2,465.5	0.00	0.00	0.00
10,500.0	90.65	180.00	7,343.7	-2,331.5	-1,142.1	2,561.3	0.00	0.00	0.00
10,600.0	90.65	180.00	7,342.6	-2,431.5	-1,142.1	2,657.1	0.00	0.00	0.00
10,700.0	90.65	180.00	7,341.5	-2,531.5	-1,142.1	2,752.9	0.00	0.00	0.00
10,800.0	90.65	180.00	7,340.3	-2,631.5	-1,142.1	2,848.7	0.00	0.00	0.00
10,900.0	90.65	180.00	7,339.2	-2,731.5	-1,142.1	2,944.4	0.00	0.00	0.00
11,000.0	90.65	180.00	7,338.1	-2,831.4	-1,142.1	3,040.2	0.00	0.00	0.00
11,100.0	90.65	180.00	7,336.9	-2,931.4	-1,142.1	3,136.0	0.00	0.00	0.00
11,200.0	90.65	180.00	7,335.8	-3,031.4	-1,142.1	3,231.8	0.00	0.00	0.00
11,300.0	90.65	180.00	7,334.7	-3,131.4	-1,142.1	3,327.5	0.00	0.00	0.00
11,400.0	90.65	180.00	7,333.5	-3,231.4	-1,142.1	3,423.3	0.00	0.00	0.00
11,500.0	90.65	180.00	7,332.4	-3,331.4	-1,142.1	3,519.1	0.00	0.00	0.00
11,600.0	90.65	180.00	7,331.3	-3,431.4	-1,142.1	3,614.9	0.00	0.00	0.00
11,700.0	90.65	180.00	7,330.1	-3,531.4	-1,142.1	3,710.6	0.00	0.00	0.00
11,800.0	90.65	180.00	7,329.0	-3,631.4	-1,142.1	3,806.4	0.00	0.00	0.00
11,900.0	90.65	180.00	7,327.9	-3,731.4	-1,142.1	3,902.2	0.00	0.00	0.00
11,975.4	90.65	180.00	7,327.0	-3,806.8	-1,142.1	3,974.4	0.00	0.00	0.00
TD at 11975.4 - BHL 500'FSL & 429'FWL									

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9E-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Project:</b>	SEC.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Fitzsimmons 9E-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (4-30-15)		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N-S	+E-W	Northing	Easting		
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	Latitude	Longitude
BHL 500'FSL & 429'F - plan hits target center - Point	0.00	0.00	7,327.0	-3,806.8	-1,142.1	1,265,433.23	3,198,715.66	40.059820	-104.790060
SHL 978'FNL & 1595' - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,269,248.97	3,199,826.99	40.070270	-104.785980
50' E & W Hardline (9 - plan misses target center by 2155.4ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Rectangle (sides W3,957.8 H100.0 D0.0)	0.00	0.00	1.0	-1,827.9	-1,142.1	1,267,411.98	3,198,699.69	40.065252	-104.790060

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
8,017.4	7,371.9	7"	7	7-1/2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,324.6	4,200.0	Parkman		0.00		
4,773.4	4,630.0	Sussex		0.00		
5,263.8	5,100.0	Shannon		0.00		
7,365.8	7,117.0	Sharon Springs		0.00		
7,419.8	7,156.0	Niobrara A		0.00		
7,562.0	7,245.0	Niobrara B		0.00		
7,754.4	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	
600.0	600.0	0.0	0.0	KOP - Start Build 1.50	
5,870.3	5,681.2	848.4	-1,049.1	Start Drop -2.00	
6,700.7	6,500.0	923.6	-1,142.1	Start 108.0 hold at 6700.7 MD	
6,808.7	6,608.0	923.6	-1,142.1	Start Build 7.50	
8,017.4	7,371.9	151.0	-1,142.1	Start 3958.0 hold at 8017.4 MD	
11,975.4	7,327.0	-3,806.8	-1,142.1	TD at 11975.4	



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.9-T1N-R66W**

**Fitzsimmons 1N66W9JM (West) Pad**

**Sec.9-T1N-R66W**

**Fitzsimmons 9E-323**

**Wellbore #1**

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

## **Anticollision Report**

**01 May, 2015**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2 (4-30-15)		
<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> 5/1/2015			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,975.4	Plan #2 (4-30-15) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
Existing Wells Sec.9-T1N-R66W						
Avey 31-9 (Exist.) - Wellbore #1 - Wellbore #1	10,541.8	7,331.8	116.4	46.6	1.667	CC, ES, SF
Leonard Avey ET AL 1 (Exist.) - Wellbore #1 - Wellbore #						Out of range
Fitzsimmons 1N66W9JM (East) Pad Sec.9-T1N-R66W						
Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4-30-15)	600.0	598.0	628.2	625.7	254.528	CC
Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4-30-15)	700.0	698.0	628.4	625.5	215.766	ES
Fitzsimmons 9J-303 - Wellbore #1 - Plan #2 (4-30-15)	5,400.0	5,433.8	799.7	762.9	21.775	SF
Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W						
Fitzsimmons 9E-223 - Wellbore #1 - Plan #2 (5-01-15)	400.0	400.0	28.9	27.3	18.340	CC
Fitzsimmons 9E-223 - Wellbore #1 - Plan #2 (5-01-15)	500.0	499.8	29.2	27.2	14.488	ES
Fitzsimmons 9E-223 - Wellbore #1 - Plan #2 (5-01-15)	11,975.4	11,930.9	221.0	65.9	1.425	Level 3, SF
Fitzsimmons 9E-403 - Wellbore #1 - Plan #2 (4-30-15)	200.0	200.0	59.9	59.2	88.868	CC
Fitzsimmons 9E-403 - Wellbore #1 - Plan #2 (4-30-15)	300.0	299.5	60.4	59.2	53.968	ES
Fitzsimmons 9E-403 - Wellbore #1 - Plan #2 (4-30-15)	11,975.4	12,165.3	412.2	265.4	2.808	SF
Fitzsimmons 9J-243 - Wellbore #1 - Plan #2 (4-30-15)	600.0	600.0	33.4	30.9	13.491	CC
Fitzsimmons 9J-243 - Wellbore #1 - Plan #2 (4-30-15)	700.0	700.0	33.6	30.7	11.521	ES
Fitzsimmons 9J-243 - Wellbore #1 - Plan #2 (4-30-15)	11,975.4	11,853.9	290.6	135.7	1.876	SF
Fitzsimmons 9J-443 - Wellbore #1 - Plan #2 (5-01-15)	600.0	600.0	62.2	59.7	25.162	CC
Fitzsimmons 9J-443 - Wellbore #1 - Plan #2 (5-01-15)	700.0	700.0	62.5	59.6	21.416	ES
Fitzsimmons 9J-443 - Wellbore #1 - Plan #2 (5-01-15)	11,975.4	12,010.9	572.3	415.7	3.653	SF

<b>Offset Design</b>	Existing Wells Sec.9-T1N-R66W - Avey 31-9 (Exist.) - Wellbore #1 - Wellbore #1											<b>Offset Site Error:</b>	0.0ft
<b>Survey Program:</b>	100-NS-GYRO-MS											<b>Offset Well Error:</b>	0.0ft
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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
9,800.0	7,351.7	7,343.5	7,341.6	43.2	15.9	-96.55	-2,373.3	-1,025.8	750.8	693.5	57.32	13.099	
9,900.0	7,350.5	7,341.9	7,340.0	44.8	15.9	-95.75	-2,373.3	-1,025.8	652.2	593.3	58.97	11.061	
10,000.0	7,349.4	7,340.2	7,338.3	46.5	15.9	-94.95	-2,373.3	-1,025.8	554.1	493.5	60.63	9.140	
10,100.0	7,348.3	7,338.6	7,336.7	48.1	15.9	-94.17	-2,373.3	-1,025.8	456.9	394.6	62.30	7.333	
10,200.0	7,347.1	7,337.1	7,335.2	49.8	15.9	-93.39	-2,373.3	-1,025.7	361.1	297.1	63.99	5.643	
10,300.0	7,346.0	7,335.5	7,333.6	51.5	15.9	-92.63	-2,373.3	-1,025.7	268.4	202.7	65.69	4.086	

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 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.9-T1N-R66W - Avey 31-9 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
10,400.0	7,344.9	7,334.0	7,332.1	53.2	15.9	-91.87	-2,373.3	-1,025.7	183.5	116.1	67.39	2.723		
10,500.0	7,343.7	7,332.4	7,330.6	54.9	15.9	-91.13	-2,373.3	-1,025.7	123.7	54.6	69.10	1.790		
10,541.8	7,343.3	7,331.8	7,329.9	55.7	15.9	-90.82	-2,373.3	-1,025.7	116.4	46.6	69.82	1.667	CC, ES, SF	
10,600.0	7,342.6	7,331.0	7,329.1	56.7	15.9	-90.39	-2,373.3	-1,025.7	130.1	59.3	70.81	1.838		
10,700.0	7,341.5	7,329.5	7,327.6	58.4	15.9	-89.67	-2,373.3	-1,025.6	196.4	123.8	72.53	2.707		
10,800.0	7,340.3	7,328.0	7,326.1	60.2	15.9	-88.95	-2,373.3	-1,025.6	283.2	208.9	74.24	3.814		
10,900.0	7,339.2	7,326.6	7,324.7	61.9	15.9	-88.25	-2,373.4	-1,025.6	376.6	300.6	75.96	4.957		
11,000.0	7,338.1	7,325.2	7,323.3	63.7	15.9	-87.55	-2,373.4	-1,025.6	472.7	395.0	77.67	6.085		
11,100.0	7,336.9	7,323.8	7,321.9	65.5	15.9	-86.87	-2,373.4	-1,025.6	570.1	490.7	79.39	7.181		
11,200.0	7,335.8	7,322.4	7,320.5	67.3	15.9	-86.19	-2,373.4	-1,025.5	668.3	587.2	81.10	8.241		
11,300.0	7,334.7	7,321.0	7,319.1	69.0	15.9	-85.53	-2,373.4	-1,025.5	767.0	684.2	82.80	9.262		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<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	51.64	389.8	492.6	628.2						
100.0	100.0	98.0	98.0	0.1	0.1	51.64	389.8	492.6	628.2	627.9	0.22	2,822.892			
200.0	200.0	198.0	198.0	0.3	0.3	51.64	389.8	492.6	628.2	627.5	0.67	937.823			
300.0	300.0	298.0	298.0	0.6	0.6	51.64	389.8	492.6	628.2	627.0	1.12	561.187			
400.0	400.0	398.0	398.0	0.8	0.8	51.64	389.8	492.6	628.2	626.6	1.57	400.389			
500.0	500.0	498.0	498.0	1.0	1.0	51.64	389.8	492.6	628.2	626.1	2.02	311.215			
600.0	600.0	598.0	598.0	1.2	1.2	51.64	389.8	492.6	628.2	625.7	2.47	254.528	CC		
700.0	700.0	698.0	698.0	1.5	1.5	102.79	389.8	492.6	628.4	625.5	2.91	215.766	ES		
800.0	799.9	797.9	797.9	1.7	1.7	103.13	389.8	492.6	629.3	626.0	3.36	187.516			
900.0	899.7	897.7	897.7	1.9	1.9	103.68	389.8	492.6	630.8	627.0	3.81	165.694			
1,000.0	999.3	997.3	997.3	2.1	2.1	104.45	389.8	492.6	633.1	628.8	4.27	148.237			
1,100.0	1,098.6	1,100.3	1,100.3	2.4	2.4	105.39	390.3	491.9	635.8	631.1	4.75	133.758			
1,200.0	1,197.5	1,203.6	1,203.5	2.7	2.6	106.40	391.9	489.6	638.9	633.6	5.26	121.559			
1,300.0	1,296.1	1,306.9	1,306.8	3.0	2.8	107.47	394.5	485.8	642.3	636.5	5.79	110.943			
1,400.0	1,394.2	1,410.5	1,410.1	3.4	3.0	108.60	398.2	480.5	646.0	639.6	6.36	101.591			
1,500.0	1,491.7	1,514.1	1,513.4	3.8	3.3	109.79	403.0	473.7	650.2	643.2	6.97	93.287			
1,600.0	1,588.6	1,617.9	1,616.7	4.2	3.5	111.02	408.8	465.3	654.8	647.1	7.62	85.878			
1,707.2	1,691.8	1,729.4	1,727.4	4.8	3.8	112.40	416.3	454.5	660.2	651.9	8.38	78.799			
1,800.0	1,780.7	1,826.2	1,823.3	5.2	4.1	113.62	423.8	443.8	665.1	656.0	9.07	73.331			
1,900.0	1,876.5	1,931.0	1,926.9	5.8	4.4	114.79	433.0	430.6	669.7	659.9	9.84	68.080			
2,000.0	1,972.3	2,036.4	2,030.8	6.3	4.7	115.79	443.2	415.9	673.7	663.0	10.63	63.378			
2,100.0	2,068.2	2,142.2	2,134.6	6.9	5.1	116.65	454.7	399.5	676.9	665.4	11.45	59.141			
2,200.0	2,164.0	2,245.0	2,235.2	7.5	5.5	117.36	466.7	382.2	679.4	667.1	12.28	55.348			
2,300.0	2,259.8	2,344.6	2,332.7	8.0	5.9	118.03	478.5	365.3	681.9	668.8	13.11	52.032			
2,400.0	2,355.7	2,444.3	2,430.2	8.6	6.3	118.69	490.3	348.4	684.5	670.6	13.94	49.105			
2,500.0	2,451.5	2,543.9	2,527.7	9.2	6.7	119.35	502.0	331.5	687.2	672.4	14.78	46.509			
2,600.0	2,547.3	2,643.6	2,625.2	9.8	7.1	120.00	513.8	314.5	690.0	674.4	15.61	44.197			
2,700.0	2,643.1	2,743.2	2,722.7	10.4	7.5	120.64	525.6	297.6	692.8	676.4	16.45	42.130			
2,800.0	2,739.0	2,842.9	2,820.2	11.0	7.9	121.28	537.4	280.7	695.8	678.5	17.28	40.274			
2,900.0	2,834.8	2,942.5	2,917.7	11.5	8.3	121.92	549.2	263.8	698.8	680.7	18.10	38.601			
3,000.0	2,930.6	3,042.2	3,015.2	12.1	8.7	122.55	560.9	246.9	702.0	683.0	18.93	37.088			
3,100.0	3,026.5	3,141.8	3,112.7	12.7	9.2	123.17	572.7	230.0	705.2	685.4	19.75	35.713			
3,200.0	3,122.3	3,241.5	3,210.2	13.3	9.6	123.79	584.5	213.1	708.5	687.9	20.56	34.462			
3,300.0	3,218.1	3,341.1	3,307.7	13.9	10.0	124.40	596.3	196.1	711.9	690.5	21.36	33.319			
3,400.0	3,313.9	3,440.8	3,405.2	14.5	10.5	125.01	608.1	179.2	715.3	693.1	22.17	32.272			
3,500.0	3,409.8	3,540.4	3,502.7	15.1	10.9	125.61	619.9	162.3	718.8	695.9	22.96	31.310			
3,600.0	3,505.6	3,640.1	3,600.2	15.7	11.3	126.21	631.6	145.4	722.5	698.7	23.75	30.424			
3,700.0	3,601.4	3,739.7	3,697.7	16.3	11.8	126.80	643.4	128.5	726.2	701.6	24.53	29.607			
3,800.0	3,697.2	3,839.4	3,795.2	16.9	12.2	127.38	655.2	111.6	729.9	704.6	25.30	28.851			
3,900.0	3,793.1	3,939.1	3,892.7	17.5	12.6	127.96	667.0	94.6	733.8	707.7	26.07	28.150			
4,000.0	3,888.9	4,038.7	3,990.2	18.1	13.1	128.53	678.8	77.7	737.7	710.9	26.83	27.499			
4,100.0	3,984.7	4,138.4	4,087.7	18.7	13.5	129.09	690.6	60.8	741.7	714.1	27.58	26.894			
4,200.0	4,080.6	4,238.0	4,185.2	19.3	14.0	129.65	702.3	43.9	745.7	717.4	28.32	26.330			
4,300.0	4,176.4	4,337.7	4,282.7	19.9	14.4	130.20	714.1	27.0	749.9	720.8	29.06	25.804			
4,400.0	4,272.2	4,437.3	4,380.2	20.4	14.8	130.75	725.9	10.1	754.1	724.3	29.79	25.312			
4,500.0	4,368.0	4,537.0	4,477.7	21.0	15.3	131.29	737.7	-6.9	758.4	727.8	30.52	24.851			
4,600.0	4,463.9	4,636.6	4,575.2	21.6	15.7	131.82	749.5	-23.8	762.7	731.5	31.23	24.420			
4,700.0	4,559.7	4,736.3	4,672.7	22.2	16.2	132.35	761.3	-40.7	767.1	735.2	31.94	24.015			
4,800.0	4,655.5	4,835.9	4,770.2	22.8	16.6	132.87	773.0	-57.6	771.6	738.9	32.64	23.635			
4,900.0	4,751.4	4,935.6	4,867.7	23.4	17.1	133.39	784.8	-74.5	776.1	742.8	33.34	23.277			
5,000.0	4,847.2	5,035.2	4,965.2	24.0	17.5	133.90	796.6	-91.4	780.7	746.7	34.03	22.941			

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 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<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					Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,100.0	4,943.0	5,134.9	5,062.6	24.6	18.0	134.41	808.4	-108.3	785.3	750.6	34.71	22.624			
5,200.0	5,038.8	5,234.5	5,160.1	25.2	18.4	134.90	820.2	-125.3	790.1	754.7	35.39	22.324			
5,300.0	5,134.7	5,334.2	5,257.6	25.8	18.9	135.40	832.0	-142.2	794.8	758.8	36.06	22.042			
5,400.0	5,230.5	5,433.8	5,355.1	26.4	19.3	135.88	843.7	-159.1	799.7	762.9	36.72	21.775 SF			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design											Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9E-223 - Wellbore #1 - Plan #2 (		Offset Site Error:		0.0 ft
Survey Program: 0-MWD											Offset Well Error:		0.0 ft		
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
0.0	0.0	0.0	0.0	0.0	0.0	-129.11	-18.2	-22.4	28.9						
100.0	100.0	100.0	100.0	0.1	0.1	-129.11	-18.2	-22.4	28.9	28.6	0.22	128.379			
200.0	200.0	200.0	200.0	0.3	0.3	-129.11	-18.2	-22.4	28.9	28.2	0.67	42.793			
300.0	300.0	300.0	300.0	0.6	0.6	-129.11	-18.2	-22.4	28.9	27.7	1.12	25.676			
400.0	400.0	400.0	400.0	0.8	0.8	-129.11	-18.2	-22.4	28.9	27.3	1.57	18.340 CC			
500.0	500.0	499.8	499.8	1.0	1.0	-126.65	-17.4	-23.5	29.2	27.2	2.02	14.488 ES			
600.0	600.0	599.4	599.3	1.2	1.2	-119.69	-15.2	-26.6	30.7	28.2	2.46	12.451			
700.0	700.0	698.9	698.6	1.5	1.5	-60.53	-11.4	-31.9	33.3	30.3	2.91	11.441			
800.0	799.9	798.2	797.5	1.7	1.7	-53.86	-6.2	-39.3	36.5	33.2	3.36	10.881			
900.0	899.7	897.4	896.0	1.9	2.0	-48.52	0.6	-48.7	40.3	36.5	3.82	10.555			
1,000.0	999.3	996.5	994.0	2.1	2.3	-44.29	8.8	-60.2	44.5	40.2	4.30	10.354			
1,100.0	1,098.6	1,095.4	1,091.5	2.4	2.6	-40.95	18.5	-73.8	48.9	44.1	4.79	10.216			
1,200.0	1,197.5	1,194.2	1,188.5	2.7	3.0	-38.33	29.6	-89.3	53.6	48.3	5.30	10.108			
1,300.0	1,296.1	1,292.8	1,284.7	3.0	3.4	-36.26	42.1	-106.9	58.4	52.5	5.83	10.009			
1,400.0	1,394.2	1,391.4	1,380.3	3.4	3.8	-34.65	56.1	-126.5	63.3	56.9	6.39	9.906			
1,500.0	1,491.7	1,489.8	1,475.1	3.8	4.3	-33.38	71.5	-148.1	68.3	61.3	6.97	9.793			
1,600.0	1,588.6	1,588.1	1,569.0	4.2	4.9	-32.41	88.3	-171.6	73.3	65.7	7.59	9.668			
1,707.2	1,691.8	1,694.6	1,670.2	4.8	5.5	-31.85	107.7	-198.7	78.2	69.9	8.29	9.430			
1,800.0	1,780.7	1,787.3	1,758.2	5.2	6.1	-31.89	124.6	-222.4	81.5	72.5	8.97	9.083			
1,900.0	1,876.5	1,887.3	1,853.1	5.8	6.7	-31.92	142.8	-248.0	85.0	75.3	9.71	8.750			
2,000.0	1,972.3	1,987.2	1,947.9	6.3	7.3	-31.95	161.1	-273.6	88.5	78.0	10.46	8.454			
2,100.0	2,068.2	2,087.1	2,042.8	6.9	8.0	-31.98	179.3	-299.2	92.0	80.7	11.23	8.190			
2,200.0	2,164.0	2,187.1	2,137.7	7.5	8.6	-32.01	197.6	-324.7	95.4	83.4	12.00	7.955			
2,300.0	2,259.8	2,287.0	2,232.6	8.0	9.3	-32.03	215.9	-350.3	98.9	86.2	12.78	7.744			
2,400.0	2,355.7	2,387.0	2,327.4	8.6	9.9	-32.06	234.1	-375.9	102.4	88.9	13.56	7.554			
2,500.0	2,451.5	2,486.9	2,422.3	9.2	10.5	-32.08	252.4	-401.5	105.9	91.6	14.35	7.383			
2,600.0	2,547.3	2,586.8	2,517.2	9.8	11.2	-32.10	270.6	-427.0	109.4	94.3	15.14	7.227			
2,700.0	2,643.1	2,686.8	2,612.0	10.4	11.8	-32.12	288.9	-452.6	112.9	97.0	15.94	7.086			
2,800.0	2,739.0	2,786.7	2,706.9	11.0	12.5	-32.14	307.1	-478.2	116.4	99.7	16.74	6.956			
2,900.0	2,834.8	2,886.7	2,801.8	11.5	13.1	-32.15	325.4	-503.8	119.9	102.4	17.54	6.838			
3,000.0	2,930.6	2,986.6	2,896.7	12.1	13.8	-32.17	343.6	-529.3	123.4	105.1	18.34	6.729			
3,100.0	3,026.5	3,086.5	2,991.5	12.7	14.4	-32.19	361.9	-554.9	126.9	107.8	19.15	6.628			
3,200.0	3,122.3	3,186.5	3,086.4	13.3	15.1	-32.20	380.1	-580.5	130.4	110.4	19.95	6.535			
3,300.0	3,218.1	3,286.4	3,181.3	13.9	15.8	-32.21	398.4	-606.1	133.9	113.1	20.76	6.449			
3,400.0	3,313.9	3,386.3	3,276.1	14.5	16.4	-32.23	416.6	-631.6	137.4	115.8	21.57	6.369			
3,500.0	3,409.8	3,486.3	3,371.0	15.1	17.1	-32.24	434.9	-657.2	140.9	118.5	22.38	6.294			
3,600.0	3,505.6	3,586.2	3,465.9	15.7	17.7	-32.25	453.2	-682.8	144.4	121.2	23.20	6.224			
3,700.0	3,601.4	3,686.2	3,560.7	16.3	18.4	-32.26	471.4	-708.4	147.9	123.9	24.01	6.159			
3,800.0	3,697.2	3,786.1	3,655.6	16.9	19.0	-32.27	489.7	-733.9	151.4	126.5	24.82	6.098			
3,900.0	3,793.1	3,886.0	3,750.5	17.5	19.7	-32.28	507.9	-759.5	154.9	129.2	25.64	6.040			
4,000.0	3,888.9	3,986.0	3,845.4	18.1	20.3	-32.29	526.2	-785.1	158.4	131.9	26.45	5.986			
4,100.0	3,984.7	4,085.9	3,940.2	18.7	21.0	-32.30	544.4	-810.7	161.9	134.6	27.27	5.935			
4,200.0	4,080.6	4,185.9	4,035.1	19.3	21.7	-32.31	562.7	-836.2	165.4	137.3	28.09	5.887			
4,300.0	4,176.4	4,285.8	4,130.0	19.9	22.3	-32.32	580.9	-861.8	168.8	139.9	28.91	5.841			
4,400.0	4,272.2	4,385.7	4,224.8	20.4	23.0	-32.33	599.2	-887.4	172.3	142.6	29.72	5.798			
4,500.0	4,368.0	4,485.7	4,319.7	21.0	23.6	-32.34	617.4	-913.0	175.8	145.3	30.54	5.757			
4,600.0	4,463.9	4,585.6	4,414.6	21.6	24.3	-32.34	635.7	-938.5	179.3	148.0	31.36	5.718			
4,700.0	4,559.7	4,685.6	4,509.5	22.2	24.9	-32.35	653.9	-964.1	182.8	150.6	32.18	5.681			
4,800.0	4,655.5	4,785.5	4,604.3	22.8	25.6	-32.36	672.2	-989.7	186.3	153.3	33.00	5.646			
4,900.0	4,751.4	4,885.4	4,699.2	23.4	26.3	-32.36	690.5	-1,015.3	189.8	156.0	33.82	5.612			
5,000.0	4,847.2	4,985.4	4,794.1	24.0	26.9	-32.37	708.7	-1,040.8	193.3	158.7	34.64	5.580			

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 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9E-223 - Wellbore #1 - Plan #2 (										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.0	4,943.0	5,085.3	4,888.9	24.6	27.6	-32.38	727.0	-1,066.4	196.8	161.3	35.46	5.550		
5,200.0	5,038.8	5,185.2	4,983.8	25.2	28.2	-32.38	745.2	-1,092.0	200.3	164.0	36.28	5.520		
5,300.0	5,134.7	5,285.2	5,078.7	25.8	28.9	-32.39	763.5	-1,117.6	203.8	166.7	37.11	5.492		
5,400.0	5,230.5	5,385.1	5,173.6	26.4	29.5	-32.39	781.7	-1,143.1	207.3	169.4	37.93	5.466		
5,500.0	5,326.3	5,485.1	5,268.4	27.0	30.2	-32.40	800.0	-1,168.7	210.8	172.0	38.75	5.440		
5,600.0	5,422.2	5,585.0	5,363.3	27.6	30.9	-32.41	818.2	-1,194.3	214.3	174.7	39.57	5.415		
5,700.0	5,518.0	5,684.9	5,458.2	28.2	31.5	-32.41	836.5	-1,219.9	217.8	177.4	40.40	5.391		
5,800.0	5,613.8	5,789.0	5,557.1	28.8	32.2	-32.50	855.1	-1,246.0	220.8	179.5	41.25	5.352		
5,870.3	5,681.2	5,864.3	5,629.4	29.2	32.5	-32.83	867.5	-1,263.3	221.1	179.2	41.95	5.271		
5,900.0	5,709.7	5,896.1	5,660.1	29.4	32.7	-33.02	872.3	-1,270.1	220.9	178.7	42.25	5.228		
6,000.0	5,806.3	6,003.3	5,764.1	29.8	33.1	-33.65	887.3	-1,291.0	220.0	176.8	43.20	5.093		
6,100.0	5,903.7	6,110.3	5,868.9	30.2	33.5	-34.27	899.9	-1,308.8	218.9	174.8	44.07	4.966		
6,200.0	6,001.8	6,217.2	5,974.3	30.5	33.8	-34.88	910.3	-1,323.3	217.4	172.5	44.87	4.845		
6,300.0	6,100.6	6,324.0	6,080.2	30.8	34.1	-35.48	918.4	-1,334.6	215.6	170.1	45.58	4.731		
6,400.0	6,199.9	6,430.8	6,186.4	31.1	34.3	-36.07	924.2	-1,342.7	213.6	167.4	46.23	4.621		
6,500.0	6,299.5	6,537.3	6,292.9	31.3	34.4	-36.66	927.6	-1,347.6	211.2	164.5	46.79	4.515		
6,600.0	6,399.3	6,643.8	6,399.3	31.4	34.5	-37.25	928.8	-1,349.2	208.6	161.3	47.28	4.412		
6,700.7	6,500.0	6,744.5	6,500.0	31.5	34.6	-88.56	928.8	-1,349.2	207.2	159.6	47.56	4.357		
6,804.8	6,604.1	6,848.8	6,604.1	31.6	34.7	-90.00	923.6	-1,349.2	207.1	158.6	48.51	4.270		
6,808.7	6,608.0	6,852.7	6,607.9	31.6	34.7	-90.13	923.1	-1,349.2	207.1	158.6	48.58	4.263		
6,850.0	6,649.3	6,893.5	6,648.3	31.6	34.6	88.50	917.1	-1,349.2	207.2	157.9	49.34	4.200		
6,900.0	6,699.1	6,942.6	6,696.4	31.7	34.6	86.85	907.0	-1,349.2	207.5	157.3	50.17	4.135		
6,950.0	6,748.5	6,991.3	6,743.3	31.6	34.5	85.23	893.9	-1,349.2	207.9	157.0	50.91	4.083		
7,000.0	6,797.3	7,039.7	6,789.0	31.6	34.5	83.63	878.1	-1,349.2	208.4	156.9	51.52	4.046		
7,050.0	6,845.3	7,087.7	6,833.2	31.5	34.4	82.08	859.4	-1,349.2	209.2	157.2	52.00	4.022		
7,100.0	6,892.3	7,135.4	6,876.0	31.4	34.2	80.58	838.2	-1,349.2	210.0	157.7	52.33	4.013		
7,150.0	6,938.1	7,182.8	6,917.0	31.3	34.1	79.12	814.6	-1,349.2	211.0	158.5	52.51	4.018		
7,200.0	6,982.4	7,229.9	6,956.3	31.2	34.0	77.73	788.6	-1,349.2	212.0	159.5	52.53	4.037		
7,250.0	7,025.2	7,276.7	6,993.6	31.0	33.8	76.41	760.4	-1,349.2	213.2	160.8	52.39	4.069		
7,300.0	7,066.1	7,323.3	7,029.0	30.9	33.6	75.15	730.2	-1,349.2	214.4	162.3	52.10	4.115		
7,350.0	7,105.1	7,369.6	7,062.3	30.7	33.5	73.96	698.0	-1,349.2	215.6	163.9	51.66	4.173		
7,400.0	7,142.0	7,415.7	7,093.5	30.5	33.3	72.85	664.1	-1,349.2	216.8	165.7	51.10	4.243		
7,450.0	7,176.6	7,461.5	7,122.4	30.3	33.1	71.82	628.5	-1,349.2	218.1	167.7	50.43	4.325		
7,500.0	7,208.7	7,507.2	7,149.0	30.1	32.9	70.87	591.4	-1,349.2	219.3	169.6	49.66	4.416		
7,550.0	7,238.3	7,552.6	7,173.2	29.9	32.7	70.00	552.9	-1,349.2	220.5	171.7	48.83	4.516		
7,600.0	7,265.2	7,600.0	7,196.0	29.7	32.5	69.18	511.4	-1,349.2	221.6	173.7	47.95	4.622		
7,650.0	7,289.3	7,643.1	7,214.5	29.4	32.3	68.50	472.4	-1,349.2	222.7	175.6	47.08	4.730		
7,700.0	7,310.4	7,688.2	7,231.4	29.2	32.2	67.88	430.7	-1,349.2	223.6	177.4	46.22	4.838		
7,750.0	7,328.6	7,733.1	7,245.8	29.0	32.0	67.33	388.1	-1,349.2	224.5	179.1	45.41	4.943		
7,800.0	7,343.6	7,777.9	7,257.6	28.8	31.8	66.87	344.9	-1,349.2	225.3	180.6	44.69	5.041		
7,850.0	7,355.5	7,822.7	7,266.9	28.6	31.6	66.50	301.1	-1,349.2	225.9	181.8	44.07	5.125		
7,900.0	7,364.2	7,867.3	7,273.5	28.4	31.4	66.21	257.0	-1,349.2	226.4	182.8	43.59	5.194		
7,950.0	7,369.7	7,912.0	7,277.6	28.2	31.3	66.00	212.5	-1,349.2	226.7	183.5	43.26	5.242		
8,000.0	7,371.9	7,956.6	7,279.1	28.0	31.1	65.87	168.0	-1,349.2	227.0	183.9	43.09	5.267		
8,017.4	7,371.9	7,972.9	7,279.0	28.0	31.1	65.85	151.7	-1,349.2	227.0	183.9	43.08	5.270		
8,100.0	7,371.0	8,055.5	7,278.4	27.7	30.8	65.93	69.0	-1,349.2	226.9	183.3	43.61	5.202		
8,200.0	7,369.8	8,155.5	7,277.7	27.5	30.6	66.02	-30.9	-1,349.2	226.7	182.2	44.48	5.097		
8,300.0	7,368.7	8,255.5	7,277.0	27.3	30.4	66.12	-130.9	-1,349.2	226.5	180.9	45.61	4.967		
8,400.0	7,367.6	8,355.5	7,276.2	27.2	30.3	66.21	-230.9	-1,349.2	226.4	179.4	46.99	4.818		
8,500.0	7,366.4	8,455.5	7,275.5	27.4	30.3	66.30	-330.9	-1,349.2	226.2	177.6	48.58	4.656		

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 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9E-223 - Wellbore #1 - Plan #2 (										Offset Site Error:		0.0 ft
Survey Program:		0-MWD										Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
8,600.0	7,365.3	8,555.5	7,274.8	27.7	30.5	66.39	-430.9	-1,349.2	226.1	175.7	50.38	4.487		
8,700.0	7,364.2	8,655.5	7,274.0	28.3	30.8	66.49	-530.9	-1,349.2	225.9	173.5	52.36	4.314		
8,800.0	7,363.0	8,755.5	7,273.3	29.2	31.4	66.58	-630.9	-1,349.2	225.7	171.2	54.50	4.142		
8,900.0	7,361.9	8,855.5	7,272.6	30.3	32.2	66.67	-730.9	-1,349.2	225.6	168.8	56.79	3.972		
9,000.0	7,360.8	8,955.5	7,271.8	31.5	33.1	66.77	-830.9	-1,349.2	225.4	166.2	59.21	3.807		
9,100.0	7,359.6	9,055.5	7,271.1	32.8	34.2	66.86	-930.9	-1,349.2	225.3	163.5	61.74	3.648		
9,200.0	7,358.5	9,155.5	7,270.4	34.1	35.4	66.96	-1,030.9	-1,349.2	225.1	160.7	64.38	3.497		
9,300.0	7,357.4	9,255.5	7,269.6	35.5	36.8	67.05	-1,130.9	-1,349.2	224.9	157.8	67.10	3.352		
9,400.0	7,356.2	9,355.5	7,268.9	37.0	38.1	67.14	-1,230.9	-1,349.2	224.8	154.9	69.91	3.216		
9,500.0	7,355.1	9,455.5	7,268.2	38.5	39.6	67.24	-1,330.9	-1,349.2	224.6	151.8	72.78	3.086		
9,600.0	7,353.9	9,555.5	7,267.4	40.1	41.0	67.33	-1,430.9	-1,349.2	224.5	148.8	75.72	2.964		
9,700.0	7,352.8	9,655.5	7,266.7	41.6	42.6	67.43	-1,530.9	-1,349.2	224.3	145.6	78.72	2.850		
9,800.0	7,351.7	9,755.5	7,266.0	43.2	44.1	67.52	-1,630.9	-1,349.2	224.2	142.4	81.77	2.741		
9,900.0	7,350.5	9,855.5	7,265.2	44.8	45.7	67.62	-1,730.9	-1,349.2	224.0	139.1	84.87	2.640		
10,000.0	7,349.4	9,955.5	7,264.5	46.5	47.3	67.71	-1,830.9	-1,349.2	223.9	135.9	88.01	2.544		
10,100.0	7,348.3	10,055.5	7,263.8	48.1	48.9	67.81	-1,930.9	-1,349.2	223.7	132.5	91.19	2.453		
10,200.0	7,347.1	10,155.5	7,263.0	49.8	50.6	67.90	-2,030.9	-1,349.2	223.6	129.2	94.40	2.368		
10,300.0	7,346.0	10,255.5	7,262.3	51.5	52.2	68.00	-2,130.9	-1,349.2	223.4	125.8	97.64	2.288		
10,400.0	7,344.9	10,355.5	7,261.6	53.2	53.9	68.09	-2,230.9	-1,349.2	223.3	122.3	100.92	2.212		
10,500.0	7,343.7	10,455.5	7,260.8	54.9	55.6	68.19	-2,330.9	-1,349.2	223.1	118.9	104.22	2.141		
10,600.0	7,342.6	10,555.5	7,260.1	56.7	57.3	68.29	-2,430.9	-1,349.2	223.0	115.4	107.54	2.073		
10,700.0	7,341.5	10,655.5	7,259.4	58.4	59.0	68.38	-2,530.9	-1,349.2	222.8	111.9	110.89	2.009		
10,800.0	7,340.3	10,755.5	7,258.6	60.2	60.7	68.48	-2,630.9	-1,349.2	222.7	108.4	114.26	1.949		
10,900.0	7,339.2	10,855.5	7,257.9	61.9	62.5	68.57	-2,730.9	-1,349.2	222.5	104.9	117.65	1.891		
11,000.0	7,338.1	10,955.5	7,257.2	63.7	64.2	68.67	-2,830.9	-1,349.2	222.4	101.3	121.05	1.837		
11,100.0	7,336.9	11,055.5	7,256.4	65.5	66.0	68.77	-2,930.8	-1,349.2	222.2	97.7	124.48	1.785		
11,200.0	7,335.8	11,155.5	7,255.7	67.3	67.8	68.86	-3,030.8	-1,349.2	222.1	94.2	127.92	1.736		
11,300.0	7,334.7	11,255.5	7,255.0	69.0	69.5	68.96	-3,130.8	-1,349.2	221.9	90.6	131.37	1.689		
11,400.0	7,333.5	11,355.5	7,254.2	70.8	71.3	69.06	-3,230.8	-1,349.2	221.8	86.9	134.84	1.645		
11,500.0	7,332.4	11,455.5	7,253.5	72.6	73.1	69.15	-3,330.8	-1,349.2	221.6	83.3	138.33	1.602		
11,600.0	7,331.3	11,555.5	7,252.8	74.4	74.9	69.25	-3,430.8	-1,349.2	221.5	79.7	141.82	1.562		
11,700.0	7,330.1	11,655.5	7,252.0	76.3	76.7	69.35	-3,530.8	-1,349.2	221.4	76.0	145.33	1.523		
11,800.0	7,329.0	11,755.5	7,251.3	78.1	78.5	69.44	-3,630.8	-1,349.2	221.2	72.4	148.85	1.486 Level 3		
11,900.0	7,327.9	11,855.5	7,250.6	79.9	80.3	69.54	-3,730.8	-1,349.2	221.1	68.7	152.38	1.451 Level 3		
11,975.4	7,327.0	11,930.9	7,250.0	81.3	81.7	69.62	-3,806.2	-1,349.2	221.0	65.9	155.05	1.425 Level 3, SF		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<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		
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	266.604		
200.0	200.0	200.0	200.0	0.3	0.3	-127.44	-36.4	-47.6	59.9	59.2	0.67	88.868 CC		
300.0	300.0	299.5	299.4	0.6	0.6	-126.28	-35.7	-48.7	60.4	59.2	1.12	53.968 ES		
400.0	400.0	398.8	398.7	0.8	0.8	-122.91	-33.6	-51.9	61.8	60.3	1.57	39.472		
500.0	500.0	497.8	497.5	1.0	1.0	-117.70	-30.1	-57.3	64.8	62.7	2.02	32.060		
600.0	600.0	596.5	595.8	1.2	1.3	-111.23	-25.2	-64.8	69.6	67.2	2.48	28.124		
700.0	700.0	694.8	693.4	1.5	1.6	-53.92	-18.9	-74.4	76.2	73.3	2.96	25.754		
800.0	799.9	792.8	790.4	1.7	1.9	-48.84	-11.3	-86.0	83.7	80.3	3.43	24.387		
900.0	899.7	890.6	886.8	1.9	2.2	-44.75	-2.3	-99.7	91.9	88.0	3.92	23.456		
1,000.0	999.3	988.1	982.5	2.1	2.6	-41.46	7.9	-115.4	100.6	96.2	4.42	22.774		
1,100.0	1,098.6	1,085.4	1,077.4	2.4	3.0	-38.83	19.5	-133.0	109.7	104.8	4.93	22.231		
1,200.0	1,197.5	1,182.4	1,171.6	2.7	3.5	-36.72	32.4	-152.7	119.0	113.6	5.47	21.766		
1,300.0	1,296.1	1,279.1	1,264.8	3.0	4.0	-35.02	46.5	-174.3	128.6	122.5	6.02	21.340		
1,400.0	1,394.2	1,375.7	1,357.2	3.4	4.5	-33.66	61.9	-197.8	138.2	131.6	6.61	20.927		
1,500.0	1,491.7	1,471.9	1,448.6	3.8	5.1	-32.57	78.5	-223.1	148.0	140.8	7.21	20.530		
1,600.0	1,588.6	1,571.3	1,542.4	4.2	5.8	-31.86	96.3	-250.4	156.9	149.0	7.86	19.960		
1,707.2	1,691.8	1,678.3	1,643.5	4.8	6.5	-31.73	115.6	-279.8	164.0	155.4	8.61	19.051		
1,800.0	1,780.7	1,771.0	1,731.0	5.2	7.1	-31.89	132.2	-305.3	169.0	159.7	9.30	18.164		
1,900.0	1,876.5	1,870.8	1,825.3	5.8	7.8	-32.06	150.2	-332.7	174.4	164.3	10.07	17.320		
2,000.0	1,972.3	1,970.7	1,919.6	6.3	8.4	-32.22	168.2	-360.2	179.8	168.9	10.85	16.577		
2,100.0	2,068.2	2,070.5	2,013.9	6.9	9.1	-32.38	186.1	-387.6	185.2	173.6	11.63	15.918		
2,200.0	2,164.0	2,170.4	2,108.3	7.5	9.8	-32.52	204.1	-415.0	190.6	178.2	12.43	15.333		
2,300.0	2,259.8	2,270.2	2,202.6	8.0	10.5	-32.65	222.0	-442.5	196.0	182.8	13.24	14.809		
2,400.0	2,355.7	2,370.1	2,296.9	8.6	11.1	-32.78	240.0	-469.9	201.4	187.4	14.05	14.339		
2,500.0	2,451.5	2,469.9	2,391.2	9.2	11.8	-32.90	257.9	-497.4	206.8	192.0	14.86	13.915		
2,600.0	2,547.3	2,569.8	2,485.5	9.8	12.5	-33.02	275.9	-524.8	212.2	196.5	15.68	13.532		
2,700.0	2,643.1	2,669.6	2,579.8	10.4	13.2	-33.12	293.9	-552.2	217.6	201.1	16.51	13.183		
2,800.0	2,739.0	2,769.5	2,674.1	11.0	13.9	-33.23	311.8	-579.7	223.1	205.7	17.34	12.864		
2,900.0	2,834.8	2,869.3	2,768.5	11.5	14.6	-33.33	329.8	-607.1	228.5	210.3	18.17	12.572		
3,000.0	2,930.6	2,969.2	2,862.8	12.1	15.2	-33.42	347.7	-634.5	233.9	214.9	19.01	12.304		
3,100.0	3,026.5	3,069.0	2,957.1	12.7	15.9	-33.51	365.7	-662.0	239.3	219.4	19.85	12.057		
3,200.0	3,122.3	3,168.9	3,051.4	13.3	16.6	-33.60	383.6	-689.4	244.7	224.0	20.69	11.828		
3,300.0	3,218.1	3,268.7	3,145.7	13.9	17.3	-33.68	401.6	-716.8	250.1	228.6	21.53	11.616		
3,400.0	3,313.9	3,368.6	3,240.0	14.5	18.0	-33.76	419.6	-744.3	255.5	233.2	22.38	11.419		
3,500.0	3,409.8	3,468.4	3,334.4	15.1	18.7	-33.83	437.5	-771.7	261.0	237.7	23.23	11.236		
3,600.0	3,505.6	3,568.3	3,428.7	15.7	19.4	-33.90	455.5	-799.2	266.4	242.3	24.07	11.064		
3,700.0	3,601.4	3,668.2	3,523.0	16.3	20.0	-33.97	473.4	-826.6	271.8	246.9	24.93	10.904		
3,800.0	3,697.2	3,768.0	3,617.3	16.9	20.7	-34.04	491.4	-854.0	277.2	251.4	25.78	10.754		
3,900.0	3,793.1	3,867.9	3,711.6	17.5	21.4	-34.10	509.3	-881.5	282.6	256.0	26.63	10.612		
4,000.0	3,888.9	3,967.7	3,805.9	18.1	22.1	-34.17	527.3	-908.9	288.0	260.6	27.49	10.479		
4,100.0	3,984.7	4,067.6	3,900.2	18.7	22.8	-34.23	545.3	-936.3	293.5	265.1	28.34	10.354		
4,200.0	4,080.6	4,167.4	3,994.6	19.3	23.5	-34.28	563.2	-963.8	298.9	269.7	29.20	10.235		
4,300.0	4,176.4	4,267.3	4,088.9	19.9	24.2	-34.34	581.2	-991.2	304.3	274.2	30.06	10.123		
4,400.0	4,272.2	4,367.1	4,183.2	20.4	24.9	-34.39	599.1	-1,018.6	309.7	278.8	30.92	10.017		
4,500.0	4,368.0	4,467.0	4,277.5	21.0	25.5	-34.44	617.1	-1,046.1	315.1	283.4	31.78	9.917		
4,600.0	4,463.9	4,566.8	4,371.8	21.6	26.2	-34.49	635.0	-1,073.5	320.6	287.9	32.64	9.821		
4,700.0	4,559.7	4,666.7	4,466.1	22.2	26.9	-34.54	653.0	-1,101.0	326.0	292.5	33.50	9.730		
4,800.0	4,655.5	4,766.5	4,560.5	22.8	27.6	-34.59	670.9	-1,128.4	331.4	297.0	34.36	9.644		
4,900.0	4,751.4	4,866.4	4,654.8	23.4	28.3	-34.63	688.9	-1,155.8	336.8	301.6	35.23	9.561		
5,000.0	4,847.2	4,966.2	4,749.1	24.0	29.0	-34.68	706.9	-1,183.3	342.2	306.1	36.09	9.483		

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 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9E-403 - 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		
5,100.0	4,943.0	5,066.1	4,843.4	24.6	29.7	-34.72	724.8	-1,210.7	347.7	310.7	36.96	9.407		
5,200.0	5,038.8	5,165.9	4,937.7	25.2	30.4	-34.76	742.8	-1,238.1	353.1	315.3	37.82	9.335		
5,300.0	5,134.7	5,265.8	5,032.0	25.8	31.1	-34.80	760.7	-1,265.6	358.5	319.8	38.69	9.267		
5,400.0	5,230.5	5,365.6	5,126.3	26.4	31.7	-34.84	778.7	-1,293.0	363.9	324.4	39.55	9.201		
5,500.0	5,326.3	5,465.5	5,220.7	27.0	32.4	-34.88	796.6	-1,320.4	369.3	328.9	40.42	9.138		
5,600.0	5,422.2	5,565.4	5,315.0	27.6	33.1	-34.91	814.6	-1,347.9	374.8	333.5	41.29	9.077		
5,700.0	5,518.0	5,665.2	5,409.3	28.2	33.8	-34.95	832.6	-1,375.3	380.2	338.0	42.16	9.019		
5,800.0	5,613.8	5,771.3	5,509.6	28.8	34.5	-35.02	851.4	-1,404.1	385.2	342.2	43.05	8.949		
5,870.3	5,681.2	5,850.9	5,585.6	29.2	34.9	-35.23	864.3	-1,423.9	387.1	343.3	43.74	8.849		
5,900.0	5,709.7	5,884.5	5,617.9	29.4	35.1	-35.36	869.5	-1,431.7	387.5	343.4	44.03	8.800		
6,000.0	5,806.3	5,997.8	5,727.5	29.8	35.6	-35.78	885.2	-1,455.8	388.4	343.5	44.91	8.648		
6,100.0	5,903.7	6,111.0	5,838.0	30.2	36.0	-36.19	898.6	-1,476.2	388.8	343.1	45.71	8.506		
6,200.0	6,001.8	6,224.2	5,949.4	30.5	36.3	-36.58	909.5	-1,492.9	388.6	342.2	46.41	8.373		
6,300.0	6,100.6	6,337.3	6,061.4	30.8	36.6	-36.95	918.1	-1,506.0	387.8	340.8	47.03	8.246		
6,400.0	6,199.9	6,450.3	6,173.9	31.1	36.8	-37.31	924.2	-1,515.3	386.5	338.9	47.57	8.126		
6,500.0	6,299.5	6,563.1	6,286.5	31.3	37.0	-37.66	927.8	-1,520.9	384.6	336.6	48.01	8.011		
6,600.0	6,399.3	6,675.9	6,399.2	31.4	37.1	-37.99	929.1	-1,522.8	382.1	333.8	48.38	7.899		
6,700.7	6,500.0	6,776.6	6,500.0	31.5	37.2	-89.18	929.1	-1,522.8	380.7	332.2	48.57	7.838		
6,808.7	6,608.0	6,884.6	6,608.0	31.6	37.3	-89.18	929.1	-1,522.8	380.7	331.9	48.83	7.798		
6,850.0	6,649.3	6,925.9	6,649.3	31.6	37.3	90.99	929.1	-1,522.8	380.8	332.0	48.81	7.800		
6,900.0	6,699.1	6,975.7	6,699.1	31.7	37.4	91.63	929.1	-1,522.8	380.9	332.4	48.51	7.851		
6,950.0	6,748.5	7,025.9	6,749.2	31.6	37.4	92.65	928.4	-1,522.8	381.1	333.2	47.95	7.949		
7,000.0	6,797.3	7,076.8	6,800.0	31.6	37.4	93.71	924.5	-1,522.8	381.5	334.2	47.31	8.064		
7,050.0	6,845.3	7,128.2	6,850.9	31.5	37.4	94.74	917.2	-1,522.8	382.0	335.4	46.64	8.191		
7,100.0	6,892.3	7,180.2	6,901.7	31.4	37.3	95.77	906.4	-1,522.8	382.7	336.7	45.94	8.330		
7,150.0	6,938.1	7,232.6	6,952.1	31.3	37.3	96.76	892.0	-1,522.8	383.4	338.2	45.22	8.479		
7,200.0	6,982.4	7,285.6	7,001.9	31.2	37.2	97.73	873.9	-1,522.8	384.3	339.8	44.49	8.636		
7,250.0	7,025.2	7,339.0	7,050.7	31.0	37.1	98.67	852.3	-1,522.8	385.2	341.4	43.77	8.800		
7,300.0	7,066.1	7,393.0	7,098.4	30.9	36.9	99.57	827.0	-1,522.8	386.2	343.1	43.06	8.967		
7,350.0	7,105.1	7,447.5	7,144.6	30.7	36.8	100.42	798.1	-1,522.8	387.2	344.8	42.38	9.136		
7,400.0	7,142.0	7,502.4	7,189.0	30.5	36.6	101.23	765.7	-1,522.8	388.2	346.5	41.72	9.305		
7,450.0	7,176.6	7,557.9	7,231.3	30.3	36.4	101.99	729.9	-1,522.8	389.3	348.2	41.11	9.469		
7,500.0	7,208.7	7,613.8	7,271.2	30.1	36.2	102.69	690.8	-1,522.8	390.3	349.8	40.55	9.626		
7,550.0	7,238.3	7,670.1	7,308.4	29.9	36.0	103.33	648.6	-1,522.8	391.3	351.3	40.05	9.771		
7,600.0	7,265.2	7,726.8	7,342.6	29.7	35.8	103.91	603.4	-1,522.8	392.3	352.7	39.62	9.902		
7,650.0	7,289.3	7,783.9	7,373.6	29.4	35.6	104.42	555.4	-1,522.8	393.1	353.9	39.26	10.014		
7,700.0	7,310.4	7,841.2	7,401.0	29.2	35.3	104.86	505.1	-1,522.8	393.9	354.9	38.99	10.104		
7,750.0	7,328.6	7,898.9	7,424.7	29.0	35.1	105.23	452.5	-1,522.8	394.6	355.8	38.80	10.169		
7,800.0	7,343.6	7,956.8	7,444.5	28.8	34.9	105.53	398.1	-1,522.8	395.2	356.4	38.71	10.207		
7,850.0	7,355.5	8,014.9	7,460.1	28.6	34.7	105.76	342.1	-1,522.8	395.6	356.9	38.72	10.216		
7,900.0	7,364.2	8,073.1	7,471.4	28.4	34.4	105.90	285.0	-1,522.8	395.9	357.0	38.82	10.197		
7,950.0	7,369.7	8,131.4	7,478.3	28.2	34.2	105.97	227.2	-1,522.8	396.0	357.0	39.01	10.151		
8,000.0	7,371.9	8,189.8	7,480.8	28.0	34.0	105.97	168.9	-1,522.8	396.0	356.7	39.28	10.080		
8,007.9	7,372.0	8,198.1	7,480.8	28.0	34.0	105.96	160.6	-1,522.8	396.0	356.6	39.33	10.067		
8,017.4	7,371.9	8,207.6	7,480.9	28.0	34.0	105.97	151.1	-1,522.8	396.0	356.6	39.40	10.051		
8,100.0	7,371.0	8,290.2	7,480.9	27.7	33.7	106.11	68.5	-1,522.8	396.3	356.8	39.51	10.028		
8,200.0	7,369.8	8,390.2	7,481.0	27.5	33.5	106.28	-31.5	-1,522.8	396.6	356.6	39.97	9.923		
8,300.0	7,368.7	8,490.2	7,481.1	27.3	33.3	106.45	-131.5	-1,522.8	397.0	356.2	40.75	9.742		
8,400.0	7,367.6	8,590.1	7,481.3	27.2	33.2	106.63	-231.5	-1,522.8	397.3	355.5	41.84	9.497		
8,500.0	7,366.4	8,690.1	7,481.4	27.4	33.2	106.80	-331.5	-1,522.8	397.7	354.5	43.21	9.203		

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 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9E-403 - 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		
8,600.0	7,365.3	8,790.1	7,481.5	27.7	33.3	106.97	-431.5	-1,522.8	398.0	353.2	44.84	8.877		
8,700.0	7,364.2	8,890.1	7,481.6	28.3	33.5	107.14	-531.5	-1,522.8	398.4	351.7	46.70	8.532		
8,800.0	7,363.0	8,990.1	7,481.7	29.2	33.9	107.31	-631.5	-1,522.8	398.8	350.0	48.75	8.179		
8,900.0	7,361.9	9,090.1	7,481.8	30.3	34.4	107.48	-731.5	-1,522.8	399.1	348.1	50.99	7.828		
9,000.0	7,360.8	9,190.1	7,481.9	31.5	35.1	107.65	-831.4	-1,522.8	399.5	346.1	53.37	7.485		
9,100.0	7,359.6	9,290.1	7,482.0	32.8	36.0	107.82	-931.4	-1,522.8	399.9	344.0	55.89	7.155		
9,200.0	7,358.5	9,390.1	7,482.1	34.1	37.1	107.99	-1,031.4	-1,522.8	400.3	341.7	58.52	6.840		
9,300.0	7,357.4	9,490.1	7,482.2	35.5	38.2	108.15	-1,131.4	-1,522.8	400.6	339.4	61.24	6.542		
9,400.0	7,356.2	9,590.1	7,482.3	37.0	39.5	108.32	-1,231.4	-1,522.8	401.0	337.0	64.05	6.261		
9,500.0	7,355.1	9,690.1	7,482.4	38.5	40.8	108.49	-1,331.4	-1,522.8	401.4	334.5	66.94	5.997		
9,600.0	7,353.9	9,790.1	7,482.5	40.1	42.2	108.66	-1,431.4	-1,522.8	401.8	331.9	69.88	5.750		
9,700.0	7,352.8	9,890.1	7,482.6	41.6	43.6	108.83	-1,531.4	-1,522.8	402.2	329.3	72.88	5.519		
9,800.0	7,351.7	9,990.0	7,482.7	43.2	45.1	108.99	-1,631.4	-1,522.8	402.6	326.7	75.93	5.302		
9,900.0	7,350.5	10,090.0	7,482.8	44.8	46.6	109.16	-1,731.4	-1,522.8	403.0	324.0	79.02	5.100		
10,000.0	7,349.4	10,190.0	7,482.9	46.5	48.2	109.33	-1,831.4	-1,522.8	403.4	321.3	82.14	4.911		
10,100.0	7,348.3	10,290.0	7,483.0	48.1	49.8	109.49	-1,931.4	-1,522.8	403.8	318.5	85.29	4.735		
10,200.0	7,347.1	10,390.0	7,483.1	49.8	51.4	109.66	-2,031.4	-1,522.8	404.3	315.8	88.47	4.569		
10,300.0	7,346.0	10,490.0	7,483.2	51.5	53.0	109.82	-2,131.3	-1,522.8	404.7	313.0	91.67	4.414		
10,400.0	7,344.9	10,590.0	7,483.3	53.2	54.7	109.99	-2,231.3	-1,522.8	405.1	310.2	94.89	4.269		
10,500.0	7,343.7	10,690.0	7,483.5	54.9	56.3	110.15	-2,331.3	-1,522.8	405.5	307.4	98.13	4.132		
10,600.0	7,342.6	10,790.0	7,483.6	56.7	58.0	110.32	-2,431.3	-1,522.8	405.9	304.6	101.38	4.004		
10,700.0	7,341.5	10,890.0	7,483.7	58.4	59.7	110.48	-2,531.3	-1,522.8	406.4	301.7	104.65	3.883		
10,800.0	7,340.3	10,990.0	7,483.8	60.2	61.4	110.64	-2,631.3	-1,522.8	406.8	298.9	107.92	3.769		
10,900.0	7,339.2	11,090.0	7,483.9	61.9	63.1	110.81	-2,731.3	-1,522.8	407.3	296.0	111.21	3.662		
11,000.0	7,338.1	11,190.0	7,484.0	63.7	64.8	110.97	-2,831.3	-1,522.8	407.7	293.2	114.50	3.561		
11,100.0	7,336.9	11,289.9	7,484.1	65.5	66.6	111.13	-2,931.3	-1,522.8	408.1	290.3	117.80	3.465		
11,200.0	7,335.8	11,389.9	7,484.2	67.3	68.3	111.29	-3,031.3	-1,522.8	408.6	287.5	121.10	3.374		
11,300.0	7,334.7	11,489.9	7,484.3	69.0	70.1	111.46	-3,131.3	-1,522.8	409.0	284.6	124.41	3.288		
11,400.0	7,333.5	11,589.9	7,484.4	70.8	71.8	111.62	-3,231.3	-1,522.8	409.5	281.8	127.72	3.206		
11,500.0	7,332.4	11,689.9	7,484.5	72.6	73.6	111.78	-3,331.3	-1,522.8	409.9	278.9	131.03	3.129		
11,600.0	7,331.3	11,789.9	7,484.6	74.4	75.4	111.94	-3,431.2	-1,522.8	410.4	276.1	134.35	3.055		
11,700.0	7,330.1	11,889.9	7,484.7	76.3	77.1	112.10	-3,531.2	-1,522.8	410.9	273.2	137.66	2.985		
11,800.0	7,329.0	11,989.9	7,484.8	78.1	78.9	112.26	-3,631.2	-1,522.8	411.3	270.4	140.98	2.918		
11,900.0	7,327.9	12,089.9	7,484.9	79.9	80.7	112.42	-3,731.2	-1,522.8	411.8	267.5	144.30	2.854		
11,975.4	7,327.0	12,165.3	7,485.0	81.3	82.1	112.54	-3,806.6	-1,522.8	412.2	265.4	146.80	2.808 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<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	49.04	21.9	25.2	33.4					
100.0	100.0	100.0	100.0	0.1	0.1	49.04	21.9	25.2	33.4	33.1	0.22	148.401		
200.0	200.0	200.0	200.0	0.3	0.3	49.04	21.9	25.2	33.4	32.7	0.67	49.467		
300.0	300.0	300.0	300.0	0.6	0.6	49.04	21.9	25.2	33.4	32.2	1.12	29.680		
400.0	400.0	400.0	400.0	0.8	0.8	49.04	21.9	25.2	33.4	31.8	1.57	21.200		
500.0	500.0	500.0	500.0	1.0	1.0	49.04	21.9	25.2	33.4	31.3	2.02	16.489		
600.0	600.0	600.0	600.0	1.2	1.2	49.04	21.9	25.2	33.4	30.9	2.47	13.491 CC		
700.0	700.0	700.0	700.0	1.5	1.5	102.27	21.9	25.2	33.6	30.7	2.92	11.521 ES		
800.0	799.9	799.9	799.9	1.7	1.7	108.61	21.9	25.2	34.7	31.3	3.36	10.314		
900.0	899.7	899.9	899.9	1.9	1.9	116.90	22.5	24.6	37.0	33.2	3.81	9.713		
1,000.0	999.3	1,000.0	999.9	2.1	2.1	124.94	24.4	22.8	40.6	36.4	4.25	9.550		
1,100.0	1,098.6	1,100.1	1,100.0	2.4	2.4	132.20	27.5	19.7	45.7	41.0	4.71	9.705		
1,200.0	1,197.5	1,200.3	1,200.0	2.7	2.6	138.41	31.9	15.4	52.1	47.0	5.16	10.091		
1,300.0	1,296.1	1,300.5	1,299.9	3.0	2.8	143.55	37.5	10.0	59.9	54.2	5.63	10.637		
1,400.0	1,394.2	1,400.9	1,399.8	3.4	3.1	147.73	44.4	3.2	68.9	62.8	6.10	11.291		
1,500.0	1,491.7	1,501.3	1,499.5	3.8	3.3	151.10	52.6	-4.7	79.0	72.4	6.57	12.014		
1,600.0	1,588.6	1,601.8	1,599.2	4.2	3.6	153.82	62.0	-13.9	90.2	83.1	7.06	12.779		
1,707.2	1,691.8	1,709.7	1,705.9	4.8	3.9	156.16	73.5	-25.0	103.4	95.8	7.59	13.624		
1,800.0	1,780.7	1,803.3	1,798.2	5.2	4.2	157.66	84.7	-35.9	114.7	106.6	8.08	14.185		
1,900.0	1,876.5	1,904.6	1,897.7	5.8	4.6	158.61	98.0	-48.8	125.4	116.8	8.64	14.519		
2,000.0	1,972.3	2,006.2	1,997.3	6.3	4.9	159.06	112.6	-63.0	134.6	125.4	9.21	14.610		
2,100.0	2,068.2	2,108.1	2,096.7	6.9	5.4	159.12	128.5	-78.4	142.2	132.4	9.82	14.492		
2,200.0	2,164.0	2,210.2	2,196.0	7.5	5.8	158.85	145.7	-95.2	148.3	137.9	10.45	14.197		
2,300.0	2,259.8	2,312.4	2,294.9	8.0	6.3	158.28	164.2	-113.1	152.8	141.7	11.11	13.750		
2,400.0	2,355.7	2,414.8	2,393.5	8.6	6.8	157.42	184.0	-132.4	155.8	144.0	11.82	13.175		
2,500.0	2,451.5	2,515.9	2,490.5	9.2	7.3	156.31	204.6	-152.4	157.4	144.8	12.58	12.515		
2,600.0	2,547.3	2,615.9	2,586.2	9.8	7.8	155.20	225.1	-172.4	158.9	145.6	13.36	11.896		
2,700.0	2,643.1	2,715.8	2,682.0	10.4	8.4	154.11	245.7	-192.4	160.5	146.3	14.17	11.328		
2,800.0	2,739.0	2,815.7	2,777.7	11.0	8.9	153.04	266.2	-212.3	162.1	147.1	15.00	10.805		
2,900.0	2,834.8	2,915.7	2,873.4	11.5	9.5	151.99	286.7	-232.3	163.8	147.9	15.86	10.325		
3,000.0	2,930.6	3,015.6	2,969.2	12.1	10.0	150.97	307.3	-252.3	165.5	148.8	16.75	9.884		
3,100.0	3,026.5	3,115.6	3,064.9	12.7	10.6	149.96	327.8	-272.2	167.3	149.7	17.65	9.477		
3,200.0	3,122.3	3,215.5	3,160.7	13.3	11.2	148.98	348.4	-292.2	169.1	150.6	18.58	9.102		
3,300.0	3,218.1	3,315.5	3,256.4	13.9	11.7	148.02	368.9	-312.1	171.0	151.5	19.53	8.756		
3,400.0	3,313.9	3,415.4	3,352.2	14.5	12.3	147.08	389.5	-332.1	173.0	152.5	20.50	8.436		
3,500.0	3,409.8	3,515.3	3,447.9	15.1	12.9	146.16	410.0	-352.1	174.9	153.4	21.49	8.140		
3,600.0	3,505.6	3,615.3	3,543.7	15.7	13.5	145.26	430.5	-372.0	177.0	154.5	22.50	7.866		
3,700.0	3,601.4	3,715.2	3,639.4	16.3	14.0	144.38	451.1	-392.0	179.0	155.5	23.52	7.611		
3,800.0	3,697.2	3,815.2	3,735.2	16.9	14.6	143.53	471.6	-412.0	181.1	156.6	24.56	7.375		
3,900.0	3,793.1	3,915.1	3,830.9	17.5	15.2	142.69	492.2	-431.9	183.3	157.7	25.61	7.156		
4,000.0	3,888.9	4,015.0	3,926.7	18.1	15.8	141.87	512.7	-451.9	185.5	158.8	26.68	6.952		
4,100.0	3,984.7	4,115.0	4,022.4	18.7	16.4	141.07	533.2	-471.9	187.7	159.9	27.76	6.761		
4,200.0	4,080.6	4,214.9	4,118.2	19.3	17.0	140.29	553.8	-491.8	189.9	161.1	28.85	6.584		
4,300.0	4,176.4	4,314.9	4,213.9	19.9	17.6	139.53	574.3	-511.8	192.2	162.3	29.95	6.418		
4,400.0	4,272.2	4,414.8	4,309.7	20.4	18.1	138.78	594.9	-531.8	194.5	163.5	31.07	6.262		
4,500.0	4,368.0	4,514.8	4,405.4	21.0	18.7	138.06	615.4	-551.7	196.9	164.7	32.19	6.117		
4,600.0	4,463.9	4,614.7	4,501.2	21.6	19.3	137.35	635.9	-571.7	199.3	166.0	33.32	5.981		
4,700.0	4,559.7	4,714.6	4,596.9	22.2	19.9	136.66	656.5	-591.7	201.7	167.2	34.46	5.853		
4,800.0	4,655.5	4,814.6	4,692.7	22.8	20.5	135.98	677.0	-611.6	204.1	168.5	35.61	5.732		
4,900.0	4,751.4	4,914.5	4,788.4	23.4	21.1	135.32	697.6	-631.6	206.6	169.8	36.77	5.619		
5,000.0	4,847.2	5,014.5	4,884.2	24.0	21.7	134.68	718.1	-651.6	209.1	171.2	37.93	5.513		

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 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-243 - Wellbore #1 - Plan #2 (										Offset Site Error:		0.0 ft
Survey Program:		0-MWD										Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.0	4,943.0	5,114.4	4,979.9		24.6	22.3	134.05	738.6	-671.5	211.6	172.5	39.10	5.412	
5,200.0	5,038.8	5,214.3	5,075.7		25.2	22.9	133.43	759.2	-691.5	214.2	173.9	40.28	5.318	
5,300.0	5,134.7	5,314.3	5,171.4		25.8	23.5	132.84	779.7	-711.5	216.8	175.3	41.46	5.228	
5,400.0	5,230.5	5,414.2	5,267.2		26.4	24.0	132.25	800.3	-731.4	219.4	176.7	42.64	5.144	
5,500.0	5,326.3	5,514.2	5,362.9		27.0	24.6	131.68	820.8	-751.4	222.0	178.1	43.84	5.064	
5,600.0	5,422.2	5,614.1	5,458.7		27.6	25.2	131.12	841.3	-771.4	224.6	179.6	45.03	4.988	
5,700.0	5,518.0	5,710.7	5,551.5		28.2	25.7	130.80	860.5	-790.0	227.9	181.8	46.08	4.945	
5,800.0	5,613.8	5,806.2	5,644.1		28.8	26.1	131.13	877.3	-806.3	232.9	186.1	46.80	4.978	
5,870.3	5,681.2	5,873.1	5,709.4		29.2	26.4	131.73	887.7	-816.5	237.7	190.5	47.14	5.042	
5,900.0	5,709.7	5,900.0	5,735.7		29.4	26.5	132.06	891.6	-820.2	239.8	192.6	47.24	5.077	
6,000.0	5,806.3	5,996.3	5,830.4		29.8	26.8	133.21	904.1	-832.3	247.0	199.5	47.47	5.203	
6,100.0	5,903.7	6,091.0	5,924.0		30.2	27.0	134.30	914.1	-842.1	253.8	206.2	47.62	5.330	
6,200.0	6,001.8	6,185.4	6,017.8		30.5	27.3	135.35	921.9	-849.6	260.3	212.6	47.69	5.457	
6,300.0	6,100.6	6,279.7	6,111.8		30.8	27.4	136.37	927.4	-855.0	266.4	218.7	47.68	5.586	
6,400.0	6,199.9	6,373.7	6,205.7		31.1	27.6	137.37	930.8	-858.3	272.1	224.5	47.60	5.717	
6,500.0	6,299.5	6,468.0	6,300.0		31.3	27.7	138.35	931.9	-859.4	277.5	230.1	47.44	5.850	
6,600.0	6,399.3	6,567.3	6,399.3		31.4	27.8	139.11	931.9	-859.4	281.5	234.2	47.33	5.948	
6,700.7	6,500.0	6,668.0	6,500.0		31.5	27.9	88.33	931.9	-859.4	282.8	235.4	47.39	5.969	
6,808.7	6,608.0	6,776.6	6,608.3		31.6	28.0	89.49	926.1	-859.4	282.7	235.7	47.06	6.008	
6,829.4	6,628.7	6,797.2	6,628.7		31.6	28.0	-90.00	923.3	-859.4	282.7	235.9	46.85	6.034	
6,850.0	6,649.3	6,817.6	6,648.8		31.6	27.9	-89.49	920.0	-859.4	282.7	236.1	46.63	6.063	
6,900.0	6,699.1	6,866.8	6,697.0		31.7	27.9	-88.27	909.8	-859.4	282.8	236.8	46.04	6.143	
6,950.0	6,748.5	6,915.7	6,744.1		31.6	27.8	-87.06	896.6	-859.4	283.1	237.7	45.40	6.235	
7,000.0	6,797.3	6,964.2	6,789.9		31.6	27.7	-85.87	880.6	-859.4	283.5	238.7	44.72	6.339	
7,050.0	6,845.3	7,012.4	6,834.3		31.5	27.6	-84.70	861.8	-859.4	283.9	239.9	44.00	6.453	
7,100.0	6,892.3	7,060.3	6,877.1		31.4	27.5	-83.57	840.5	-859.4	284.5	241.3	43.27	6.575	
7,150.0	6,938.1	7,107.8	6,918.2		31.3	27.3	-82.46	816.7	-859.4	285.2	242.7	42.54	6.705	
7,200.0	6,982.4	7,155.0	6,957.5		31.2	27.2	-81.40	790.5	-859.4	286.0	244.2	41.81	6.840	
7,250.0	7,025.2	7,201.9	6,994.9		31.0	27.0	-80.37	762.2	-859.4	286.8	245.7	41.09	6.979	
7,300.0	7,066.1	7,250.0	7,031.3		30.9	26.8	-79.37	730.8	-859.4	287.7	247.3	40.39	7.123	
7,350.0	7,105.1	7,295.0	7,063.5		30.7	26.6	-78.47	699.4	-859.4	288.6	248.8	39.75	7.261	
7,400.0	7,142.0	7,341.1	7,094.6		30.5	26.4	-77.59	665.3	-859.4	289.5	250.4	39.13	7.399	
7,450.0	7,176.6	7,387.1	7,123.4		30.3	26.2	-76.77	629.6	-859.4	290.5	251.9	38.56	7.533	
7,500.0	7,208.7	7,432.8	7,150.0		30.1	26.0	-76.00	592.3	-859.4	291.4	253.4	38.05	7.660	
7,550.0	7,238.3	7,478.3	7,174.1		29.9	25.8	-75.30	553.7	-859.4	292.3	254.7	37.59	7.776	
7,600.0	7,265.2	7,523.7	7,195.9		29.7	25.6	-74.65	513.9	-859.4	293.2	256.0	37.21	7.881	
7,650.0	7,289.3	7,568.9	7,215.1		29.4	25.3	-74.06	473.0	-859.4	294.1	257.2	36.89	7.970	
7,700.0	7,310.4	7,614.0	7,231.9		29.2	25.1	-73.54	431.2	-859.4	294.8	258.2	36.66	8.043	
7,750.0	7,328.6	7,658.9	7,246.1		29.0	24.9	-73.08	388.6	-859.4	295.5	259.0	36.50	8.098	
7,800.0	7,343.6	7,703.8	7,257.8		28.8	24.7	-72.69	345.3	-859.4	296.2	259.7	36.42	8.132	
7,850.0	7,355.5	7,750.0	7,267.2		28.6	24.5	-72.35	300.0	-859.4	296.7	260.3	36.42	8.147	
7,900.0	7,364.2	7,793.2	7,273.5		28.4	24.3	-72.09	257.3	-859.4	297.1	260.6	36.51	8.138	
7,950.0	7,369.7	7,837.8	7,277.4		28.2	24.2	-71.89	212.9	-859.4	297.5	260.8	36.68	8.110	
8,000.0	7,371.9	7,882.4	7,278.7		28.0	24.0	-71.76	168.3	-859.4	297.7	260.8	36.92	8.064	
8,017.4	7,371.9	7,899.3	7,278.6		28.0	23.9	-71.74	151.4	-859.4	297.7	260.7	37.02	8.041	
8,100.0	7,371.0	7,981.9	7,278.2		27.7	23.6	-71.84	68.8	-859.4	297.5	260.2	37.32	7.972	
8,200.0	7,369.8	8,081.9	7,277.8		27.5	23.4	-71.96	-31.2	-859.4	297.3	259.3	37.99	7.825	
8,300.0	7,368.7	8,181.9	7,277.3		27.3	23.2	-72.09	-131.2	-859.4	297.1	258.1	39.00	7.618	
8,400.0	7,367.6	8,281.9	7,276.8		27.2	23.1	-72.21	-231.2	-859.4	296.9	256.6	40.33	7.363	
8,500.0	7,366.4	8,381.9	7,276.4		27.4	23.7	-72.33	-331.2	-859.4	296.7	254.8	41.94	7.075	

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 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-243 - Wellbore #1 - Plan #2 (										Offset Site Error:		0.0 ft
Survey Program:		0-MWD										Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,600.0	7,365.3	8,481.9	7,275.9	27.7	24.6	-72.45	-431.2	-859.4	296.5	252.7	43.80	6.770		
8,700.0	7,364.2	8,581.9	7,275.4	28.3	25.8	-72.57	-531.2	-859.4	296.3	250.4	45.89	6.457		
8,800.0	7,363.0	8,681.9	7,274.9	29.2	27.1	-72.70	-631.2	-859.4	296.1	247.9	48.17	6.147		
8,900.0	7,361.9	8,781.9	7,274.5	30.3	28.4	-72.82	-731.2	-859.4	295.9	245.3	50.63	5.845		
9,000.0	7,360.8	8,881.9	7,274.0	31.5	29.8	-72.94	-831.2	-859.4	295.7	242.5	53.24	5.555		
9,100.0	7,359.6	8,981.9	7,273.5	32.8	31.2	-73.06	-931.2	-859.4	295.5	239.6	55.97	5.280		
9,200.0	7,358.5	9,081.9	7,273.1	34.1	32.7	-73.19	-1,031.2	-859.4	295.3	236.5	58.81	5.022		
9,300.0	7,357.4	9,181.9	7,272.6	35.5	34.2	-73.31	-1,131.2	-859.4	295.1	233.4	61.75	4.779		
9,400.0	7,356.2	9,281.9	7,272.1	37.0	35.7	-73.43	-1,231.2	-859.4	295.0	230.2	64.78	4.553		
9,500.0	7,355.1	9,381.9	7,271.6	38.5	37.3	-73.56	-1,331.1	-859.4	294.8	226.9	67.88	4.343		
9,600.0	7,353.9	9,481.9	7,271.2	40.1	38.9	-73.68	-1,431.1	-859.4	294.6	223.5	71.04	4.147		
9,700.0	7,352.8	9,581.9	7,270.7	41.6	40.5	-73.81	-1,531.1	-859.4	294.4	220.1	74.26	3.965		
9,800.0	7,351.7	9,681.9	7,270.2	43.2	42.2	-73.93	-1,631.1	-859.4	294.2	216.7	77.53	3.795		
9,900.0	7,350.5	9,781.9	7,269.8	44.8	43.9	-74.05	-1,731.1	-859.4	294.0	213.2	80.84	3.637		
10,000.0	7,349.4	9,881.9	7,269.3	46.5	45.5	-74.18	-1,831.1	-859.4	293.8	209.7	84.19	3.490		
10,100.0	7,348.3	9,981.9	7,268.8	48.1	47.2	-74.30	-1,931.1	-859.4	293.7	206.1	87.58	3.353		
10,200.0	7,347.1	10,081.9	7,268.4	49.8	49.0	-74.43	-2,031.1	-859.4	293.5	202.5	91.00	3.225		
10,300.0	7,346.0	10,181.9	7,267.9	51.5	50.7	-74.55	-2,131.1	-859.4	293.3	198.9	94.45	3.105		
10,400.0	7,344.9	10,281.8	7,267.4	53.2	52.4	-74.68	-2,231.1	-859.4	293.1	195.2	97.93	2.993		
10,500.0	7,343.7	10,381.8	7,266.9	54.9	54.2	-74.80	-2,331.1	-859.4	293.0	191.5	101.43	2.888		
10,600.0	7,342.6	10,481.8	7,266.5	56.7	55.9	-74.93	-2,431.1	-859.4	292.8	187.8	104.95	2.790		
10,700.0	7,341.5	10,581.8	7,266.0	58.4	57.7	-75.05	-2,531.1	-859.4	292.6	184.1	108.49	2.697		
10,800.0	7,340.3	10,681.8	7,265.5	60.2	59.5	-75.18	-2,631.1	-859.4	292.4	180.4	112.05	2.610		
10,900.0	7,339.2	10,781.8	7,265.1	61.9	61.3	-75.30	-2,731.1	-859.4	292.3	176.6	115.63	2.528		
11,000.0	7,338.1	10,881.8	7,264.6	63.7	63.1	-75.43	-2,831.1	-859.4	292.1	172.9	119.23	2.450		
11,100.0	7,336.9	10,981.8	7,264.1	65.5	64.9	-75.56	-2,931.1	-859.4	291.9	169.1	122.83	2.377		
11,200.0	7,335.8	11,081.8	7,263.6	67.3	66.7	-75.68	-3,031.1	-859.4	291.8	165.3	126.46	2.307		
11,300.0	7,334.7	11,181.8	7,263.2	69.0	68.5	-75.81	-3,131.1	-859.4	291.6	161.5	130.09	2.242		
11,400.0	7,333.5	11,281.8	7,262.7	70.8	70.3	-75.93	-3,231.1	-859.4	291.5	157.7	133.74	2.179		
11,500.0	7,332.4	11,381.8	7,262.2	72.6	72.1	-76.06	-3,331.1	-859.4	291.3	153.9	137.40	2.120		
11,600.0	7,331.3	11,481.8	7,261.8	74.4	74.0	-76.19	-3,431.1	-859.4	291.1	150.1	141.06	2.064		
11,700.0	7,330.1	11,581.8	7,261.3	76.3	75.8	-76.31	-3,531.1	-859.4	291.0	146.2	144.74	2.010		
11,800.0	7,329.0	11,681.8	7,260.8	78.1	77.6	-76.44	-3,631.1	-859.4	290.8	142.4	148.43	1.959		
11,900.0	7,327.9	11,781.8	7,260.3	79.9	79.5	-76.57	-3,731.1	-859.4	290.7	138.5	152.13	1.911		
11,954.0	7,327.2	11,835.9	7,260.1	80.9	80.5	-76.64	-3,785.1	-859.4	290.6	136.5	154.13	1.885		
11,975.4	7,327.0	11,853.9	7,260.0	81.3	80.8	-76.66	-3,803.2	-859.4	290.6	135.7	154.86	1.876 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Fitzsimmons 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-443 - Wellbore #1 - Plan #2 (										Offset Site Error:		0.0 ft
Survey Program:		0-MWD										Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	49.89	40.1	47.6	62.2					
100.0	100.0	100.0	100.0	0.1	0.1	49.89	40.1	47.6	62.2	62.0	0.22	276.781		
200.0	200.0	200.0	200.0	0.3	0.3	49.89	40.1	47.6	62.2	61.5	0.67	92.260		
300.0	300.0	300.0	300.0	0.6	0.6	49.89	40.1	47.6	62.2	61.1	1.12	55.356		
400.0	400.0	400.0	400.0	0.8	0.8	49.89	40.1	47.6	62.2	60.6	1.57	39.540		
500.0	500.0	500.0	500.0	1.0	1.0	49.89	40.1	47.6	62.2	60.2	2.02	30.753		
600.0	600.0	600.0	600.0	1.2	1.2	49.89	40.1	47.6	62.2	59.7	2.47	25.162 CC		
700.0	700.0	700.0	700.0	1.5	1.5	102.10	40.1	47.6	62.5	59.6	2.92	21.416 ES		
800.0	799.9	799.9	799.9	1.7	1.7	105.56	40.1	47.6	63.4	60.1	3.36	18.870		
900.0	899.7	899.7	899.7	1.9	1.9	111.04	40.1	47.6	65.5	61.7	3.81	17.183		
1,000.0	999.3	999.3	999.3	2.1	2.1	118.04	40.1	47.6	69.3	65.0	4.27	16.237		
1,100.0	1,098.6	1,098.6	1,098.6	2.4	2.4	125.82	40.1	47.6	75.6	70.8	4.73	15.972		
1,200.0	1,197.5	1,197.5	1,197.5	2.7	2.6	133.56	40.1	47.6	84.8	79.6	5.19	16.325		
1,300.0	1,296.1	1,297.0	1,297.0	3.0	2.8	140.32	40.7	47.1	96.8	91.2	5.65	17.125		
1,400.0	1,394.2	1,396.7	1,396.7	3.4	3.0	145.60	42.8	45.6	111.0	104.8	6.11	18.157		
1,500.0	1,491.7	1,496.5	1,496.3	3.8	3.2	149.70	46.3	43.1	126.8	120.3	6.57	19.309		
1,600.0	1,588.6	1,596.4	1,596.0	4.2	3.5	152.88	51.2	39.6	144.2	137.2	7.03	20.516		
1,707.2	1,691.8	1,703.6	1,703.0	4.8	3.7	155.50	58.0	34.6	164.4	156.9	7.53	21.827		
1,800.0	1,780.7	1,796.8	1,795.7	5.2	3.9	157.24	65.3	29.4	182.0	174.0	8.00	22.750		
1,900.0	1,876.5	1,897.8	1,896.1	5.8	4.2	158.48	74.5	22.7	199.8	191.3	8.52	23.450		
2,000.0	1,972.3	1,999.4	1,996.8	6.3	4.5	159.25	85.2	15.0	216.3	207.2	9.06	23.877		
2,100.0	2,068.2	2,101.5	2,097.8	6.9	4.8	159.64	97.5	6.1	231.3	221.7	9.61	24.064		
2,200.0	2,164.0	2,204.1	2,198.9	7.5	5.1	159.74	111.2	-3.8	244.9	234.7	10.19	24.041		
2,300.0	2,259.8	2,307.0	2,300.1	8.0	5.4	159.60	126.5	-14.9	257.0	246.2	10.78	23.834		
2,400.0	2,355.7	2,410.3	2,401.3	8.6	5.8	159.23	143.3	-27.0	267.7	256.3	11.41	23.465		
2,500.0	2,451.5	2,513.8	2,502.3	9.2	6.1	158.67	161.6	-40.3	276.9	264.8	12.06	22.954		
2,600.0	2,547.3	2,617.5	2,603.1	9.8	6.6	157.91	181.5	-54.6	284.7	272.0	12.75	22.322		
2,700.0	2,643.1	2,717.2	2,699.8	10.4	7.0	157.12	201.3	-68.9	291.8	278.4	13.46	21.676		
2,800.0	2,739.0	2,816.9	2,796.4	11.0	7.4	156.36	221.1	-83.2	299.0	284.8	14.19	21.071		
2,900.0	2,834.8	2,916.6	2,893.0	11.5	7.9	155.64	240.9	-97.5	306.3	291.3	14.93	20.506		
3,000.0	2,930.6	3,016.2	2,989.7	12.1	8.3	154.95	260.7	-111.8	313.5	297.8	15.69	19.977		
3,100.0	3,026.5	3,115.9	3,086.3	12.7	8.8	154.30	280.5	-126.1	320.9	304.4	16.47	19.483		
3,200.0	3,122.3	3,215.6	3,182.9	13.3	9.3	153.67	300.3	-140.4	328.2	311.0	17.25	19.021		
3,300.0	3,218.1	3,315.2	3,279.6	13.9	9.7	153.07	320.1	-154.7	335.6	317.6	18.05	18.589		
3,400.0	3,313.9	3,414.9	3,376.2	14.5	10.2	152.50	339.9	-169.0	343.0	324.2	18.86	18.185		
3,500.0	3,409.8	3,514.6	3,472.8	15.1	10.7	151.95	359.7	-183.3	350.5	330.8	19.68	17.806		
3,600.0	3,505.6	3,614.2	3,569.4	15.7	11.2	151.42	379.5	-197.6	358.0	337.5	20.51	17.451		
3,700.0	3,601.4	3,713.9	3,666.1	16.3	11.6	150.92	399.2	-211.9	365.5	344.2	21.35	17.118		
3,800.0	3,697.2	3,813.6	3,762.7	16.9	12.1	150.43	419.0	-226.2	373.1	350.9	22.20	16.805		
3,900.0	3,793.1	3,913.2	3,859.3	17.5	12.6	149.97	438.8	-240.5	380.7	357.6	23.06	16.510		
4,000.0	3,888.9	4,012.9	3,955.9	18.1	13.1	149.52	458.6	-254.8	388.3	364.3	23.92	16.233		
4,100.0	3,984.7	4,112.6	4,052.6	18.7	13.6	149.09	478.4	-269.1	395.9	371.1	24.79	15.972		
4,200.0	4,080.6	4,212.2	4,149.2	19.3	14.1	148.68	498.2	-283.4	403.5	377.9	25.66	15.726		
4,300.0	4,176.4	4,311.9	4,245.8	19.9	14.6	148.28	518.0	-297.7	411.2	384.6	26.54	15.493		
4,400.0	4,272.2	4,411.6	4,342.5	20.4	15.1	147.89	537.8	-312.0	418.9	391.4	27.43	15.273		
4,500.0	4,368.0	4,511.2	4,439.1	21.0	15.6	147.52	557.6	-326.3	426.6	398.3	28.32	15.065		
4,600.0	4,463.9	4,610.9	4,535.7	21.6	16.1	147.17	577.4	-340.6	434.3	405.1	29.21	14.868		
4,700.0	4,559.7	4,710.6	4,632.3	22.2	16.6	146.82	597.2	-354.9	442.0	411.9	30.11	14.681		
4,800.0	4,655.5	4,810.2	4,729.0	22.8	17.1	146.49	617.0	-369.2	449.8	418.8	31.01	14.503		
4,900.0	4,751.4	4,909.9	4,825.6	23.4	17.6	146.17	636.8	-383.6	457.5	425.6	31.92	14.334		
5,000.0	4,847.2	5,009.6	4,922.2	24.0	18.1	145.86	656.6	-397.9	465.3	432.5	32.83	14.174		

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 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design										Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-443 - Wellbore #1 - Plan #2 (				Offset Site Error:		0.0 ft
Survey Program: 0-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
							+N/-S (ft)	+E/-W (ft)								
5,100.0	4,943.0	5,109.2	5,018.8		24.6	145.56	676.4	-412.2	473.1	439.4	33.74	14.021				
5,200.0	5,038.8	5,208.9	5,115.5		25.2	145.27	696.2	-426.5	480.9	446.3	34.66	13.875				
5,300.0	5,134.7	5,308.6	5,212.1		25.8	144.99	716.0	-440.8	488.7	453.2	35.58	13.736				
5,400.0	5,230.5	5,408.2	5,308.7		26.4	144.72	735.8	-455.1	496.6	460.1	36.50	13.603				
5,500.0	5,326.3	5,507.9	5,405.4		27.0	144.45	755.6	-469.4	504.4	467.0	37.43	13.476				
5,600.0	5,422.2	5,607.6	5,502.0		27.6	144.20	775.4	-483.7	512.3	473.9	38.36	13.355				
5,700.0	5,518.0	5,707.2	5,598.6		28.2	143.95	795.2	-498.0	520.1	480.8	39.29	13.239				
5,800.0	5,613.8	5,806.9	5,695.2		28.8	143.71	814.9	-512.3	528.0	487.8	40.22	13.128				
5,870.3	5,681.2	5,876.9	5,763.1		29.2	143.54	828.9	-522.3	533.5	492.6	40.88	13.052				
5,900.0	5,709.7	5,906.6	5,791.9		29.4	143.49	834.7	-526.6	535.7	494.6	41.15	13.018				
6,000.0	5,806.3	6,006.3	5,888.6		29.8	143.16	854.6	-540.9	541.4	499.3	42.09	12.863				
6,100.0	5,903.7	6,100.0	5,979.7		30.2	142.72	872.2	-553.6	545.1	502.2	42.95	12.692				
6,200.0	6,001.8	6,186.1	6,064.1		30.5	142.35	886.3	-563.8	548.0	504.3	43.65	12.555				
6,300.0	6,100.6	6,275.7	6,152.3		30.8	141.99	898.7	-572.8	550.0	505.7	44.28	12.421				
6,400.0	6,199.9	6,365.3	6,241.0		31.1	141.65	909.0	-580.2	551.2	506.3	44.83	12.295				
6,500.0	6,299.5	6,455.0	6,330.1		31.3	141.34	917.0	-586.0	551.5	506.2	45.30	12.175				
6,600.0	6,399.3	6,544.8	6,419.6		31.4	141.05	922.7	-590.1	551.0	505.3	45.68	12.060				
6,700.7	6,500.0	6,635.3	6,510.0		31.5	24.9	89.74	-592.6	549.6	503.6	45.99	11.949				
6,808.7	6,608.0	6,733.2	6,608.0		31.6	25.1	89.62	-593.4	548.6	502.3	46.30	11.850				
6,850.0	6,649.3	6,774.5	6,649.3		31.6	25.1	-90.50	-593.4	548.7	502.2	46.43	11.816				
6,900.0	6,699.1	6,824.3	6,699.1		31.7	25.2	-90.95	-593.4	548.7	502.0	46.68	11.755				
6,950.0	6,748.5	6,874.4	6,749.1		31.6	25.2	-91.67	-593.4	548.9	501.9	46.98	11.684				
7,000.0	6,797.3	6,925.2	6,799.8		31.6	25.2	-92.41	-593.4	549.1	501.9	47.21	11.632				
7,050.0	6,845.3	6,976.5	6,850.6		31.5	25.2	-93.15	-593.4	549.5	502.1	47.35	11.604				
7,100.0	6,892.3	7,028.3	6,901.3		31.4	25.2	-93.88	-593.4	549.9	502.5	47.41	11.600				
7,150.0	6,938.1	7,080.6	6,951.6		31.3	25.1	-94.60	-593.4	550.4	503.1	47.37	11.620				
7,200.0	6,982.4	7,133.5	7,001.4		31.2	25.0	-95.29	-593.4	551.0	503.8	47.24	11.664				
7,250.0	7,025.2	7,186.8	7,050.2		31.0	24.9	-95.97	-593.4	551.7	504.7	47.02	11.732				
7,300.0	7,066.1	7,240.7	7,098.0		30.9	24.7	-96.62	-593.4	552.4	505.7	46.72	11.823				
7,350.0	7,105.1	7,295.2	7,144.2		30.7	24.5	-97.25	-593.4	553.1	506.8	46.34	11.935				
7,400.0	7,142.0	7,350.1	7,188.7		30.5	24.3	-97.84	-593.4	553.9	508.0	45.89	12.068				
7,450.0	7,176.6	7,405.5	7,231.2		30.3	24.1	-98.39	-593.4	554.6	509.3	45.39	12.220				
7,500.0	7,208.7	7,461.4	7,271.2		30.1	23.8	-98.91	-593.4	555.4	510.6	44.84	12.386				
7,550.0	7,238.3	7,517.7	7,308.6		29.9	23.6	-99.39	-593.4	556.1	511.9	44.27	12.563				
7,600.0	7,265.2	7,574.5	7,343.1		29.7	23.3	-99.83	-593.4	556.9	513.2	43.69	12.746				
7,650.0	7,289.3	7,631.6	7,374.3		29.4	23.0	-100.21	-593.4	557.5	514.4	43.12	12.930				
7,700.0	7,310.4	7,689.1	7,401.9		29.2	22.8	-100.55	-593.4	558.1	515.5	42.58	13.107				
7,750.0	7,328.6	7,746.9	7,425.9		29.0	22.5	-100.84	-593.4	558.6	516.5	42.10	13.270				
7,800.0	7,343.6	7,804.9	7,445.8		28.8	22.2	-101.07	-593.4	559.1	517.4	41.69	13.411				
7,850.0	7,355.5	7,863.1	7,461.7		28.6	22.0	-101.25	-593.4	559.4	518.0	41.37	13.521				
7,900.0	7,364.2	7,921.5	7,473.2		28.4	21.8	-101.38	-593.4	559.6	518.5	41.16	13.597				
7,950.0	7,369.7	7,980.0	7,480.4		28.2	21.5	-101.44	-593.4	559.8	518.7	41.06	13.632				
8,000.0	7,371.9	8,038.5	7,483.1		28.0	21.3	-101.45	-593.4	559.8	518.7	41.09	13.624				
8,007.3	7,371.9	8,046.5	7,483.1		28.0	21.3	-101.45	-593.4	559.8	518.7	41.10	13.620				
8,017.4	7,371.9	8,056.5	7,483.1		28.0	21.3	-101.46	-593.4	559.8	518.7	41.12	13.612				
8,100.0	7,371.0	8,139.1	7,483.2		27.7	21.0	-101.56	-593.4	560.0	518.4	41.60	13.463				
8,200.0	7,369.8	8,239.1	7,483.4		27.5	20.8	-101.70	-593.4	560.3	517.8	42.45	13.199				
8,300.0	7,368.7	8,339.1	7,483.6		27.3	20.9	-101.83	-593.4	560.5	516.9	43.61	12.853				
8,400.0	7,367.6	8,439.1	7,483.8		27.2	21.7	-101.96	-593.4	560.8	515.7	45.06	12.446				
8,500.0	7,366.4	8,539.1	7,483.9		27.4	22.8	-102.09	-593.4	561.1	514.3	46.76	11.998				

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 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W - Fitzsimmons 9J-443 - Wellbore #1 - Plan #2 (										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation		
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	Toolface (°)	+N/-S (ft)	+E/-W (ft)	Centres (ft)	Ellipses (ft)	Separation (ft)	Factor		
8,600.0	7,365.3	8,639.1	7,484.1	27.7	23.9	-102.22	-431.4	-593.4	561.4	512.7	48.70	11.527		
8,700.0	7,364.2	8,739.1	7,484.3	28.3	25.1	-102.35	-531.4	-593.4	561.6	510.8	50.84	11.047		
8,800.0	7,363.0	8,839.1	7,484.5	29.2	26.4	-102.48	-631.4	-593.4	561.9	508.8	53.16	10.571		
8,900.0	7,361.9	8,939.1	7,484.6	30.3	27.7	-102.61	-731.4	-593.4	562.2	506.6	55.63	10.106		
9,000.0	7,360.8	9,039.1	7,484.8	31.5	29.1	-102.74	-831.4	-593.4	562.5	504.3	58.23	9.659		
9,100.0	7,359.6	9,139.1	7,485.0	32.8	30.6	-102.87	-931.3	-593.4	562.8	501.8	60.96	9.232		
9,200.0	7,358.5	9,239.1	7,485.2	34.1	32.1	-103.00	-1,031.3	-593.4	563.1	499.3	63.78	8.828		
9,300.0	7,357.4	9,339.0	7,485.3	35.5	33.6	-103.13	-1,131.3	-593.4	563.4	496.7	66.69	8.447		
9,400.0	7,356.2	9,439.0	7,485.5	37.0	35.2	-103.26	-1,231.3	-593.4	563.7	494.0	69.68	8.089		
9,500.0	7,355.1	9,539.0	7,485.7	38.5	36.8	-103.39	-1,331.3	-593.4	564.0	491.2	72.74	7.753		
9,600.0	7,353.9	9,639.0	7,485.9	40.1	38.4	-103.52	-1,431.3	-593.4	564.3	488.4	75.85	7.439		
9,700.0	7,352.8	9,739.0	7,486.0	41.6	40.0	-103.65	-1,531.3	-593.4	564.6	485.6	79.01	7.145		
9,800.0	7,351.7	9,839.0	7,486.2	43.2	41.7	-103.78	-1,631.3	-593.4	564.9	482.7	82.22	6.871		
9,900.0	7,350.5	9,939.0	7,486.4	44.8	43.4	-103.91	-1,731.3	-593.4	565.2	479.7	85.46	6.613		
10,000.0	7,349.4	10,039.0	7,486.6	46.5	45.1	-104.03	-1,831.3	-593.4	565.5	476.8	88.74	6.373		
10,100.0	7,348.3	10,139.0	7,486.7	48.1	46.8	-104.16	-1,931.3	-593.4	565.8	473.8	92.05	6.147		
10,200.0	7,347.1	10,239.0	7,486.9	49.8	48.6	-104.29	-2,031.3	-593.4	566.2	470.8	95.38	5.936		
10,300.0	7,346.0	10,339.0	7,487.1	51.5	50.3	-104.42	-2,131.2	-593.4	566.5	467.7	98.74	5.737		
10,400.0	7,344.9	10,438.9	7,487.3	53.2	52.1	-104.55	-2,231.2	-593.4	566.8	464.7	102.12	5.550		
10,500.0	7,343.7	10,538.9	7,487.4	54.9	53.8	-104.68	-2,331.2	-593.4	567.1	461.6	105.51	5.375		
10,600.0	7,342.6	10,638.9	7,487.6	56.7	55.6	-104.80	-2,431.2	-593.4	567.5	458.5	108.93	5.210		
10,700.0	7,341.5	10,738.9	7,487.8	58.4	57.4	-104.93	-2,531.2	-593.4	567.8	455.5	112.35	5.054		
10,800.0	7,340.3	10,838.9	7,488.0	60.2	59.2	-105.06	-2,631.2	-593.4	568.1	452.4	115.79	4.907		
10,900.0	7,339.2	10,938.9	7,488.1	61.9	61.0	-105.19	-2,731.2	-593.4	568.5	449.3	119.24	4.768		
11,000.0	7,338.1	11,038.9	7,488.3	63.7	62.8	-105.31	-2,831.2	-593.4	568.8	446.1	122.69	4.636		
11,100.0	7,336.9	11,138.9	7,488.5	65.5	64.6	-105.44	-2,931.2	-593.4	569.2	443.0	126.16	4.512		
11,200.0	7,335.8	11,238.9	7,488.7	67.3	66.4	-105.57	-3,031.2	-593.4	569.5	439.9	129.63	4.393		
11,300.0	7,334.7	11,338.9	7,488.8	69.0	68.2	-105.69	-3,131.2	-593.4	569.9	436.8	133.11	4.281		
11,400.0	7,333.5	11,438.9	7,489.0	70.8	70.1	-105.82	-3,231.1	-593.4	570.2	433.6	136.60	4.175		
11,500.0	7,332.4	11,538.9	7,489.2	72.6	71.9	-105.95	-3,331.1	-593.4	570.6	430.5	140.08	4.073		
11,600.0	7,331.3	11,638.8	7,489.4	74.4	73.7	-106.07	-3,431.1	-593.4	571.0	427.4	143.58	3.977		
11,700.0	7,330.1	11,738.8	7,489.5	76.3	75.6	-106.20	-3,531.1	-593.4	571.3	424.2	147.07	3.885		
11,800.0	7,329.0	11,838.8	7,489.7	78.1	77.4	-106.33	-3,631.1	-593.4	571.7	421.1	150.57	3.797		
11,900.0	7,327.9	11,938.8	7,489.9	79.9	79.3	-106.45	-3,731.1	-593.4	572.1	418.0	154.07	3.713		
11,975.4	7,327.0	12,010.9	7,490.0	81.3	80.6	-106.54	-3,803.2	-593.4	572.3	415.7	156.66	3.653 SF		



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<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

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

Coordinates are relative to: Fitzsimmons 9E-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 9E-323
<b>Project:</b>	SEC.9-T1N-R66W	<b>TVD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Reference Site:</b>	Fitzsimmons 1N66W9JM (West) Pad Sec.9-T1N-R66W	<b>MD Reference:</b>	WELL @ 5005.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Fitzsimmons 9E-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 (4-30-15)	<b>Offset TVD Reference:</b>	Offset Datum

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

Coordinates are relative to: Fitzsimmons 9E-323  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.46°

