

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Wiedeman 28F-412**

Surface Location: Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

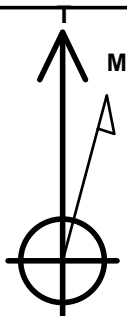
Ground Elevation: 4762.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1348221.12	3198077.94	40.287090	-104.789970	

Original Well Elev WELL @ 4777.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 1008'FNL & 540'FWL, SEC.28	1.0	0.0	0.0	Point
BHL 1093'FNL & 500'FEL, SEC.28	7260.0	-71.3	4223.9	Point



Azimuths to True North
Magnetic North: 8.45°

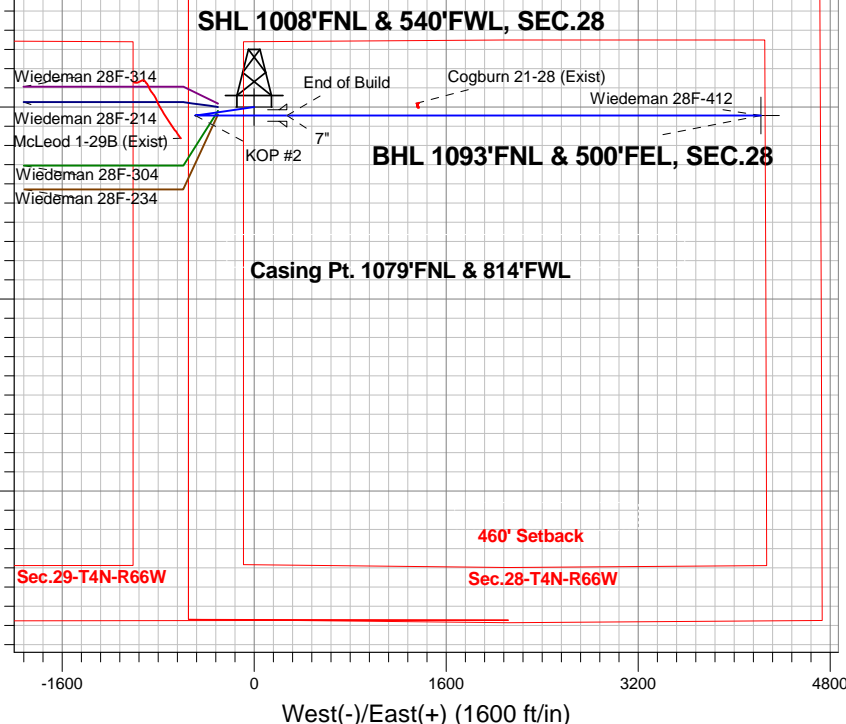
Magnetic Field
Strength: 52742.4srT
Dip Angle: 66.85°
Date: 7/25/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
2000.0	2000.0	KOP #1
6497.4	6530.0	KOP #2
7261.4	7730.3	End of Build

Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W
Wiedeman 28F-412
Plan #1 (7-25-14)

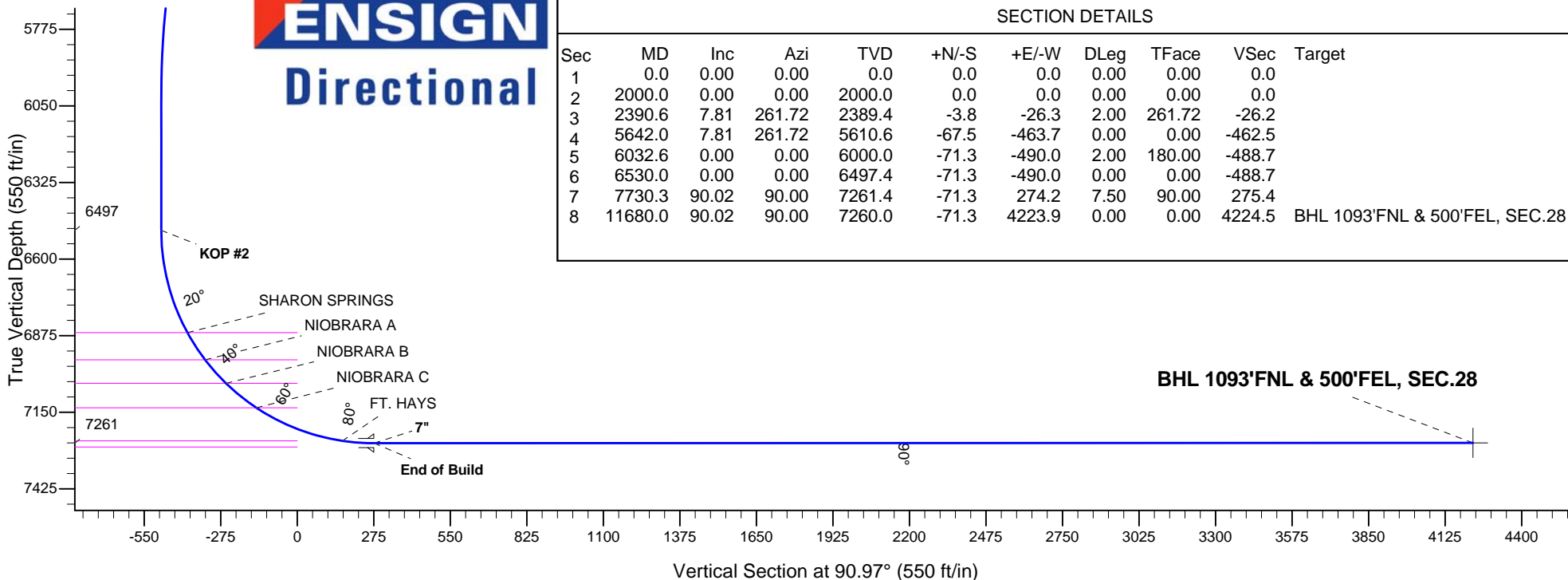
South(-)/North(+) (1600 ft/in)



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	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2390.6	7.81	261.72	2389.4	-3.8	-26.3	2.00	261.72	-26.2	
4	5642.0	7.81	261.72	5610.6	-67.5	-463.7	0.00	0.00	-462.5	
5	6032.6	0.00	0.00	6000.0	-71.3	-490.0	2.00	180.00	-488.7	
6	6530.0	0.00	0.00	6497.4	-71.3	-490.0	0.00	0.00	-488.7	
7	7730.3	90.02	90.00	7261.4	-71.3	274.2	7.50	90.00	275.4	
8	11680.0	90.02	90.00	7260.0	-71.3	4223.9	0.00	0.00	4224.5	BHL 1093'FNL & 500'FEL, SEC.28





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T4N-R66W

Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W

Wiedeman 28F-412

Wellbore #1

Plan: Plan #1 (7-25-14)

Standard Planning Report

11 August, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Project:	SEC.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	North Reference:	True
Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-25-14)		

Project	SEC.28-T4N-R66W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site						Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W											
Site Position:						Northing:			1,348,308.56 ft			Latitude:			40.287330		
From:			Lat/Long			Easting:			3,198,077.24 ft			Longitude:			-104.789970		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.46 °		

Well	Wiedeman 28F-412					
Well Position	+N/-S	-87.4 ft	Northing:	1,348,221.12 ft	Latitude:	40.287090
	+E/-W	0.0 ft	Easting:	3,198,077.94 ft	Longitude:	-104.789970
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,762.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/25/2014	8.45	66.85	52,742

Design	Plan #1 (7-25-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	90.97

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,390.6	7.81	261.72	2,389.4	-3.8	-26.3	2.00	2.00	0.00	261.72	
5,642.0	7.81	261.72	5,610.6	-67.5	-463.7	0.00	0.00	0.00	0.00	
6,032.6	0.00	0.00	6,000.0	-71.3	-490.0	2.00	-2.00	0.00	180.00	
6,530.0	0.00	0.00	6,497.4	-71.3	-490.0	0.00	0.00	0.00	0.00	
7,730.3	90.02	90.00	7,261.4	-71.3	274.2	7.50	7.50	0.00	90.00	
11,680.0	90.02	90.00	7,260.0	-71.3	4,223.9	0.00	0.00	0.00	0.00	BHL 1093'FNL & 5C

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Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Project:	SEC.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	North Reference:	True
Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-25-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
2,100.0	2.00	261.72	2,100.0	-0.3	-1.7	-1.7	2.00	2.00	0.00
2,200.0	4.00	261.72	2,199.8	-1.0	-6.9	-6.9	2.00	2.00	0.00
2,300.0	6.00	261.72	2,299.5	-2.3	-15.5	-15.5	2.00	2.00	0.00
2,390.6	7.81	261.72	2,389.4	-3.8	-26.3	-26.2	2.00	2.00	0.00
2,400.0	7.81	261.72	2,398.7	-4.0	-27.6	-27.5	0.00	0.00	0.00
2,500.0	7.81	261.72	2,497.8	-6.0	-41.0	-40.9	0.00	0.00	0.00
2,600.0	7.81	261.72	2,596.8	-7.9	-54.5	-54.3	0.00	0.00	0.00
2,700.0	7.81	261.72	2,695.9	-9.9	-67.9	-67.8	0.00	0.00	0.00
2,800.0	7.81	261.72	2,795.0	-11.8	-81.4	-81.2	0.00	0.00	0.00
2,900.0	7.81	261.72	2,894.1	-13.8	-94.8	-94.6	0.00	0.00	0.00
3,000.0	7.81	261.72	2,993.1	-15.8	-108.3	-108.0	0.00	0.00	0.00
3,100.0	7.81	261.72	3,092.2	-17.7	-121.7	-121.4	0.00	0.00	0.00
3,200.0	7.81	261.72	3,191.3	-19.7	-135.2	-134.8	0.00	0.00	0.00
3,300.0	7.81	261.72	3,290.3	-21.6	-148.6	-148.3	0.00	0.00	0.00
3,400.0	7.81	261.72	3,389.4	-23.6	-162.1	-161.7	0.00	0.00	0.00
3,500.0	7.81	261.72	3,488.5	-25.5	-175.5	-175.1	0.00	0.00	0.00
3,600.0	7.81	261.72	3,587.6	-27.5	-189.0	-188.5	0.00	0.00	0.00
3,700.0	7.81	261.72	3,686.6	-29.5	-202.5	-201.9	0.00	0.00	0.00
3,719.5	7.81	261.72	3,706.0	-29.8	-205.1	-204.5	0.00	0.00	0.00
PARKMAN									
3,800.0	7.81	261.72	3,785.7	-31.4	-215.9	-215.3	0.00	0.00	0.00
3,900.0	7.81	261.72	3,884.8	-33.4	-229.4	-228.8	0.00	0.00	0.00
4,000.0	7.81	261.72	3,983.9	-35.3	-242.8	-242.2	0.00	0.00	0.00
4,100.0	7.81	261.72	4,082.9	-37.3	-256.3	-255.6	0.00	0.00	0.00
4,200.0	7.81	261.72	4,182.0	-39.2	-269.7	-269.0	0.00	0.00	0.00
4,300.0	7.81	261.72	4,281.1	-41.2	-283.2	-282.4	0.00	0.00	0.00
4,372.6	7.81	261.72	4,353.0	-42.6	-292.9	-292.2	0.00	0.00	0.00
SUSSEX									
4,400.0	7.81	261.72	4,380.1	-43.2	-296.6	-295.8	0.00	0.00	0.00
4,500.0	7.81	261.72	4,479.2	-45.1	-310.1	-309.3	0.00	0.00	0.00

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Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	North Reference:	True
Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-25-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,600.0	7.81	261.72	4,578.3	-47.1	-323.5	-322.7	0.00	0.00	0.00
4,700.0	7.81	261.72	4,677.4	-49.0	-337.0	-336.1	0.00	0.00	0.00
4,800.0	7.81	261.72	4,776.4	-51.0	-350.4	-349.5	0.00	0.00	0.00
4,807.6	7.81	261.72	4,784.0	-51.1	-351.5	-350.5	0.00	0.00	0.00
SHANNON									
4,900.0	7.81	261.72	4,875.5	-52.9	-363.9	-362.9	0.00	0.00	0.00
5,000.0	7.81	261.72	4,974.6	-54.9	-377.3	-376.3	0.00	0.00	0.00
5,100.0	7.81	261.72	5,073.6	-56.9	-390.8	-389.8	0.00	0.00	0.00
5,200.0	7.81	261.72	5,172.7	-58.8	-404.2	-403.2	0.00	0.00	0.00
5,300.0	7.81	261.72	5,271.8	-60.8	-417.7	-416.6	0.00	0.00	0.00
5,400.0	7.81	261.72	5,370.9	-62.7	-431.1	-430.0	0.00	0.00	0.00
5,500.0	7.81	261.72	5,469.9	-64.7	-444.6	-443.4	0.00	0.00	0.00
5,600.0	7.81	261.72	5,569.0	-66.6	-458.0	-456.9	0.00	0.00	0.00
5,642.0	7.81	261.72	5,610.6	-67.5	-463.7	-462.5	0.00	0.00	0.00
5,700.0	6.65	261.72	5,668.1	-68.5	-470.9	-469.7	2.00	-2.00	0.00
5,800.0	4.65	261.72	5,767.7	-69.9	-480.7	-479.4	2.00	-2.00	0.00
5,900.0	2.65	261.72	5,867.4	-70.9	-487.0	-485.7	2.00	-2.00	0.00
6,000.0	0.65	261.72	5,967.4	-71.3	-489.8	-488.5	2.00	-2.00	0.00
6,032.6	0.00	0.00	6,000.0	-71.3	-490.0	-488.7	2.00	-2.00	0.00
6,100.0	0.00	0.00	6,067.4	-71.3	-490.0	-488.7	0.00	0.00	0.00
6,200.0	0.00	0.00	6,167.4	-71.3	-490.0	-488.7	0.00	0.00	0.00
6,300.0	0.00	0.00	6,267.4	-71.3	-490.0	-488.7	0.00	0.00	0.00
6,400.0	0.00	0.00	6,367.4	-71.3	-490.0	-488.7	0.00	0.00	0.00
6,500.0	0.00	0.00	6,467.4	-71.3	-490.0	-488.7	0.00	0.00	0.00
6,530.0	0.00	0.00	6,497.4	-71.3	-490.0	-488.7	0.00	0.00	0.00
KOP #2									
6,600.0	5.25	90.00	6,567.3	-71.3	-486.8	-485.5	7.50	7.50	0.00
6,700.0	12.75	90.00	6,666.0	-71.3	-471.2	-469.9	7.50	7.50	0.00
6,800.0	20.25	90.00	6,761.8	-71.3	-442.8	-441.5	7.50	7.50	0.00
6,900.0	27.75	90.00	6,853.1	-71.3	-402.2	-400.9	7.50	7.50	0.00
6,912.4	28.67	90.00	6,864.0	-71.3	-396.3	-395.0	7.50	7.50	0.00
SHARON SPRINGS									
7,000.0	35.25	90.00	6,938.3	-71.3	-349.9	-348.7	7.50	7.50	0.00
7,029.4	37.45	90.00	6,962.0	-71.3	-332.5	-331.3	7.50	7.50	0.00
NIOBRARA A									
7,100.0	42.75	90.00	7,016.0	-71.3	-287.1	-285.8	7.50	7.50	0.00
7,142.0	45.90	90.00	7,046.0	-71.3	-257.7	-256.5	7.50	7.50	0.00
NIOBRARA B									
7,200.0	50.25	90.00	7,084.8	-71.3	-214.6	-213.3	7.50	7.50	0.00
7,282.5	56.44	90.00	7,134.0	-71.3	-148.4	-147.2	7.50	7.50	0.00
NIOBRARA C									
7,300.0	57.75	90.00	7,143.5	-71.3	-133.7	-132.5	7.50	7.50	0.00
7,400.0	65.25	90.00	7,191.2	-71.3	-45.9	-44.7	7.50	7.50	0.00
7,500.0	72.75	90.00	7,227.0	-71.3	47.4	48.6	7.50	7.50	0.00
7,600.0	80.25	90.00	7,250.3	-71.3	144.5	145.7	7.50	7.50	0.00
7,616.8	81.51	90.00	7,253.0	-71.3	161.1	162.3	7.50	7.50	0.00
FT. HAYS									
7,700.0	87.75	90.00	7,260.8	-71.3	243.9	245.1	7.50	7.50	0.00
7,730.3	90.02	90.00	7,261.4	-71.3	274.2	275.4	7.50	7.50	0.00
End of Build - 7"									
7,800.0	90.02	90.00	7,261.4	-71.3	343.9	345.1	0.00	0.00	0.00

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Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	North Reference:	True
Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-25-14)		

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	90.02	90.00	7,261.3	-71.3	443.9	445.1	0.00	0.00	0.00
8,000.0	90.02	90.00	7,261.3	-71.3	543.9	545.0	0.00	0.00	0.00
8,100.0	90.02	90.00	7,261.2	-71.3	643.9	645.0	0.00	0.00	0.00
8,200.0	90.02	90.00	7,261.2	-71.3	743.9	745.0	0.00	0.00	0.00
8,300.0	90.02	90.00	7,261.2	-71.3	843.9	845.0	0.00	0.00	0.00
8,400.0	90.02	90.00	7,261.1	-71.3	943.9	945.0	0.00	0.00	0.00
8,500.0	90.02	90.00	7,261.1	-71.3	1,043.9	1,045.0	0.00	0.00	0.00
8,600.0	90.02	90.00	7,261.1	-71.3	1,143.9	1,145.0	0.00	0.00	0.00
8,700.0	90.02	90.00	7,261.0	-71.3	1,243.9	1,244.9	0.00	0.00	0.00
8,800.0	90.02	90.00	7,261.0	-71.3	1,343.9	1,344.9	0.00	0.00	0.00
8,900.0	90.02	90.00	7,261.0	-71.3	1,443.9	1,444.9	0.00	0.00	0.00
9,000.0	90.02	90.00	7,260.9	-71.3	1,543.9	1,544.9	0.00	0.00	0.00
9,100.0	90.02	90.00	7,260.9	-71.3	1,643.9	1,644.9	0.00	0.00	0.00
9,200.0	90.02	90.00	7,260.9	-71.3	1,743.9	1,744.9	0.00	0.00	0.00
9,300.0	90.02	90.00	7,260.8	-71.3	1,843.9	1,844.9	0.00	0.00	0.00
9,400.0	90.02	90.00	7,260.8	-71.3	1,943.9	1,944.8	0.00	0.00	0.00
9,500.0	90.02	90.00	7,260.8	-71.3	2,043.9	2,044.8	0.00	0.00	0.00
9,600.0	90.02	90.00	7,260.7	-71.3	2,143.9	2,144.8	0.00	0.00	0.00
9,700.0	90.02	90.00	7,260.7	-71.3	2,243.9	2,244.8	0.00	0.00	0.00
9,800.0	90.02	90.00	7,260.7	-71.3	2,343.9	2,344.8	0.00	0.00	0.00
9,900.0	90.02	90.00	7,260.6	-71.3	2,443.9	2,444.8	0.00	0.00	0.00
10,000.0	90.02	90.00	7,260.6	-71.3	2,543.9	2,544.8	0.00	0.00	0.00
10,100.0	90.02	90.00	7,260.6	-71.3	2,643.9	2,644.7	0.00	0.00	0.00
10,200.0	90.02	90.00	7,260.5	-71.3	2,743.9	2,744.7	0.00	0.00	0.00
10,300.0	90.02	90.00	7,260.5	-71.3	2,843.9	2,844.7	0.00	0.00	0.00
10,400.0	90.02	90.00	7,260.4	-71.3	2,943.9	2,944.7	0.00	0.00	0.00
10,500.0	90.02	90.00	7,260.4	-71.3	3,043.9	3,044.7	0.00	0.00	0.00
10,600.0	90.02	90.00	7,260.4	-71.3	3,143.9	3,144.7	0.00	0.00	0.00
10,700.0	90.02	90.00	7,260.3	-71.3	3,243.9	3,244.7	0.00	0.00	0.00
10,800.0	90.02	90.00	7,260.3	-71.3	3,343.9	3,344.6	0.00	0.00	0.00
10,900.0	90.02	90.00	7,260.3	-71.3	3,443.9	3,444.6	0.00	0.00	0.00
11,000.0	90.02	90.00	7,260.2	-71.3	3,543.9	3,544.6	0.00	0.00	0.00
11,100.0	90.02	90.00	7,260.2	-71.3	3,643.9	3,644.6	0.00	0.00	0.00
11,200.0	90.02	90.00	7,260.2	-71.3	3,743.9	3,744.6	0.00	0.00	0.00
11,300.0	90.02	90.00	7,260.1	-71.3	3,843.9	3,844.6	0.00	0.00	0.00
11,400.0	90.02	90.00	7,260.1	-71.3	3,943.9	3,944.6	0.00	0.00	0.00
11,500.0	90.02	90.00	7,260.1	-71.3	4,043.9	4,044.5	0.00	0.00	0.00
11,600.0	90.02	90.00	7,260.0	-71.3	4,143.9	4,144.5	0.00	0.00	0.00
11,680.0	90.02	90.00	7,260.0	-71.3	4,223.9	4,224.5	0.00	0.00	0.00

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,730.3	7,261.4	7"	7	7-1/2	

Database:	landmark	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Project:	SEC.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	North Reference:	True
Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-25-14)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,719.5	3,706.0	PARKMAN				
4,372.6	4,353.0	SUSSEX				
4,807.6	4,784.0	SHANNON				
6,912.4	6,864.0	SHARON SPRINGS				
7,029.4	6,962.0	NIOBRARA A				
7,142.0	7,046.0	NIOBRARA B				
7,282.5	7,134.0	NIOBRARA C				
7,616.8	7,253.0	FT. HAYS				
	7,275.0	CODELL				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,000.0	2,000.0	0.0	0.0	KOP #1
6,530.0	6,497.4	-71.3	-490.0	KOP #2
7,730.3	7,261.4	-71.3	274.2	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T4N-R66W

Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W

Wiedeman 28F-412

Wellbore #1

Plan #1 (7-25-14)

Anticollision Report

11 August, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (7-25-14)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 8/11/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,679.5	Plan #1 (7-25-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells Sec.28-T4N-R66W						
Cogburn 21-28 (Exist) - Wellbore #1 - Wellbore #1	8,810.4	7,238.1	100.6	39.4	1.646	CC, ES, SF
McLeod 1-29B (Exist) - Wellbore #1 - Wellbore #1	5,992.1	5,985.4	209.4	180.7	7.281	CC
McLeod 1-29B (Exist) - Wellbore #1 - Wellbore #1	6,000.0	5,993.1	209.4	180.6	7.271	ES
McLeod 1-29B (Exist) - Wellbore #1 - Wellbore #1	6,600.0	6,595.4	223.0	191.1	6.990	SF
Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W						
Wiedeman 28E-432 - Wellbore #1 - Plan #1 (7-25-14)	1,200.0	1,200.0	58.3	53.1	11.275	CC, ES
Wiedeman 28E-432 - Wellbore #1 - Plan #1 (7-25-14)	11,680.0	11,704.8	714.8	462.6	2.835	SF
Wiedeman 28F-202 - Wellbore #1 - Plan #1 (8-07-14)	1,200.0	1,200.0	32.8	27.6	6.342	CC, ES
Wiedeman 28F-202 - Wellbore #1 - Plan #1 (8-07-14)	11,680.0	11,501.8	370.8	161.5	1.771	SF
Wiedeman 28F-312 - Wellbore #1 - Plan #1 (7-25-14)	1,400.0	1,400.0	29.1	23.1	4.802	CC, ES
Wiedeman 28F-312 - Wellbore #1 - Plan #1 (7-25-14)	11,680.0	11,583.5	386.9	150.9	1.639	SF
Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W						
Wiedeman 28F-214 - Wellbore #1 - Plan #1 (8-07-14)	6,054.4	6,038.7	150.8	122.0	5.222	CC, ES
Wiedeman 28F-214 - Wellbore #1 - Plan #1 (8-07-14)	6,400.0	6,378.3	152.0	122.8	5.202	SF
Wiedeman 28F-234 - Wellbore #1 - Plan #1 (8-07-14)	566.3	567.3	307.6	305.3	132.399	CC
Wiedeman 28F-234 - Wellbore #1 - Plan #1 (8-07-14)	600.0	600.0	307.6	305.1	124.415	ES
Wiedeman 28F-234 - Wellbore #1 - Plan #1 (8-07-14)	6,500.0	6,491.2	627.2	593.7	18.708	SF
Wiedeman 28F-304 - Wellbore #1 - Plan #1 (8-07-14)	1,366.3	1,367.3	303.1	297.2	51.200	CC
Wiedeman 28F-304 - Wellbore #1 - Plan #1 (8-07-14)	1,400.0	1,400.0	303.1	297.0	49.943	ES
Wiedeman 28F-304 - Wellbore #1 - Plan #1 (8-07-14)	6,500.0	6,500.0	430.2	398.9	13.746	SF
Wiedeman 28F-314 - Wellbore #1 - Plan #1 (8-07-14)	6,054.4	6,042.2	261.1	231.4	8.784	CC, ES
Wiedeman 28F-314 - Wellbore #1 - Plan #1 (8-07-14)	6,600.0	6,567.5	268.3	236.6	8.472	SF

Offset Design	Existing Wells Sec.28-T4N-R66W - Cogburn 21-28 (Exist) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 ft
Survey Program:	100-NS-GYRO-MS											Offset Well Error:	0.0 ft
Reference	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,900.0	7,261.3	7,257.9	7,256.8	26.1	13.0	-100.56	29.5	1,353.9	915.7	877.1	38.60	23.722	
8,000.0	7,261.3	7,255.8	7,254.6	28.3	13.0	-99.36	29.4	1,353.9	816.4	775.6	40.81	20.003	
8,100.0	7,261.2	7,253.6	7,252.4	30.5	13.0	-98.15	29.4	1,354.0	717.3	674.2	43.14	16.628	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.28-T4N-R66W - Cogburn 21-28 (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		Warning							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
8,200.0	7,261.2	7,251.4	7,250.2	32.8	13.0	-96.93	29.4	1,354.0	618.5	572.9	45.54	13.580	
8,300.0	7,261.2	7,249.2	7,248.1	35.2	13.0	-95.70	29.4	1,354.1	520.1	472.1	48.01	10.832	
8,400.0	7,261.1	7,247.0	7,245.9	37.7	13.0	-94.47	29.3	1,354.1	422.4	371.9	50.53	8.360	
8,500.0	7,261.1	7,244.8	7,243.7	40.2	13.0	-93.23	29.3	1,354.1	326.2	273.1	53.09	6.145	
8,600.0	7,261.1	7,242.7	7,241.5	42.7	13.0	-91.99	29.3	1,354.2	233.1	177.5	55.66	4.189	
8,700.0	7,261.0	7,240.5	7,239.3	45.3	13.0	-90.75	29.3	1,354.2	149.3	91.1	58.25	2.563	
8,800.0	7,261.0	7,238.3	7,237.1	47.9	13.0	-89.51	29.3	1,354.3	101.1	40.3	60.84	1.662	
8,810.4	7,261.0	7,238.1	7,236.9	48.1	13.0	-89.38	29.3	1,354.3	100.6	39.4	61.11	1.646 CC, ES, SF	
8,900.0	7,261.0	7,236.1	7,235.0	50.5	13.0	-88.26	29.2	1,354.3	134.7	71.3	63.43	2.123	
9,000.0	7,260.9	7,233.9	7,232.8	53.1	13.0	-87.02	29.2	1,354.4	214.6	148.6	66.00	3.251	
9,100.0	7,260.9	7,231.7	7,230.6	55.8	13.0	-85.78	29.2	1,354.4	306.5	237.9	68.56	4.470	
9,200.0	7,260.9	7,229.6	7,228.4	58.4	13.0	-84.54	29.2	1,354.5	402.3	331.2	71.10	5.658	
9,300.0	7,260.8	7,227.4	7,226.2	61.1	13.0	-83.31	29.1	1,354.5	499.7	426.1	73.61	6.789	
9,400.0	7,260.8	7,225.2	7,224.0	63.8	13.0	-82.08	29.1	1,354.6	598.0	521.9	76.09	7.859	
9,500.0	7,260.8	7,223.0	7,221.9	66.5	13.0	-80.86	29.1	1,354.6	696.7	618.2	78.54	8.872	
9,600.0	7,260.7	7,220.8	7,219.7	69.2	13.0	-79.65	29.1	1,354.7	795.8	714.9	80.94	9.832	
9,700.0	7,260.7	7,218.6	7,217.5	71.9	13.0	-78.44	29.0	1,354.7	895.1	811.8	83.30	10.745	
9,800.0	7,260.7	7,216.5	7,215.3	74.7	12.9	-77.25	29.0	1,354.8	994.5	908.9	85.62	11.615	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.28-T4N-R66W - McLeod 1-29B (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 576-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis			Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
700.0	700.0	740.1	739.7	1.5	1.2	-78.26	203.1	-977.7	999.8	997.2	2.67	374.144		
800.0	800.0	833.3	832.8	1.7	1.5	-78.18	203.7	-973.0	995.1	992.0	3.14	316.827		
900.0	900.0	932.1	931.5	1.9	1.7	-78.02	205.5	-968.5	990.9	987.3	3.62	273.509		
1,000.0	1,000.0	1,039.7	1,038.9	2.1	2.0	-77.81	207.9	-962.8	986.3	982.1	4.13	239.011		
1,100.0	1,100.0	1,143.4	1,142.4	2.4	2.3	-77.59	210.5	-956.7	981.0	976.4	4.62	212.158		
1,200.0	1,200.0	1,246.2	1,244.9	2.6	2.5	-77.36	213.1	-950.2	975.4	970.3	5.12	190.547		
1,300.0	1,300.0	1,347.6	1,346.0	2.8	2.8	-77.05	216.9	-943.3	969.6	964.0	5.61	172.864		
1,400.0	1,400.0	1,447.1	1,445.2	3.0	3.1	-76.73	220.8	-936.4	963.7	957.6	6.09	158.120		
1,500.0	1,500.0	1,543.2	1,541.1	3.3	3.3	-76.56	222.3	-930.4	958.0	951.4	6.57	145.705		
1,600.0	1,600.0	1,635.3	1,633.1	3.5	3.6	-76.49	222.4	-925.5	952.9	945.9	7.04	135.296		
1,700.0	1,700.0	1,730.9	1,728.6	3.7	3.8	-76.47	221.8	-921.5	948.6	941.1	7.51	126.239		
1,800.0	1,800.0	1,836.1	1,833.7	3.9	4.1	-76.50	220.2	-917.2	944.3	936.3	8.00	118.035		
1,900.0	1,900.0	1,939.9	1,937.4	4.2	4.3	-76.60	217.3	-912.5	939.3	930.8	8.47	110.875		
2,000.0	2,000.0	2,036.1	2,033.4	4.4	4.5	-76.74	214.0	-908.3	934.3	925.4	8.91	104.797		
2,100.0	2,100.0	2,130.3	2,127.5	4.6	4.7	21.42	209.9	-905.0	928.2	918.9	9.27	100.176		
2,200.0	2,199.8	2,222.2	2,219.3	4.8	4.9	21.37	205.6	-902.4	919.6	910.0	9.62	95.626		
2,300.0	2,299.5	2,320.5	2,317.4	5.0	5.1	21.45	201.8	-900.1	908.3	898.3	9.98	90.980		
2,400.0	2,398.7	2,416.4	2,413.2	5.2	5.3	21.69	199.2	-897.7	893.9	883.5	10.36	86.262		
2,500.0	2,497.8	2,523.3	2,520.1	5.5	5.6	21.92	196.6	-894.8	878.1	867.3	10.82	81.127		
2,600.0	2,596.8	2,628.1	2,624.8	5.7	5.8	22.06	192.4	-891.3	861.3	850.1	11.27	76.406		
2,700.0	2,695.9	2,730.3	2,726.7	6.0	6.1	22.08	186.4	-887.7	844.0	832.3	11.71	72.080		
2,800.0	2,795.0	2,830.9	2,827.0	6.2	6.3	22.00	179.2	-884.2	826.3	814.2	12.14	68.064		
2,900.0	2,894.1	2,934.7	2,930.4	6.5	6.5	21.87	170.9	-880.5	808.5	795.9	12.58	64.254		
3,000.0	2,993.1	3,041.2	3,036.3	6.8	6.8	21.65	161.2	-875.6	789.3	776.3	13.04	60.536		
3,100.0	3,092.2	3,141.7	3,136.2	7.1	7.0	21.37	151.2	-870.7	769.7	756.3	13.49	57.064		
3,200.0	3,191.3	3,242.3	3,236.2	7.4	7.2	21.09	141.2	-865.4	749.8	735.9	13.95	53.762		
3,300.0	3,290.3	3,348.0	3,341.2	7.7	7.5	20.82	131.0	-859.2	729.4	714.9	14.43	50.554		
3,400.0	3,389.4	3,463.5	3,455.7	8.0	7.8	20.46	119.0	-850.3	707.1	692.1	14.94	47.325		
3,500.0	3,488.5	3,564.0	3,555.2	8.3	8.1	20.08	107.8	-841.1	683.3	667.8	15.42	44.298		
3,600.0	3,587.6	3,657.4	3,647.5	8.6	8.3	19.69	97.1	-832.7	659.5	643.6	15.89	41.503		
3,700.0	3,686.6	3,744.6	3,733.7	8.9	8.5	19.15	85.8	-826.1	636.9	620.6	16.33	38.992		
3,800.0	3,785.7	3,852.2	3,839.7	9.2	8.8	18.13	68.7	-818.3	614.1	597.3	16.82	36.511		
3,900.0	3,884.8	3,948.1	3,933.9	9.5	9.1	17.04	52.3	-810.8	590.8	573.5	17.28	34.187		
4,000.0	3,983.9	4,037.9	4,022.3	9.8	9.3	16.07	38.2	-804.3	568.5	550.7	17.73	32.060		
4,100.0	4,082.9	4,136.7	4,119.9	10.1	9.5	15.06	24.1	-797.6	546.9	528.7	18.21	30.035		
4,200.0	4,182.0	4,239.0	4,220.8	10.5	9.8	13.88	9.0	-789.7	524.6	505.9	18.70	28.058		
4,300.0	4,281.1	4,332.0	4,312.6	10.8	10.1	12.78	-4.2	-782.4	502.4	483.2	19.16	26.213		
4,400.0	4,380.1	4,431.3	4,410.7	11.1	10.3	11.69	-16.7	-774.7	480.6	461.0	19.65	24.457		
4,500.0	4,479.2	4,529.0	4,507.3	11.4	10.6	10.47	-29.3	-766.9	458.8	438.7	20.14	22.783		
4,600.0	4,578.3	4,625.2	4,602.3	11.8	10.9	9.06	-42.5	-759.4	437.3	416.7	20.62	21.207		
4,700.0	4,677.4	4,725.3	4,701.1	12.1	11.2	7.36	-56.7	-751.3	415.9	394.7	21.12	19.693		
4,800.0	4,776.4	4,828.1	4,802.3	12.4	11.4	5.39	-71.5	-741.6	393.5	371.9	21.63	18.193		
4,900.0	4,875.5	4,925.3	4,897.9	12.7	11.7	3.18	-86.2	-731.6	370.8	348.6	22.13	16.751		
5,000.0	4,974.6	5,019.4	4,990.3	13.1	12.0	0.67	-101.1	-722.1	348.9	326.3	22.64	15.411		
5,100.0	5,073.6	5,114.7	5,084.2	13.4	12.3	-1.96	-114.9	-713.4	328.5	305.3	23.16	14.181		
5,200.0	5,172.7	5,212.6	5,180.6	13.7	12.5	-4.97	-128.9	-704.1	308.6	284.9	23.71	13.015		
5,300.0	5,271.8	5,309.1	5,275.6	14.1	12.8	-8.45	-143.3	-694.8	289.5	265.2	24.28	11.922		
5,400.0	5,370.9	5,405.3	5,370.3	14.4	13.1	-12.25	-157.1	-685.7	271.7	246.8	24.89	10.917		
5,500.0	5,469.9	5,501.3	5,465.0	14.7	13.4	-16.46	-170.7	-676.8	255.4	229.9	25.53	10.005		
5,600.0	5,569.0	5,599.3	5,561.9	15.1	13.7	-20.92	-183.2	-668.6	240.7	214.5	26.21	9.183		
5,700.0	5,668.1	5,699.8	5,661.6	15.4	13.9	-25.09	-192.7	-660.9	227.0	200.0	26.95	8.422		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.28-T4N-R66W - McLeod 1-29B (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 576-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,800.0	5,767.7	5,796.8	5,758.1	15.6	14.2	-28.63	-199.7	-654.0	216.5	188.8	27.63	7.835		
5,900.0	5,867.4	5,894.6	5,855.5	15.8	14.5	-31.66	-206.3	-648.9	211.1	182.9	28.25	7.473		
5,992.1	5,959.5	5,985.4	5,946.1	15.9	14.7	-33.92	-211.9	-644.9	209.4	180.7	28.76	7.281 CC		
6,000.0	5,967.4	5,993.1	5,953.8	16.0	14.7	-34.09	-212.4	-644.5	209.4	180.6	28.80	7.271 ES		
6,100.0	6,067.4	6,091.4	6,051.8	16.1	15.0	-134.46	-219.1	-640.6	211.0	181.4	29.58	7.134		
6,200.0	6,167.4	6,191.9	6,151.9	16.3	15.3	-136.69	-226.5	-636.2	213.3	183.3	29.93	7.125		
6,300.0	6,267.4	6,293.0	6,252.6	16.5	15.5	-138.96	-233.6	-631.3	215.2	184.9	30.29	7.106		
6,400.0	6,367.4	6,392.0	6,351.3	16.6	15.8	-141.04	-240.2	-626.6	217.2	186.6	30.65	7.089		
6,500.0	6,467.4	6,492.5	6,451.5	16.8	16.1	-142.72	-246.0	-623.0	219.6	188.6	31.03	7.077		
6,600.0	6,567.3	6,595.4	6,554.3	17.0	16.3	126.66	-249.8	-620.4	223.0	191.1	31.90	6.990 SF		
6,700.0	6,666.0	6,693.9	6,652.8	17.0	16.6	128.34	-252.4	-618.5	233.5	201.6	31.92	7.317		
6,800.0	6,761.8	6,790.8	6,749.6	17.0	16.8	131.71	-254.5	-617.3	253.0	221.4	31.57	8.014		
6,900.0	6,853.1	6,882.9	6,841.8	16.9	17.1	135.73	-255.9	-616.3	282.7	251.9	30.83	9.170		
7,000.0	6,938.3	6,969.1	6,927.9	16.9	17.3	139.42	-257.2	-615.2	323.9	294.2	29.74	10.891		
7,100.0	7,016.0	7,048.3	7,007.1	16.9	17.5	142.27	-258.3	-614.2	376.8	348.4	28.41	13.262		
7,200.0	7,084.8	7,118.5	7,077.3	17.1	17.7	143.97	-258.8	-613.4	440.7	413.6	27.04	16.298		
7,300.0	7,143.5	7,178.0	7,136.8	17.6	17.8	144.10	-258.9	-612.8	514.5	488.5	25.96	19.815		
7,400.0	7,191.2	7,226.0	7,184.7	18.3	17.9	142.11	-259.0	-612.3	596.7	571.0	25.74	23.180		
7,500.0	7,227.0	7,262.1	7,220.9	19.4	18.0	136.83	-259.2	-612.0	685.6	658.4	27.27	25.145		
7,600.0	7,250.3	7,285.9	7,244.7	20.7	18.1	125.37	-259.2	-611.8	779.4	747.5	31.82	24.491		
7,700.0	7,260.8	7,297.0	7,255.8	22.3	18.1	101.90	-259.3	-611.7	876.1	837.0	39.04	22.441		
7,800.0	7,261.4	7,298.3	7,257.1	24.2	18.1	91.96	-259.3	-611.7	974.0	932.2	41.78	23.311		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design		Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28E-432 - Wellbore #1 - Plan #1 (7-										Offset Site Error:		0.0 ft			
Survey Program: 0-MWD														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance										
Measured Depth	Vertical 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)						
0.0	0.0	0.0	0.0	0.0	0.0	0.00	58.3	0.0	58.3								
100.0	100.0	100.0	100.0	0.1	0.1	0.00	58.3	0.0	58.3	58.1	0.22	259.331					
200.0	200.0	200.0	200.0	0.3	0.3	0.00	58.3	0.0	58.3	57.6	0.67	86.444					
300.0	300.0	300.0	300.0	0.6	0.6	0.00	58.3	0.0	58.3	57.2	1.12	51.866					
400.0	400.0	400.0	400.0	0.8	0.8	0.00	58.3	0.0	58.3	56.7	1.57	37.047					
500.0	500.0	500.0	500.0	1.0	1.0	0.00	58.3	0.0	58.3	56.3	2.02	28.815					
600.0	600.0	600.0	600.0	1.2	1.2	0.00	58.3	0.0	58.3	55.8	2.47	23.576					
700.0	700.0	700.0	700.0	1.5	1.5	0.00	58.3	0.0	58.3	55.4	2.92	19.949					
800.0	800.0	800.0	800.0	1.7	1.7	0.00	58.3	0.0	58.3	54.9	3.37	17.289					
900.0	900.0	900.0	900.0	1.9	1.9	0.00	58.3	0.0	58.3	54.5	3.82	15.255					
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	58.3	0.0	58.3	54.0	4.27	13.649					
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	0.00	58.3	0.0	58.3	53.6	4.72	12.349					
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.00	58.3	0.0	58.3	53.1	5.17	11.275 CC, ES					
1,300.0	1,300.0	1,298.4	1,298.4	2.8	2.8	-1.04	59.6	-1.1	59.6	54.0	5.61	10.623					
1,400.0	1,400.0	1,396.6	1,396.5	3.0	3.0	-3.90	63.5	-4.3	63.7	57.7	6.05	10.526					
1,500.0	1,500.0	1,494.4	1,493.8	3.3	3.2	-7.90	69.9	-9.7	70.8	64.3	6.50	10.901					
1,600.0	1,600.0	1,591.4	1,590.2	3.5	3.5	-12.28	78.8	-17.1	81.2	74.2	6.95	11.686					
1,700.0	1,700.0	1,688.2	1,685.8	3.7	3.7	-16.45	90.0	-26.6	95.0	87.5	7.42	12.803					
1,800.0	1,800.0	1,786.8	1,783.2	3.9	4.0	-19.82	102.3	-36.9	110.1	102.2	7.91	13.919					
1,900.0	1,900.0	1,885.5	1,880.5	4.2	4.3	-22.37	114.7	-47.2	125.5	117.1	8.42	14.911					
2,000.0	2,000.0	1,984.2	1,977.9	4.4	4.6	-24.36	127.0	-57.5	141.1	132.2	8.94	15.787					
2,100.0	2,100.0	2,083.0	2,075.4	4.6	4.9	72.64	139.3	-67.8	156.3	147.1	9.22	16.961					
2,200.0	2,199.8	2,181.9	2,173.0	4.8	5.3	72.69	151.6	-78.1	170.5	160.9	9.65	17.664					
2,300.0	2,299.5	2,281.0	2,270.7	5.0	5.6	73.75	164.0	-88.5	183.8	173.7	10.11	18.178					
2,400.0	2,398.7	2,379.9	2,368.4	5.2	5.9	75.66	176.3	-98.8	196.2	185.6	10.59	18.528					
2,500.0	2,497.8	2,478.8	2,466.0	5.5	6.3	77.91	188.6	-109.1	208.6	197.5	11.10	18.797					
2,600.0	2,596.8	2,577.8	2,563.6	5.7	6.6	79.91	201.0	-119.5	221.3	209.7	11.62	19.039					
2,700.0	2,695.9	2,676.7	2,661.2	6.0	7.0	81.70	213.3	-129.8	234.2	222.0	12.16	19.256					
2,800.0	2,795.0	2,775.6	2,758.8	6.2	7.3	83.29	225.6	-140.1	247.3	234.6	12.72	19.449					
2,900.0	2,894.1	2,874.5	2,856.4	6.5	7.7	84.73	238.0	-150.4	260.6	247.3	13.28	19.622					
3,000.0	2,993.1	2,973.4	2,954.0	6.8	8.0	86.02	250.3	-160.8	274.0	260.1	13.85	19.776					
3,100.0	3,092.2	3,072.3	3,051.6	7.1	8.4	87.20	262.6	-171.1	287.5	273.1	14.44	19.915					
3,200.0	3,191.3	3,171.2	3,149.2	7.4	8.7	88.27	275.0	-181.4	301.2	286.2	15.03	20.040					
3,300.0	3,290.3	3,270.2	3,246.8	7.7	9.1	89.24	287.3	-191.8	315.0	299.3	15.63	20.152					
3,400.0	3,389.4	3,369.1	3,344.3	8.0	9.4	90.14	299.6	-202.1	328.8	312.5	16.23	20.254					
3,500.0	3,488.5	3,468.0	3,441.9	8.3	9.8	90.96	312.0	-212.4	342.7	325.8	16.84	20.346					
3,600.0	3,587.6	3,566.9	3,539.5	8.6	10.2	91.72	324.3	-222.7	356.7	339.2	17.46	20.430					
3,700.0	3,686.6	3,665.8	3,637.1	8.9	10.5	92.42	336.6	-233.1	370.7	352.6	18.08	20.506					
3,800.0	3,785.7	3,764.7	3,734.7	9.2	10.9	93.07	349.0	-243.4	384.8	366.1	18.70	20.576					
3,900.0	3,884.8	3,863.6	3,832.3	9.5	11.3	93.67	361.3	-253.7	398.9	379.6	19.33	20.641					
4,000.0	3,983.9	3,962.5	3,929.9	9.8	11.6	94.24	373.6	-264.0	413.0	393.1	19.95	20.700					
4,100.0	4,082.9	4,061.5	4,027.5	10.1	12.0	94.76	386.0	-274.4	427.2	406.7	20.59	20.755					
4,200.0	4,182.0	4,160.4	4,125.1	10.5	12.4	95.25	398.3	-284.7	441.5	420.3	21.22	20.805					
4,300.0	4,281.1	4,259.3	4,222.7	10.8	12.7	95.71	410.6	-295.0	455.7	433.9	21.86	20.852					
4,400.0	4,380.1	4,358.2	4,320.3	11.1	13.1	96.15	423.0	-305.3	470.0	447.5	22.49	20.896					
4,500.0	4,479.2	4,457.1	4,417.9	11.4	13.5	96.55	435.3	-315.7	484.3	461.2	23.13	20.937					
4,600.0	4,578.3	4,556.0	4,515.5	11.8	13.8	96.94	447.6	-326.0	498.7	474.9	23.77	20.975					
4,700.0	4,677.4	4,654.9	4,613.1	12.1	14.2	97.30	460.0	-336.3	513.0	488.6	24.42	21.010					
4,800.0	4,776.4	4,753.9	4,710.7	12.4	14.6	97.64	472.3	-346.7	527.4	502.3	25.06	21.044					
4,900.0	4,875.5	4,852.8	4,808.3	12.7	14.9	97.97	484.6	-357.0	541.8	516.1	25.71	21.075					
5,000.0	4,974.6	4,951.7	4,905.9	13.1	15.3	98.28	497.0	-367.3	556.2	529.9	26.35	21.105					

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design				Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28E-432 - Wellbore #1 - Plan #1 (7-							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	5,073.6	5,050.6	5,003.5	13.4	15.7	98.57	509.3	-377.6	570.6	543.6	27.00	21.133					
5,200.0	5,172.7	5,149.5	5,101.1	13.7	16.0	98.85	521.6	-388.0	585.1	557.4	27.65	21.159					
5,300.0	5,271.8	5,248.4	5,198.7	14.1	16.4	99.11	534.0	-398.3	599.5	571.2	28.30	21.184					
5,400.0	5,370.9	5,347.3	5,296.3	14.4	16.8	99.36	546.3	-408.6	614.0	585.0	28.95	21.207					
5,500.0	5,469.9	5,446.2	5,393.9	14.7	17.2	99.60	558.6	-418.9	628.5	598.9	29.60	21.230					
5,600.0	5,569.0	5,545.2	5,491.5	15.1	17.5	99.83	571.0	-429.3	642.9	612.7	30.25	21.251					
5,700.0	5,668.1	5,644.1	5,589.1	15.4	17.9	100.17	583.3	-439.6	657.3	626.4	30.89	21.277					
5,800.0	5,767.7	5,743.1	5,686.8	15.6	18.3	100.33	595.6	-449.9	671.2	639.7	31.45	21.340					
5,900.0	5,867.4	5,842.1	5,784.5	15.8	18.6	100.20	608.0	-460.3	684.4	652.4	31.96	21.413					
6,000.0	5,967.4	5,951.9	5,892.9	16.0	19.0	99.74	621.2	-471.3	696.7	664.3	32.41	21.500					
6,100.0	6,067.4	6,073.7	6,013.8	16.1	19.3	0.75	632.5	-480.8	705.9	675.2	30.66	23.023					
6,200.0	6,167.4	6,196.6	6,136.3	16.3	19.6	0.24	639.9	-487.0	711.9	680.7	31.15	22.857					
6,300.0	6,267.4	6,320.1	6,259.7	16.5	19.8	0.01	643.3	-489.8	714.6	683.0	31.57	22.636					
6,400.0	6,367.4	6,427.8	6,367.4	16.6	19.9	0.00	643.5	-490.0	714.8	682.8	31.94	22.377					
6,500.0	6,467.4	6,527.8	6,467.4	16.8	20.1	0.00	643.5	-490.0	714.8	682.5	32.32	22.119					
6,600.0	6,567.3	6,627.8	6,567.3	17.0	20.2	-90.00	643.5	-486.8	714.8	680.3	34.49	20.725					
6,700.0	6,666.0	6,727.8	6,666.0	17.0	20.2	-90.00	643.5	-471.2	714.8	680.2	34.58	20.669					
6,800.0	6,761.8	6,827.8	6,761.8	17.0	20.2	-90.00	643.5	-442.8	714.8	680.2	34.54	20.695					
6,900.0	6,853.1	6,927.8	6,853.1	16.9	20.1	-90.00	643.5	-402.2	714.8	680.4	34.42	20.764					
7,000.0	6,938.3	7,027.8	6,938.3	16.9	20.0	-90.00	643.5	-349.9	714.8	680.5	34.34	20.818					
7,100.0	7,016.0	7,127.8	7,016.0	16.9	19.8	-90.00	643.5	-287.1	714.8	680.4	34.40	20.777					
7,200.0	7,084.8	7,227.8	7,084.8	17.1	19.7	-90.00	643.5	-214.6	714.8	680.0	34.79	20.548					
7,300.0	7,143.5	7,327.8	7,143.5	17.6	19.6	-90.00	643.5	-133.7	714.8	679.1	35.64	20.055					
7,400.0	7,191.2	7,427.8	7,191.2	18.3	19.6	-90.00	643.5	-45.9	714.8	677.7	37.09	19.272					
7,500.0	7,227.0	7,527.8	7,227.0	19.4	20.0	-90.00	643.5	47.4	714.8	675.6	39.18	18.246					
7,600.0	7,250.3	7,627.8	7,250.3	20.7	21.2	-90.00	643.5	144.5	714.8	672.9	41.87	17.072					
7,700.0	7,260.8	7,727.8	7,260.8	22.3	22.7	-90.00	643.5	243.9	714.8	669.7	45.06	15.863					
7,800.0	7,261.4	7,827.8	7,261.4	24.2	24.5	-90.00	643.5	343.9	714.8	666.1	48.65	14.693					
7,900.0	7,261.3	7,927.8	7,261.3	26.1	26.5	-90.00	643.5	443.9	714.8	662.2	52.57	13.596					
8,000.0	7,261.3	8,027.8	7,261.3	28.3	28.6	-90.00	643.5	543.9	714.8	658.0	56.78	12.588					
8,100.0	7,261.2	8,127.8	7,261.2	30.5	30.9	-90.00	643.5	643.9	714.8	653.6	61.22	11.676					
8,200.0	7,261.2	8,227.8	7,261.2	32.8	33.2	-90.00	643.5	743.9	714.8	649.0	65.84	10.857					
8,300.0	7,261.2	8,327.8	7,261.2	35.2	35.5	-90.00	643.5	843.9	714.8	644.2	70.60	10.125					
8,400.0	7,261.1	8,427.8	7,261.1	37.7	38.0	-90.00	643.5	943.9	714.8	639.3	75.48	9.470					
8,500.0	7,261.1	8,527.8	7,261.1	40.2	40.5	-90.00	643.5	1,043.9	714.8	634.3	80.45	8.885					
8,600.0	7,261.1	8,627.8	7,261.1	42.7	43.0	-90.00	643.5	1,143.9	714.8	629.3	85.51	8.360					
8,700.0	7,261.0	8,727.8	7,261.0	45.3	45.5	-90.00	643.5	1,243.9	714.8	624.2	90.63	7.887					
8,800.0	7,261.0	8,827.8	7,261.0	47.9	48.1	-90.00	643.5	1,343.9	714.8	619.0	95.80	7.461					
8,900.0	7,261.0	8,927.8	7,261.0	50.5	50.7	-90.00	643.5	1,443.9	714.8	613.8	101.02	7.075					
9,000.0	7,260.9	9,027.8	7,260.9	53.1	53.3	-90.00	643.5	1,543.9	714.8	608.5	106.29	6.725					
9,100.0	7,260.9	9,127.8	7,260.9	55.8	56.0	-90.00	643.5	1,643.9	714.8	603.2	111.58	6.406					
9,200.0	7,260.9	9,227.8	7,260.9	58.4	58.6	-90.00	643.5	1,743.9	714.8	597.9	116.91	6.114					
9,300.0	7,260.8	9,327.8	7,260.8	61.1	61.3	-90.00	643.5	1,843.9	714.8	592.5	122.26	5.846					
9,400.0	7,260.8	9,427.8	7,260.8	63.8	64.0	-90.00	643.5	1,943.9	714.8	587.1	127.64	5.600					
9,500.0	7,260.8	9,527.8	7,260.8	66.5	66.7	-90.00	643.5	2,043.9	714.8	581.8	133.03	5.373					
9,600.0	7,260.7	9,627.8	7,260.7	69.2	69.4	-90.00	643.5	2,143.9	714.8	576.3	138.45	5.163					
9,700.0	7,260.7	9,727.8	7,260.7	71.9	72.1	-90.00	643.5	2,243.9	714.8	570.9	143.87	4.968					
9,800.0	7,260.7	9,827.8	7,260.7	74.7	74.8	-90.00	643.5	2,343.9	714.8	565.5	149.32	4.787					
9,900.0	7,260.6	9,927.8	7,260.6	77.4	77.5	-90.00	643.5	2,443.9	714.8	560.0	154.77	4.618					
10,000.0	7,260.6	10,027.8	7,260.6	80.1	80.2	-90.00	643.5	2,543.9	714.8	554.6	160.24	4.461					

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28E-432 - Wellbore #1 - Plan #1 (7-													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,100.0	7,260.6	10,127.8	7,260.6	82.9	83.0	-90.00	643.5	2,643.9	714.8	549.1	165.71	4.313		
10,200.0	7,260.5	10,227.8	7,260.5	85.6	85.7	-90.00	643.5	2,743.9	714.8	543.6	171.19	4.175		
10,300.0	7,260.5	10,327.8	7,260.5	88.3	88.5	-90.00	643.5	2,843.9	714.8	538.1	176.69	4.046		
10,400.0	7,260.4	10,427.8	7,260.4	91.1	91.2	-90.00	643.5	2,943.9	714.8	532.6	182.19	3.923		
10,500.0	7,260.4	10,527.8	7,260.4	93.9	94.0	-90.00	643.5	3,043.9	714.8	527.1	187.69	3.808		
10,600.0	7,260.4	10,627.8	7,260.4	96.6	96.7	-90.00	643.5	3,143.9	714.8	521.6	193.21	3.700		
10,700.0	7,260.3	10,727.8	7,260.3	99.4	99.5	-90.00	643.5	3,243.9	714.8	516.1	198.73	3.597		
10,800.0	7,260.3	10,827.8	7,260.3	102.1	102.2	-90.00	643.5	3,343.9	714.8	510.5	204.25	3.500		
10,900.0	7,260.3	10,927.8	7,260.3	104.9	105.0	-90.00	643.5	3,443.9	714.8	505.0	209.78	3.407		
11,000.0	7,260.2	11,027.8	7,260.2	107.7	107.7	-90.00	643.5	3,543.9	714.8	499.5	215.31	3.320		
11,100.0	7,260.2	11,127.8	7,260.2	110.4	110.5	-90.00	643.5	3,643.9	714.8	493.9	220.85	3.237		
11,200.0	7,260.2	11,227.8	7,260.2	113.2	113.3	-90.00	643.5	3,743.9	714.8	488.4	226.39	3.157		
11,300.0	7,260.1	11,327.8	7,260.1	116.0	116.0	-90.00	643.5	3,843.9	714.8	482.9	231.93	3.082		
11,400.0	7,260.1	11,427.8	7,260.1	118.8	118.8	-90.00	643.5	3,943.9	714.8	477.3	237.48	3.010		
11,500.0	7,260.1	11,527.8	7,260.1	121.5	121.6	-90.00	643.5	4,043.9	714.8	471.8	243.03	2.941		
11,600.0	7,260.0	11,627.8	7,260.0	124.3	124.4	-90.00	643.5	4,143.9	714.8	466.2	248.59	2.875		
11,646.7	7,260.0	11,674.5	7,260.0	125.1	125.7	-90.00	643.5	4,190.7	714.8	464.1	250.72	2.851		
11,680.0	7,260.0	11,704.8	7,260.0	125.7	126.5	-90.00	643.5	4,221.0	714.8	462.6	252.15	2.835 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design		Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28F-202 - Wellbore #1 - Plan #1 (8-										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	180.00	-32.8	0.0	32.8					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-32.8	0.0	32.8	32.6	0.22	145.874		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-32.8	0.0	32.8	32.1	0.67	48.625		
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-32.8	0.0	32.8	31.7	1.12	29.175		
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-32.8	0.0	32.8	31.2	1.57	20.839		
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-32.8	0.0	32.8	30.8	2.02	16.208		
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-32.8	0.0	32.8	30.3	2.47	13.261		
700.0	700.0	700.0	700.0	1.5	1.5	180.00	-32.8	0.0	32.8	29.9	2.92	11.221		
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-32.8	0.0	32.8	29.4	3.37	9.725		
900.0	900.0	900.0	900.0	1.9	1.9	180.00	-32.8	0.0	32.8	29.0	3.82	8.581		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	180.00	-32.8	0.0	32.8	28.5	4.27	7.678		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	180.00	-32.8	0.0	32.8	28.1	4.72	6.946		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	180.00	-32.8	0.0	32.8	27.6	5.17	6.342 CC, ES		
1,300.0	1,300.0	1,299.3	1,299.3	2.8	2.8	-177.61	-33.8	-1.4	33.8	28.2	5.60	6.043		
1,400.0	1,400.0	1,398.4	1,398.2	3.0	3.0	-171.28	-36.7	-5.6	37.2	31.2	6.00	6.193		
1,500.0	1,500.0	1,497.0	1,496.4	3.3	3.2	-163.13	-41.6	-12.6	43.6	37.2	6.43	6.786		
1,600.0	1,600.0	1,595.2	1,594.0	3.5	3.4	-155.23	-48.4	-22.3	53.6	46.7	6.87	7.808		
1,700.0	1,700.0	1,693.9	1,691.7	3.7	3.6	-149.21	-56.1	-33.4	65.9	58.5	7.33	8.985		
1,800.0	1,800.0	1,793.0	1,789.8	3.9	3.9	-145.09	-63.9	-44.6	78.6	70.8	7.82	10.060		
1,900.0	1,900.0	1,892.0	1,887.9	4.2	4.2	-142.13	-71.7	-55.8	91.7	83.4	8.31	11.027		
2,000.0	2,000.0	1,991.1	1,986.1	4.4	4.4	-139.91	-79.5	-67.0	104.9	96.1	8.82	11.891		
2,100.0	2,100.0	2,090.3	2,084.4	4.6	4.7	-40.30	-87.3	-78.1	116.9	107.9	9.01	12.975		
2,200.0	2,199.8	2,189.9	2,183.0	4.8	5.0	-40.23	-95.2	-89.4	126.3	116.9	9.42	13.403		
2,300.0	2,299.5	2,289.6	2,281.8	5.0	5.3	-41.17	-103.0	-100.6	133.1	123.2	9.85	13.514		
2,400.0	2,398.7	2,389.4	2,380.6	5.2	5.7	-43.01	-110.9	-111.9	137.3	127.0	10.29	13.348		
2,500.0	2,497.8	2,489.2	2,479.5	5.5	6.0	-45.20	-118.7	-123.1	140.7	129.9	10.76	13.074		
2,600.0	2,596.8	2,589.0	2,578.3	5.7	6.3	-47.29	-126.6	-134.4	144.3	133.0	11.25	12.822		
2,700.0	2,695.9	2,688.8	2,677.2	6.0	6.6	-49.27	-134.5	-145.6	148.0	136.3	11.76	12.589		
2,800.0	2,795.0	2,788.6	2,776.0	6.2	6.9	-51.16	-142.3	-156.9	151.9	139.7	12.28	12.374		
2,900.0	2,894.1	2,888.4	2,874.9	6.5	7.3	-52.94	-150.2	-168.1	156.0	143.2	12.81	12.176		
3,000.0	2,993.1	2,988.2	2,973.7	6.8	7.6	-54.64	-158.0	-179.4	160.2	146.9	13.36	11.992		
3,100.0	3,092.2	3,088.0	3,072.6	7.1	7.9	-56.24	-165.9	-190.6	164.6	150.7	13.92	11.821		
3,200.0	3,191.3	3,187.8	3,171.4	7.4	8.3	-57.77	-173.7	-201.9	169.1	154.6	14.50	11.663		
3,300.0	3,290.3	3,287.6	3,270.3	7.7	8.6	-59.21	-181.6	-213.2	173.6	158.6	15.08	11.516		
3,400.0	3,389.4	3,387.4	3,369.1	8.0	8.9	-60.58	-189.5	-224.4	178.3	162.7	15.67	11.380		
3,500.0	3,488.5	3,487.2	3,468.0	8.3	9.3	-61.87	-197.3	-235.7	183.1	166.9	16.27	11.253		
3,600.0	3,587.6	3,587.0	3,566.9	8.6	9.6	-63.11	-205.2	-246.9	188.0	171.1	16.88	11.136		
3,700.0	3,686.6	3,686.8	3,665.7	8.9	9.9	-64.27	-213.0	-258.2	193.0	175.5	17.50	11.027		
3,800.0	3,785.7	3,786.6	3,764.6	9.2	10.3	-65.38	-220.9	-269.4	198.0	179.9	18.12	10.925		
3,900.0	3,884.8	3,886.4	3,863.4	9.5	10.6	-66.44	-228.7	-280.7	203.1	184.4	18.75	10.831		
4,000.0	3,983.9	3,986.2	3,962.3	9.8	10.9	-67.44	-236.6	-291.9	208.3	188.9	19.39	10.743		
4,100.0	4,082.9	4,086.0	4,061.1	10.1	11.3	-68.39	-244.4	-303.2	213.5	193.5	20.03	10.661		
4,200.0	4,182.0	4,185.8	4,160.0	10.5	11.6	-69.30	-252.3	-314.4	218.8	198.1	20.67	10.584		
4,300.0	4,281.1	4,285.6	4,258.8	10.8	12.0	-70.16	-260.2	-325.7	224.2	202.8	21.32	10.513		
4,400.0	4,380.1	4,385.4	4,357.7	11.1	12.3	-70.99	-268.0	-336.9	229.5	207.6	21.97	10.446		
4,500.0	4,479.2	4,485.2	4,456.5	11.4	12.7	-71.77	-275.9	-348.2	235.0	212.4	22.63	10.384		
4,600.0	4,578.3	4,585.0	4,555.4	11.8	13.0	-72.52	-283.7	-359.5	240.5	217.2	23.29	10.326		
4,700.0	4,677.4	4,684.8	4,654.2	12.1	13.3	-73.24	-291.6	-370.7	246.0	222.0	23.95	10.272		
4,800.0	4,776.4	4,784.6	4,753.1	12.4	13.7	-73.93	-299.4	-382.0	251.5	226.9	24.61	10.221		
4,900.0	4,875.5	4,884.4	4,851.9	12.7	14.0	-74.58	-307.3	-393.2	257.1	231.8	25.27	10.173		
5,000.0	4,974.6	4,984.2	4,950.8	13.1	14.4	-75.21	-315.2	-404.5	262.7	236.8	25.94	10.128		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design				Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28F-202 - Wellbore #1 - Plan #1 (8-							Offset Site Error:		0.0 ft				
Survey Program: 0-MWD														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning				
5,100.0	5,073.6	5,084.0	5,049.6	13.4	14.7	-75.81	-323.0	-415.7	268.4	241.8	26.61	10.086					
5,200.0	5,172.7	5,183.9	5,148.5	13.7	15.1	-76.39	-330.9	-427.0	274.1	246.8	27.28	10.047					
5,300.0	5,271.8	5,283.7	5,247.4	14.1	15.4	-76.94	-338.7	-438.2	279.8	251.8	27.95	10.009					
5,400.0	5,370.9	5,383.5	5,346.2	14.4	15.8	-77.47	-346.6	-449.5	285.5	256.9	28.62	9.974					
5,500.0	5,469.9	5,483.3	5,445.1	14.7	16.1	-77.98	-354.4	-460.7	291.3	262.0	29.30	9.941					
5,600.0	5,569.0	5,585.7	5,546.5	15.1	16.4	-78.53	-362.3	-472.1	296.9	266.9	29.97	9.906					
5,700.0	5,668.1	5,692.2	5,652.5	15.4	16.7	-79.48	-368.7	-481.2	300.8	270.2	30.59	9.835					
5,800.0	5,767.7	5,798.8	5,758.8	15.6	16.9	-80.39	-372.9	-487.1	303.1	272.0	31.09	9.751					
5,900.0	5,867.4	5,905.3	5,865.3	15.8	17.1	-81.17	-374.7	-489.8	303.9	272.4	31.52	9.641					
6,000.0	5,967.4	6,007.4	5,967.4	16.0	17.2	-81.69	-374.9	-490.0	303.6	271.7	31.90	9.518					
6,054.4	6,021.8	6,061.8	6,021.8	16.0	17.3	-81.77	-374.9	-490.0	303.5	271.4	32.08	9.462					
6,100.0	6,067.4	6,107.4	6,067.4	16.1	17.4	-180.00	-374.9	-490.0	303.6	275.1	28.43	10.677					
6,200.0	6,167.4	6,207.4	6,167.4	16.3	17.5	-180.00	-374.9	-490.0	303.6	274.8	28.80	10.539					
6,300.0	6,267.4	6,307.4	6,267.4	16.5	17.7	-180.00	-374.9	-490.0	303.6	274.4	29.18	10.404					
6,348.8	6,316.2	6,356.2	6,316.2	16.6	17.7	180.00	-374.9	-490.0	303.6	274.2	29.36	10.339					
6,400.0	6,367.4	6,407.3	6,367.3	16.6	17.8	179.64	-374.9	-488.1	303.6	274.1	29.52	10.283					
6,500.0	6,467.4	6,505.4	6,464.4	16.8	17.8	177.16	-374.9	-474.9	304.0	274.3	29.68	10.240					
6,600.0	6,567.3	6,600.0	6,555.7	17.0	17.8	83.02	-374.9	-450.5	305.9	272.0	33.99	9.002					
6,700.0	6,666.0	6,691.1	6,640.2	17.0	17.7	79.01	-374.9	-416.6	309.5	275.4	34.11	9.074					
6,800.0	6,761.8	6,780.5	6,718.6	17.0	17.7	75.27	-374.9	-373.7	314.3	280.3	34.03	9.238					
6,900.0	6,853.1	6,868.1	6,790.0	16.9	17.6	71.88	-374.9	-323.1	320.0	286.2	33.78	9.471					
7,000.0	6,938.3	6,954.1	6,854.0	16.9	17.5	68.86	-374.9	-265.8	326.1	292.6	33.46	9.746					
7,100.0	7,016.0	7,038.7	6,910.4	16.9	17.5	66.24	-374.9	-202.7	332.3	299.1	33.17	10.018					
7,200.0	7,084.8	7,122.1	6,958.8	17.1	17.6	64.03	-374.9	-134.8	338.2	305.2	33.05	10.232					
7,300.0	7,143.5	7,204.7	6,999.1	17.6	17.9	62.21	-374.9	-62.8	343.6	310.3	33.26	10.329					
7,400.0	7,191.2	7,286.5	7,031.2	18.3	18.5	60.79	-374.9	12.4	348.1	314.1	33.95	10.254					
7,500.0	7,227.0	7,367.7	7,054.9	19.4	19.5	59.75	-374.9	90.1	351.6	316.4	35.19	9.991					
7,600.0	7,250.3	7,450.0	7,070.3	20.7	20.6	59.08	-374.9	170.8	353.9	316.9	37.04	9.556					
7,700.0	7,260.8	7,529.2	7,076.9	22.3	21.9	58.79	-374.9	249.7	354.9	315.5	39.42	9.005					
7,800.0	7,261.4	7,622.0	7,076.8	24.2	23.6	58.71	-374.9	342.5	355.3	312.8	42.41	8.376					
7,900.0	7,261.3	7,722.0	7,076.1	26.1	25.6	58.61	-374.9	442.5	355.6	309.8	45.79	7.767					
8,000.0	7,261.3	7,822.0	7,075.3	28.3	27.8	58.50	-374.9	542.5	356.0	306.6	49.40	7.207					
8,100.0	7,261.2	7,922.0	7,074.5	30.5	30.0	58.40	-374.9	642.5	356.4	303.2	53.19	6.701					
8,200.0	7,261.2	8,022.0	7,073.8	32.8	32.4	58.30	-374.9	742.5	356.8	299.7	57.13	6.246					
8,300.0	7,261.2	8,122.0	7,073.0	35.2	34.8	58.20	-374.9	842.5	357.2	296.0	61.18	5.838					
8,400.0	7,261.1	8,222.0	7,072.2	37.7	37.2	58.10	-374.9	942.5	357.6	292.2	65.32	5.474					
8,500.0	7,261.1	8,322.0	7,071.5	40.2	39.7	58.00	-374.9	1,042.5	357.9	288.4	69.53	5.148					
8,600.0	7,261.1	8,421.9	7,070.7	42.7	42.3	57.90	-374.9	1,142.4	358.3	284.5	73.81	4.855					
8,700.0	7,261.0	8,521.9	7,069.9	45.3	44.9	57.81	-374.9	1,242.4	358.7	280.6	78.13	4.592					
8,800.0	7,261.0	8,621.9	7,069.2	47.9	47.5	57.71	-374.9	1,342.4	359.1	276.6	82.48	4.354					
8,900.0	7,261.0	8,721.9	7,068.4	50.5	50.1	57.61	-374.9	1,442.4	359.5	272.6	86.87	4.138					
9,000.0	7,260.9	8,821.9	7,067.6	53.1	52.7	57.51	-374.9	1,542.4	359.9	268.6	91.29	3.942					
9,100.0	7,260.9	8,921.9	7,066.8	55.8	55.4	57.41	-374.9	1,642.4	360.3	264.6	95.72	3.764					
9,200.0	7,260.9	9,021.9	7,066.1	58.4	58.1	57.31	-374.9	1,742.4	360.7	260.5	100.17	3.601					
9,300.0	7,260.8	9,121.9	7,065.3	61.1	60.8	57.22	-374.9	1,842.4	361.1	256.5	104.63	3.451					
9,400.0	7,260.8	9,221.9	7,064.5	63.8	63.5	57.12	-374.9	1,942.4	361.5	252.4	109.10	3.313					
9,500.0	7,260.8	9,321.9	7,063.8	66.5	66.2	57.02	-374.9	2,042.4	361.9	248.3	113.58	3.186					
9,600.0	7,260.7	9,421.9	7,063.0	69.2	68.9	56.92	-374.9	2,142.4	362.3	244.2	118.07	3.068					
9,700.0	7,260.7	9,521.9	7,062.2	71.9	71.6	56.83	-374.9	2,242.4	362.7	240.1	122.56	2.959					
9,800.0	7,260.7	9,621.9	7,061.5	74.7	74.3	56.73	-374.9	2,342.4	363.1	236.0	127.05	2.858					

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28F-202 - Wellbore #1 - Plan #1 (8-														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			
9,900.0	7,260.6	9,721.9	7,060.7	77.4	77.0	56.63	-374.9	2,442.4	363.5	231.9	131.54	2.763			
10,000.0	7,260.6	9,821.9	7,059.9	80.1	79.8	56.54	-374.9	2,542.4	363.9	227.9	136.03	2.675			
10,100.0	7,260.6	9,921.9	7,059.2	82.9	82.5	56.44	-374.9	2,642.4	364.3	223.8	140.52	2.592			
10,200.0	7,260.5	10,021.9	7,058.4	85.6	85.3	56.34	-374.9	2,742.4	364.7	219.7	145.01	2.515			
10,300.0	7,260.5	10,121.9	7,057.6	88.3	88.0	56.25	-374.9	2,842.4	365.1	215.6	149.50	2.442			
10,400.0	7,260.4	10,221.9	7,056.9	91.1	90.8	56.15	-374.9	2,942.3	365.5	211.5	153.98	2.374			
10,500.0	7,260.4	10,321.9	7,056.1	93.9	93.5	56.06	-374.9	3,042.3	365.9	207.5	158.46	2.309			
10,600.0	7,260.4	10,421.9	7,055.3	96.6	96.3	55.96	-374.9	3,142.3	366.3	203.4	162.93	2.248			
10,700.0	7,260.3	10,521.9	7,054.6	99.4	99.1	55.87	-374.9	3,242.3	366.7	199.3	167.40	2.191			
10,800.0	7,260.3	10,621.9	7,053.8	102.1	101.8	55.77	-374.9	3,342.3	367.2	195.3	171.87	2.136			
10,900.0	7,260.3	10,721.9	7,053.0	104.9	104.6	55.68	-374.9	3,442.3	367.6	191.2	176.33	2.085			
11,000.0	7,260.2	10,821.9	7,052.3	107.7	107.4	55.58	-374.9	3,542.3	368.0	187.2	180.78	2.035			
11,100.0	7,260.2	10,921.9	7,051.5	110.4	110.1	55.49	-374.9	3,642.3	368.4	183.2	185.23	1.989			
11,200.0	7,260.2	11,021.9	7,050.7	113.2	112.9	55.40	-374.9	3,742.3	368.8	179.1	189.67	1.944			
11,300.0	7,260.1	11,121.9	7,050.0	116.0	115.7	55.30	-374.9	3,842.3	369.2	175.1	194.11	1.902			
11,400.0	7,260.1	11,221.9	7,049.2	118.8	118.4	55.21	-374.9	3,942.3	369.6	171.1	198.54	1.862			
11,500.0	7,260.1	11,321.9	7,048.4	121.5	121.2	55.12	-374.9	4,042.3	370.1	167.1	202.96	1.823			
11,600.0	7,260.0	11,421.9	7,047.6	124.3	123.8	55.02	-374.9	4,142.3	370.5	163.3	207.19	1.788			
11,680.0	7,260.0	11,501.8	7,047.0	125.7	125.2	54.95	-374.9	4,222.2	370.8	161.5	209.37	1.771 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design		Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28F-312 - Wellbore #1 - Plan #1 (7-										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical 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)			
0.0	0.0	0.0	0.0	0.0	0.0	0.00	29.1	0.0	29.1					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	29.1	0.0	29.1	28.9	0.22	129.665		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.67	43.222		
300.0	300.0	300.0	300.0	0.6	0.6	0.00	29.1	0.0	29.1	28.0	1.12	25.933		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	29.1	0.0	29.1	27.6	1.57	18.524		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	29.1	0.0	29.1	27.1	2.02	14.407		
600.0	600.0	600.0	600.0	1.2	1.2	0.00	29.1	0.0	29.1	26.7	2.47	11.788		
700.0	700.0	700.0	700.0	1.5	1.5	0.00	29.1	0.0	29.1	26.2	2.92	9.974		
800.0	800.0	800.0	800.0	1.7	1.7	0.00	29.1	0.0	29.1	25.8	3.37	8.644		
900.0	900.0	900.0	900.0	1.9	1.9	0.00	29.1	0.0	29.1	25.3	3.82	7.627		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	29.1	0.0	29.1	24.9	4.27	6.824		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	0.00	29.1	0.0	29.1	24.4	4.72	6.175		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.00	29.1	0.0	29.1	24.0	5.17	5.638		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	0.00	29.1	0.0	29.1	23.5	5.62	5.187		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	0.00	29.1	0.0	29.1	23.1	6.07	4.802 CC, ES		
1,500.0	1,500.0	1,499.5	1,499.5	3.3	3.3	-2.92	30.0	-1.5	30.0	23.5	6.51	4.608		
1,600.0	1,600.0	1,598.7	1,598.6	3.5	3.5	-10.66	32.4	-6.1	33.0	26.0	6.95	4.746		
1,700.0	1,700.0	1,697.5	1,697.0	3.7	3.7	-20.57	36.4	-13.6	39.0	31.6	7.39	5.274		
1,800.0	1,800.0	1,795.9	1,794.6	3.9	3.9	-29.89	41.9	-24.1	48.6	40.8	7.84	6.201		
1,900.0	1,900.0	1,895.0	1,893.0	4.2	4.2	-36.52	47.9	-35.5	60.0	51.7	8.30	7.230		
2,000.0	2,000.0	1,994.2	1,991.3	4.4	4.4	-41.00	53.9	-46.9	72.0	63.2	8.78	8.199		
2,100.0	2,100.0	2,093.5	2,089.7	4.6	4.7	54.88	60.0	-58.3	83.2	74.1	9.16	9.084		
2,200.0	2,199.8	2,193.1	2,188.4	4.8	5.0	54.78	66.0	-69.7	92.6	83.0	9.59	9.655		
2,300.0	2,299.5	2,292.7	2,287.3	5.0	5.3	56.35	72.1	-81.2	99.9	89.9	10.02	9.967		
2,400.0	2,398.7	2,392.4	2,386.1	5.2	5.6	59.31	78.1	-92.7	105.5	95.1	10.49	10.062		
2,500.0	2,497.8	2,492.1	2,484.9	5.5	5.9	62.70	84.2	-104.1	110.8	99.8	10.99	10.082		
2,600.0	2,596.8	2,591.8	2,583.7	5.7	6.2	65.77	90.2	-115.6	116.4	104.8	11.51	10.113		
2,700.0	2,695.9	2,691.4	2,682.6	6.0	6.5	68.56	96.3	-127.0	122.2	110.2	12.04	10.153		
2,800.0	2,795.0	2,791.1	2,781.4	6.2	6.8	71.08	102.3	-138.5	128.4	115.8	12.59	10.197		
2,900.0	2,894.1	2,890.7	2,880.2	6.5	7.1	73.37	108.4	-149.9	134.8	121.6	13.16	10.244		
3,000.0	2,993.1	2,990.4	2,979.0	6.8	7.4	75.46	114.5	-161.4	141.3	127.6	13.73	10.293		
3,100.0	3,092.2	3,090.0	3,077.8	7.1	7.7	77.35	120.5	-172.9	148.1	133.8	14.32	10.342		
3,200.0	3,191.3	3,189.7	3,176.6	7.4	8.0	79.08	126.6	-184.3	155.0	140.0	14.91	10.391		
3,300.0	3,290.3	3,289.4	3,275.4	7.7	8.3	80.66	132.6	-195.8	162.0	146.5	15.52	10.440		
3,400.0	3,389.4	3,389.0	3,374.2	8.0	8.6	82.11	138.7	-207.2	169.1	153.0	16.12	10.487		
3,500.0	3,488.5	3,488.7	3,473.1	8.3	8.9	83.44	144.7	-218.7	176.3	159.6	16.74	10.534		
3,600.0	3,587.6	3,588.3	3,571.9	8.6	9.3	84.66	150.8	-230.1	183.7	166.3	17.36	10.580		
3,700.0	3,686.6	3,688.0	3,670.7	8.9	9.6	85.79	156.8	-241.6	191.0	173.1	17.98	10.624		
3,800.0	3,785.7	3,787.7	3,769.5	9.2	9.9	86.84	162.9	-253.1	198.5	179.9	18.61	10.668		
3,900.0	3,884.8	3,887.3	3,868.3	9.5	10.2	87.81	169.0	-264.5	206.0	186.8	19.24	10.709		
4,000.0	3,983.9	3,987.0	3,967.1	9.8	10.5	88.71	175.0	-276.0	213.6	193.7	19.87	10.750		
4,100.0	4,082.9	4,086.6	4,065.9	10.1	10.9	89.55	181.1	-287.4	221.2	200.7	20.50	10.789		
4,200.0	4,182.0	4,186.3	4,164.7	10.5	11.2	90.34	187.1	-298.9	228.9	207.8	21.14	10.827		
4,300.0	4,281.1	4,285.9	4,263.5	10.8	11.5	91.07	193.2	-310.3	236.6	214.8	21.78	10.864		
4,400.0	4,380.1	4,385.6	4,362.4	11.1	11.8	91.76	199.2	-321.8	244.4	221.9	22.42	10.899		
4,500.0	4,479.2	4,485.3	4,461.2	11.4	12.1	92.40	205.3	-333.3	252.1	229.1	23.06	10.933		
4,600.0	4,578.3	4,584.9	4,560.0	11.8	12.5	93.01	211.4	-344.7	259.9	236.2	23.70	10.966		
4,700.0	4,677.4	4,684.6	4,658.8	12.1	12.8	93.58	217.4	-356.2	267.8	243.4	24.35	10.998		
4,800.0	4,776.4	4,784.2	4,757.6	12.4	13.1	94.12	223.5	-367.6	275.6	250.6	24.99	11.028		
4,900.0	4,875.5	4,883.9	4,856.4	12.7	13.4	94.62	229.5	-379.1	283.5	257.9	25.64	11.058		
5,000.0	4,974.6	4,983.5	4,955.2	13.1	13.8	95.11	235.6	-390.5	291.4	265.1	26.29	11.087		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design				Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28F-312 - Wellbore #1 - Plan #1 (7-							Offset Site Error:		0.0 ft
Survey Program: 0-MWD											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation	Warning
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	Toolface (°)	+N/-S (ft)	+E/-W (ft)	Centres (ft)	Ellipses (ft)	Separation (ft)	Factor	
5,100.0	5,073.6	5,083.2	5,054.0	13.4	14.1	95.56	241.6	-402.0	299.3	272.4	26.93	11.114	
5,200.0	5,172.7	5,182.9	5,152.9	13.7	14.4	95.99	247.7	-413.5	307.3	279.7	27.58	11.141	
5,300.0	5,271.8	5,282.5	5,251.7	14.1	14.7	96.40	253.7	-424.9	315.2	287.0	28.23	11.167	
5,400.0	5,370.9	5,382.2	5,350.5	14.4	15.1	96.79	259.8	-436.4	323.2	294.3	28.88	11.192	
5,500.0	5,469.9	5,481.8	5,449.3	14.7	15.4	97.16	265.9	-447.8	331.2	301.7	29.53	11.216	
5,600.0	5,569.0	5,581.5	5,548.1	15.1	15.7	97.52	271.9	-459.3	339.2	309.0	30.18	11.240	
5,700.0	5,668.1	5,682.4	5,648.1	15.4	16.0	97.86	278.0	-470.8	347.1	316.3	30.80	11.269	
5,800.0	5,767.7	5,788.2	5,753.4	15.6	16.3	98.08	283.2	-480.6	353.4	322.1	31.27	11.302	
5,900.0	5,867.4	5,894.3	5,859.2	15.8	16.5	98.21	286.5	-486.9	357.5	325.8	31.68	11.285	
6,000.0	5,967.4	6,000.5	5,965.4	16.0	16.7	98.28	288.0	-489.8	359.3	327.3	32.03	11.219	
6,100.0	6,067.4	6,102.5	6,067.4	16.1	16.8	0.00	288.1	-490.0	359.4	331.6	27.82	12.920	
6,200.0	6,167.4	6,202.5	6,167.4	16.3	17.0	0.00	288.1	-490.0	359.4	331.2	28.22	12.736	
6,300.0	6,267.4	6,302.5	6,267.4	16.5	17.2	0.00	288.1	-490.0	359.4	330.8	28.62	12.558	
6,400.0	6,367.4	6,402.5	6,367.4	16.6	17.4	0.00	288.1	-490.0	359.4	330.4	29.03	12.384	
6,444.1	6,411.5	6,446.6	6,411.5	16.7	17.4	0.01	288.1	-489.9	359.4	330.2	29.20	12.309	
6,500.0	6,467.4	6,502.4	6,467.1	16.8	17.5	0.47	288.1	-487.0	359.5	330.1	29.40	12.228	
6,600.0	6,567.3	6,600.5	6,564.1	17.0	17.5	-87.63	288.1	-472.1	359.8	325.8	33.98	10.587	
6,700.0	6,666.0	6,697.1	6,656.8	17.0	17.5	-85.69	288.1	-445.5	360.5	326.4	34.04	10.591	
6,800.0	6,761.8	6,792.2	6,744.2	17.0	17.4	-83.85	288.1	-408.0	361.6	327.6	33.96	10.646	
6,900.0	6,853.1	6,886.2	6,825.3	16.9	17.4	-82.12	288.1	-360.6	362.9	329.1	33.83	10.729	
7,000.0	6,938.3	6,978.9	6,899.0	16.9	17.3	-80.54	288.1	-304.4	364.4	330.7	33.73	10.806	
7,100.0	7,016.0	7,070.7	6,964.7	16.9	17.3	-79.13	288.1	-240.4	366.1	332.3	33.79	10.834	
7,200.0	7,084.8	7,161.7	7,021.8	17.1	17.5	-77.89	288.1	-169.7	367.7	333.5	34.15	10.767	
7,300.0	7,143.5	7,250.0	7,068.8	17.6	17.9	-76.87	288.1	-95.0	369.2	334.2	34.93	10.568	
7,400.0	7,191.2	7,341.5	7,108.2	18.3	18.7	-76.02	288.1	-12.4	370.4	334.2	36.29	10.209	
7,500.0	7,227.0	7,430.8	7,136.7	19.4	19.7	-75.40	288.1	72.1	371.4	333.2	38.21	9.722	
7,600.0	7,250.3	7,519.7	7,155.1	20.7	20.9	-75.00	288.1	159.0	372.1	331.4	40.68	9.148	
7,700.0	7,260.8	7,608.4	7,163.4	22.3	22.4	-74.83	288.1	247.3	372.4	328.8	43.62	8.539	
7,800.0	7,261.4	7,703.8	7,163.1	24.2	24.1	-74.71	288.1	342.7	372.6	325.6	47.01	7.927	
7,900.0	7,261.3	7,803.8	7,161.9	26.1	26.1	-74.54	288.1	442.7	373.0	322.2	50.79	7.343	
8,000.0	7,261.3	7,903.8	7,160.7	28.3	28.2	-74.37	288.1	542.7	373.3	318.4	54.84	6.806	
8,100.0	7,261.2	8,003.8	7,159.5	30.5	30.4	-74.20	288.2	642.7	373.6	314.5	59.10	6.321	
8,200.0	7,261.2	8,103.8	7,158.3	32.8	32.7	-74.03	288.2	742.7	373.9	310.4	63.53	5.886	
8,300.0	7,261.2	8,203.8	7,157.1	35.2	35.1	-73.86	288.2	842.7	374.2	306.1	68.08	5.497	
8,400.0	7,261.1	8,303.8	7,155.9	37.7	37.6	-73.69	288.2	942.7	374.5	301.8	72.74	5.149	
8,500.0	7,261.1	8,403.8	7,154.8	40.2	40.1	-73.52	288.2	1,042.6	374.9	297.4	77.48	4.838	
8,600.0	7,261.1	8,503.8	7,153.6	42.7	42.6	-73.35	288.2	1,142.6	375.2	292.9	82.29	4.560	
8,700.0	7,261.0	8,603.8	7,152.4	45.3	45.2	-73.18	288.2	1,242.6	375.5	288.4	87.15	4.309	
8,800.0	7,261.0	8,703.7	7,151.2	47.9	47.8	-73.01	288.2	1,342.6	375.9	283.8	92.05	4.083	
8,900.0	7,261.0	8,803.7	7,150.0	50.5	50.4	-72.84	288.2	1,442.6	376.2	279.2	96.99	3.879	
9,000.0	7,260.9	8,903.7	7,148.8	53.1	53.0	-72.68	288.2	1,542.6	376.5	274.6	101.96	3.693	
9,100.0	7,260.9	9,003.7	7,147.6	55.8	55.7	-72.51	288.2	1,642.6	376.9	269.9	106.96	3.524	
9,200.0	7,260.9	9,103.7	7,146.4	58.4	58.3	-72.34	288.2	1,742.5	377.2	265.3	111.97	3.369	
9,300.0	7,260.8	9,203.7	7,145.3	61.1	61.0	-72.18	288.2	1,842.5	377.6	260.6	117.00	3.227	
9,400.0	7,260.8	9,303.7	7,144.1	63.8	63.7	-72.01	288.2	1,942.5	377.9	255.9	122.03	3.097	
9,500.0	7,260.8	9,403.7	7,142.9	66.5	66.4	-71.84	288.2	2,042.5	378.3	251.2	127.08	2.977	
9,600.0	7,260.7	9,503.7	7,141.7	69.2	69.1	-71.68	288.2	2,142.5	378.7	246.5	132.14	2.866	
9,700.0	7,260.7	9,603.7	7,140.5	71.9	71.8	-71.51	288.2	2,242.5	379.0	241.8	137.19	2.763	
9,800.0	7,260.7	9,703.7	7,139.3	74.7	74.5	-71.35	288.2	2,342.5	379.4	237.1	142.26	2.667	
9,900.0	7,260.6	9,803.7	7,138.1	77.4	77.3	-71.18	288.2	2,442.5	379.8	232.4	147.32	2.578	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28F-312 - Wellbore #1 - Plan #1 (7-													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,000.0	7,260.6	9,903.7	7,137.0	80.1	80.0	-71.02	288.2	2,542.4	380.1	227.7	152.38	2.495		
10,100.0	7,260.6	10,003.7	7,135.8	82.9	82.7	-70.86	288.2	2,642.4	380.5	223.1	157.45	2.417		
10,200.0	7,260.5	10,103.7	7,134.6	85.6	85.5	-70.69	288.2	2,742.4	380.9	218.4	162.51	2.344		
10,300.0	7,260.5	10,203.6	7,133.4	88.3	88.2	-70.53	288.2	2,842.4	381.3	213.7	167.56	2.275		
10,400.0	7,260.4	10,303.6	7,132.2	91.1	91.0	-70.37	288.2	2,942.4	381.7	209.0	172.62	2.211		
10,500.0	7,260.4	10,403.6	7,131.0	93.9	93.7	-70.20	288.2	3,042.4	382.0	204.4	177.67	2.150		
10,600.0	7,260.4	10,503.6	7,129.8	96.6	96.5	-70.04	288.2	3,142.4	382.4	199.7	182.71	2.093		
10,700.0	7,260.3	10,603.6	7,128.6	99.4	99.2	-69.88	288.2	3,242.3	382.8	195.1	187.75	2.039		
10,800.0	7,260.3	10,703.6	7,127.5	102.1	102.0	-69.72	288.2	3,342.3	383.2	190.4	192.79	1.988		
10,900.0	7,260.3	10,803.6	7,126.3	104.9	104.8	-69.56	288.2	3,442.3	383.6	185.8	197.81	1.939		
11,000.0	7,260.2	10,903.6	7,125.1	107.7	107.5	-69.40	288.2	3,542.3	384.0	181.2	202.83	1.893		
11,100.0	7,260.2	11,003.6	7,123.9	110.4	110.3	-69.23	288.2	3,642.3	384.4	176.6	207.85	1.850		
11,200.0	7,260.2	11,103.6	7,122.7	113.2	113.1	-69.07	288.2	3,742.3	384.9	172.0	212.85	1.808		
11,300.0	7,260.1	11,203.6	7,121.5	116.0	115.8	-68.91	288.2	3,842.3	385.3	167.4	217.85	1.769		
11,400.0	7,260.1	11,303.6	7,120.3	118.8	118.6	-68.75	288.2	3,942.2	385.7	162.8	222.84	1.731		
11,500.0	7,260.1	11,403.6	7,119.2	121.5	121.4	-68.60	288.2	4,042.2	386.1	158.3	227.82	1.695		
11,600.0	7,260.0	11,503.6	7,118.0	124.3	124.2	-68.44	288.2	4,142.2	386.5	153.7	232.79	1.660		
11,680.0	7,260.0	11,583.5	7,117.0	125.7	126.4	-68.31	288.2	4,222.2	386.9	150.9	236.01	1.639 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design		Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W - Wiedeman 28F-214 - Wellbore #1 - Plan #1 (8)										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)								
0.0	0.0	1.0	1.0	0.0	0.0	-90.00	0.0	-301.3	301.3							
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-301.3	301.3	301.1	0.23	1,327.258				
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-301.3	301.3	300.6	0.68	445.359				
300.0	300.0	301.0	301.0	0.6	0.6	-90.00	0.0	-301.3	301.3	300.2	1.13	267.571				
400.0	400.0	401.0	401.0	0.8	0.8	-90.00	0.0	-301.3	301.3	299.7	1.58	191.231				
500.0	500.0	501.0	501.0	1.0	1.0	-90.00	0.0	-301.3	301.3	299.3	2.03	148.783				
600.0	600.0	601.0	601.0	1.2	1.2	-90.00	0.0	-301.3	301.3	298.8	2.47	121.756				
700.0	700.0	701.0	701.0	1.5	1.5	-90.00	0.0	-301.3	301.3	298.4	2.92	103.038				
800.0	800.0	801.0	801.0	1.7	1.7	-90.00	0.0	-301.3	301.3	297.9	3.37	89.309				
900.0	900.0	901.0	901.0	1.9	1.9	-90.00	0.0	-301.3	301.3	297.5	3.82	78.808				
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-90.00	0.0	-301.3	301.3	297.0	4.27	70.517				
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	-90.00	0.0	-301.3	301.3	296.6	4.72	63.804				
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-90.00	0.0	-301.3	301.3	296.1	5.17	58.259				
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	-90.00	0.0	-301.3	301.3	295.7	5.62	53.600				
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	-90.00	0.0	-301.3	301.3	295.2	6.07	49.631				
1,500.0	1,500.0	1,501.0	1,501.0	3.3	3.3	-90.00	0.0	-301.3	301.3	294.8	6.52	46.209				
1,600.0	1,600.0	1,601.0	1,601.0	3.5	3.5	-90.00	0.0	-301.3	301.3	294.3	6.97	43.229				
1,700.0	1,700.0	1,701.0	1,701.0	3.7	3.7	-90.00	0.0	-301.3	301.3	293.9	7.42	40.610				
1,766.3	1,766.3	1,767.3	1,767.3	3.9	3.9	-90.00	0.0	-301.3	301.3	293.6	7.72	39.041				
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	-90.00	0.0	-301.3	301.3	293.4	7.87	38.301				
1,900.0	1,900.0	1,891.4	1,891.4	4.2	4.1	-89.96	0.2	-302.8	302.9	294.6	8.29	36.552				
2,000.0	2,000.0	1,981.8	1,981.7	4.4	4.3	-89.85	0.8	-307.0	307.6	298.9	8.70	35.363				
2,100.0	2,100.0	2,071.9	2,071.5	4.6	4.5	8.64	1.8	-314.1	313.7	304.7	9.08	34.540				
2,200.0	2,199.8	2,166.1	2,165.1	4.8	4.7	9.00	3.3	-324.1	319.2	309.8	9.46	33.755				
2,300.0	2,299.5	2,266.0	2,264.4	5.0	5.0	9.49	4.8	-335.3	321.8	312.0	9.84	32.711				
2,400.0	2,398.7	2,366.0	2,363.7	5.2	5.2	10.09	6.4	-346.4	321.0	310.8	10.22	31.411				
2,500.0	2,497.8	2,465.9	2,463.0	5.5	5.4	10.75	8.0	-357.6	318.9	308.2	10.64	29.970				
2,600.0	2,596.8	2,565.8	2,562.3	5.7	5.7	11.40	9.6	-368.7	316.7	305.7	11.06	28.628				
2,700.0	2,695.9	2,665.7	2,661.5	6.0	6.0	12.07	11.2	-379.9	314.6	303.2	11.49	27.374				
2,800.0	2,795.0	2,765.6	2,760.8	6.2	6.2	12.75	12.8	-391.0	312.6	300.7	11.93	26.203				
2,900.0	2,894.1	2,865.5	2,860.1	6.5	6.5	13.44	14.4	-402.2	310.6	298.2	12.37	25.107				
3,000.0	2,993.1	2,965.4	2,959.4	6.8	6.8	14.13	16.0	-413.3	308.6	295.8	12.82	24.082				
3,100.0	3,092.2	3,065.3	3,058.6	7.1	7.0	14.83	17.6	-424.5	306.7	293.5	13.27	23.121				
3,200.0	3,191.3	3,165.2	3,157.9	7.4	7.3	15.55	19.2	-435.6	304.9	291.1	13.72	22.219				
3,300.0	3,290.3	3,265.2	3,257.2	7.7	7.6	16.27	20.8	-446.8	303.1	288.9	14.18	21.372				
3,400.0	3,389.4	3,365.1	3,356.5	8.0	7.9	17.00	22.4	-457.9	301.3	286.6	14.64	20.575				
3,500.0	3,488.5	3,465.0	3,455.7	8.3	8.2	17.73	23.9	-469.1	299.6	284.5	15.11	19.825				
3,600.0	3,587.6	3,564.9	3,555.0	8.6	8.5	18.48	25.5	-480.2	297.9	282.3	15.58	19.117				
3,700.0	3,686.6	3,664.8	3,654.3	8.9	8.7	19.24	27.1	-491.4	296.3	280.2	16.06	18.449				
3,800.0	3,785.7	3,764.7	3,753.6	9.2	9.0	20.00	28.7	-502.5	294.7	278.2	16.54	17.818				
3,900.0	3,884.8	3,864.6	3,852.8	9.5	9.3	20.77	30.3	-513.7	293.2	276.2	17.03	17.222				
4,000.0	3,983.9	3,964.5	3,952.1	9.8	9.6	21.55	31.9	-524.8	291.7	274.2	17.52	16.657				
4,100.0	4,082.9	4,064.4	4,051.4	10.1	9.9	22.33	33.5	-536.0	290.3	272.3	18.01	16.121				
4,200.0	4,182.0	4,164.3	4,150.7	10.5	10.2	23.13	35.1	-547.1	289.0	270.5	18.51	15.613				
4,300.0	4,281.1	4,264.3	4,249.9	10.8	10.5	23.93	36.7	-558.3	287.7	268.7	19.01	15.131				
4,400.0	4,380.1	4,364.2	4,349.2	11.1	10.8	24.74	38.3	-569.4	286.5	266.9	19.52	14.673				
4,500.0	4,479.2	4,471.9	4,456.3	11.4	11.1	25.65	39.8	-580.3	284.3	264.3	20.03	14.196				
4,600.0	4,578.3	4,582.3	4,566.5	11.8	11.3	26.75	40.9	-587.5	278.6	258.0	20.53	13.569				
4,700.0	4,677.4	4,692.0	4,676.2	12.1	11.5	28.08	41.3	-590.5	269.1	248.1	21.04	12.792				
4,800.0	4,776.4	4,793.3	4,777.4	12.4	11.7	29.52	41.3	-590.6	257.3	235.7	21.56	11.936				
4,900.0	4,875.5	4,892.3	4,876.5	12.7	11.8	31.08	41.3	-590.6	245.5	223.4	22.10	11.112				

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W - Wiedeman 28F-214 - Wellbore #1 - Plan #1 (8)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.0	4,974.6	4,991.4	4,975.6	13.1	12.0	32.80	41.3	-590.6	234.0	211.3	22.65	10.329		
5,100.0	5,073.6	5,090.5	5,074.6	13.4	12.2	34.69	41.3	-590.6	222.6	199.4	23.22	9.586		
5,200.0	5,172.7	5,189.5	5,173.7	13.7	12.4	36.78	41.3	-590.6	211.6	187.7	23.82	8.882		
5,300.0	5,271.8	5,288.6	5,272.8	14.1	12.6	39.09	41.3	-590.6	200.8	176.4	24.43	8.218		
5,400.0	5,370.9	5,387.7	5,371.9	14.4	12.8	41.66	41.3	-590.6	190.4	165.3	25.08	7.593		
5,500.0	5,469.9	5,486.8	5,470.9	14.7	13.0	44.52	41.3	-590.6	180.4	154.7	25.75	7.007		
5,600.0	5,569.0	5,585.8	5,570.0	15.1	13.2	47.70	41.3	-590.6	171.0	144.5	26.45	6.463		
5,700.0	5,668.1	5,685.0	5,669.1	15.4	13.4	51.00	41.3	-590.6	162.4	135.3	27.15	5.983		
5,800.0	5,767.7	5,784.5	5,768.7	15.6	13.6	53.70	41.3	-590.6	156.4	128.7	27.74	5.638		
5,900.0	5,867.4	5,884.3	5,868.4	15.8	13.8	55.56	41.3	-590.6	152.7	124.5	28.25	5.405		
6,000.0	5,967.4	5,984.2	5,968.4	16.0	14.0	56.44	41.3	-590.6	151.1	122.4	28.67	5.269		
6,054.4	6,021.8	6,038.7	6,022.8	16.0	14.1	56.58	41.3	-590.6	150.8	122.0	28.88	5.222 CC, ES		
6,100.0	6,067.4	6,084.2	6,068.4	16.1	14.2	-41.78	41.3	-590.6	151.0	123.0	27.98	5.396		
6,200.0	6,167.4	6,184.2	6,168.4	16.3	14.4	-41.78	41.3	-590.6	151.0	122.6	28.39	5.319		
6,300.0	6,267.4	6,284.2	6,268.4	16.5	14.6	-41.78	41.3	-590.6	151.0	122.2	28.79	5.244		
6,332.5	6,299.9	6,316.7	6,300.9	16.5	14.7	-41.78	41.3	-590.6	151.0	122.1	28.93	5.220		
6,400.0	6,367.4	6,378.3	6,362.4	16.6	14.8	-42.15	41.3	-591.9	152.0	122.8	29.21	5.202 SF		
6,500.0	6,467.4	6,465.4	6,448.9	16.8	15.1	-44.84	41.3	-602.0	160.0	130.2	29.80	5.369		
6,600.0	6,567.3	6,550.0	6,531.3	17.0	15.4	-139.18	41.3	-621.1	179.1	148.7	30.46	5.880		
6,700.0	6,666.0	6,621.2	6,598.6	17.0	15.7	-143.76	41.3	-644.2	217.4	187.4	30.09	7.227		
6,800.0	6,761.8	6,680.5	6,652.8	17.0	16.0	-146.99	41.3	-668.1	274.8	245.4	29.42	9.340		
6,900.0	6,853.1	6,725.4	6,692.6	16.9	16.3	-147.77	41.3	-688.9	347.9	319.2	28.64	12.146		
7,000.0	6,938.3	6,750.0	6,713.8	16.9	16.5	-144.33	41.3	-701.4	432.5	404.3	28.19	15.343		
7,100.0	7,016.0	6,776.5	6,736.3	16.9	16.7	-137.79	41.3	-715.5	524.5	496.0	28.45	18.432		
7,200.0	7,084.8	6,786.4	6,744.5	17.1	16.7	-118.64	41.3	-721.0	621.0	589.5	31.45	19.745		
7,300.0	7,143.5	6,800.0	6,755.7	17.6	16.8	-84.26	41.3	-728.7	719.6	685.4	34.23	21.022		
7,400.0	7,191.2	6,783.5	6,742.1	18.3	16.7	-41.61	41.3	-719.4	817.8	791.0	26.82	30.489		
7,500.0	7,227.0	6,773.4	6,733.7	19.4	16.6	-24.56	41.3	-713.8	914.6	893.2	21.36	42.813		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design		Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W - Wiedeman 28F-234 - Wellbore #1 - Plan #1 (8)										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	1.0	1.0	0.0	0.0	-101.61	-61.9	-301.3	307.6						
100.0	100.0	101.0	101.0	0.1	0.1	-101.61	-61.9	-301.3	307.6	307.4	0.23	1,355.007			
200.0	200.0	201.0	201.0	0.3	0.3	-101.61	-61.9	-301.3	307.6	306.9	0.68	454.670			
300.0	300.0	301.0	301.0	0.6	0.6	-101.61	-61.9	-301.3	307.6	306.5	1.13	273.165			
400.0	400.0	401.0	401.0	0.8	0.8	-101.61	-61.9	-301.3	307.6	306.0	1.58	195.229			
500.0	500.0	501.0	501.0	1.0	1.0	-101.61	-61.9	-301.3	307.6	305.6	2.03	151.893			
566.3	566.3	567.3	567.3	1.2	1.2	-101.61	-61.9	-301.3	307.6	305.3	2.32	132.399 CC			
600.0	600.0	600.0	600.0	1.2	1.2	-101.61	-61.9	-301.3	307.6	305.1	2.47	124.415 ES			
700.0	700.0	694.9	694.9	1.5	1.4	-101.85	-63.4	-302.0	308.6	305.7	2.89	106.911			
800.0	800.0	788.7	788.5	1.7	1.6	-102.53	-67.6	-303.9	311.6	308.3	3.29	94.760			
900.0	900.0	882.0	881.6	1.9	1.8	-103.64	-74.5	-307.1	316.6	312.9	3.70	85.548			
1,000.0	1,000.0	974.8	973.7	2.1	2.0	-105.11	-84.2	-311.6	323.9	319.8	4.13	78.471			
1,100.0	1,100.0	1,073.3	1,071.3	2.4	2.3	-106.85	-96.1	-317.1	332.7	328.1	4.58	72.656			
1,200.0	1,200.0	1,172.4	1,169.5	2.6	2.5	-108.52	-108.1	-322.7	341.7	336.7	5.04	67.807			
1,300.0	1,300.0	1,271.5	1,267.8	2.8	2.8	-110.10	-120.1	-328.2	351.1	345.5	5.51	63.684			
1,400.0	1,400.0	1,370.6	1,366.0	3.0	3.1	-111.59	-132.1	-333.8	360.7	354.7	6.00	60.154			
1,500.0	1,500.0	1,469.7	1,464.2	3.3	3.5	-113.01	-144.1	-339.3	370.5	364.0	6.49	57.108			
1,600.0	1,600.0	1,568.8	1,562.4	3.5	3.8	-114.35	-156.1	-344.9	380.5	373.5	6.99	54.464			
1,700.0	1,700.0	1,667.9	1,660.6	3.7	4.1	-115.63	-168.1	-350.4	390.8	383.3	7.49	52.152			
1,800.0	1,800.0	1,767.0	1,758.9	3.9	4.4	-116.84	-180.1	-356.0	401.2	393.2	8.00	50.119			
1,900.0	1,900.0	1,866.1	1,857.1	4.2	4.7	-117.99	-192.1	-361.5	411.8	403.2	8.52	48.320			
2,000.0	2,000.0	1,965.2	1,955.3	4.4	5.1	-119.08	-204.1	-367.1	422.5	413.5	9.04	46.721			
2,100.0	2,100.0	2,064.4	2,053.6	4.6	5.4	-21.85	-216.1	-372.6	431.8	422.4	9.36	46.116			
2,200.0	2,199.8	2,163.8	2,152.1	4.8	5.7	-23.06	-228.2	-378.2	438.0	428.2	9.80	44.692			
2,300.0	2,299.5	2,263.1	2,250.5	5.0	6.1	-24.43	-240.2	-383.8	441.3	431.0	10.23	43.138			
2,400.0	2,398.7	2,362.4	2,348.9	5.2	6.4	-25.99	-252.2	-389.3	441.7	431.0	10.65	41.466			
2,500.0	2,497.8	2,461.6	2,447.2	5.5	6.7	-27.64	-264.3	-394.9	441.1	430.0	11.10	39.758			
2,594.6	2,591.5	2,555.4	2,540.2	5.7	7.0	-29.20	-275.6	-400.2	441.0	429.5	11.52	38.282			
2,600.0	2,596.8	2,560.7	2,545.5	5.7	7.1	-29.29	-276.3	-400.5	441.0	429.4	11.54	38.202			
2,700.0	2,695.9	2,659.9	2,643.8	6.0	7.4	-30.94	-288.3	-406.0	441.2	429.2	11.99	36.784			
2,800.0	2,795.0	2,759.1	2,742.1	6.2	7.7	-32.59	-300.3	-411.6	441.8	429.3	12.45	35.487			
2,900.0	2,894.1	2,858.3	2,840.3	6.5	8.1	-34.23	-312.3	-417.1	442.7	429.8	12.91	34.299			
3,000.0	2,993.1	2,957.4	2,938.6	6.8	8.4	-35.86	-324.3	-422.7	444.0	430.6	13.37	33.208			
3,100.0	3,092.2	3,056.6	3,036.9	7.1	8.7	-37.48	-336.4	-428.3	445.7	431.9	13.84	32.204			
3,200.0	3,191.3	3,155.8	3,135.2	7.4	9.1	-39.09	-348.4	-433.8	447.7	433.4	14.31	31.279			
3,300.0	3,290.3	3,255.0	3,233.5	7.7	9.4	-40.69	-360.4	-439.4	450.1	435.3	14.80	30.424			
3,400.0	3,389.4	3,354.1	3,331.8	8.0	9.7	-42.26	-372.4	-444.9	452.9	437.6	15.28	29.633			
3,500.0	3,488.5	3,453.3	3,430.1	8.3	10.1	-43.82	-384.4	-450.5	456.0	440.2	15.78	28.901			
3,600.0	3,587.6	3,552.5	3,528.4	8.6	10.4	-45.35	-396.4	-456.0	459.4	443.1	16.28	28.221			
3,700.0	3,686.6	3,651.7	3,626.7	8.9	10.8	-46.86	-408.4	-461.6	463.2	446.4	16.79	27.589			
3,800.0	3,785.7	3,750.9	3,724.9	9.2	11.1	-48.35	-420.5	-467.2	467.2	449.9	17.30	27.001			
3,900.0	3,884.8	3,850.0	3,823.2	9.5	11.4	-49.81	-432.5	-472.7	471.6	453.8	17.83	26.454			
4,000.0	3,983.9	3,949.2	3,921.5	9.8	11.8	-51.24	-444.5	-478.3	476.3	457.9	18.36	25.943			
4,100.0	4,082.9	4,048.4	4,019.8	10.1	12.1	-52.65	-456.5	-483.8	481.3	462.4	18.90	25.467			
4,200.0	4,182.0	4,147.6	4,118.1	10.5	12.4	-54.02	-468.5	-489.4	486.6	467.1	19.45	25.021			
4,300.0	4,281.1	4,246.7	4,216.4	10.8	12.8	-55.37	-480.5	-495.0	492.1	472.1	20.00	24.605			
4,400.0	4,380.1	4,345.9	4,314.7	11.1	13.1	-56.68	-492.6	-500.5	497.9	477.4	20.56	24.216			
4,500.0	4,479.2	4,445.1	4,413.0	11.4	13.5	-57.96	-504.6	-506.1	504.0	482.9	21.13	23.851			
4,600.0	4,578.3	4,544.3	4,511.2	11.8	13.8	-59.22	-516.6	-511.6	510.3	488.6	21.71	23.510			
4,700.0	4,677.4	4,643.4	4,609.5	12.1	14.1	-60.44	-528.6	-517.2	516.9	494.6	22.29	23.190			
4,800.0	4,776.4	4,742.6	4,707.8	12.4	14.5	-61.63	-540.6	-522.7	523.7	500.8	22.88	22.890			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W - Wiedeman 28F-234 - Wellbore #1 - Plan #1 (8)														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)							
4,900.0	4,875.5	4,841.8	4,806.1	12.7	14.8	-62.79	-552.6	-528.3	530.7	507.3	23.47	22.609			
5,000.0	4,974.6	4,941.0	4,904.4	13.1	15.2	-63.92	-564.6	-533.9	538.0	513.9	24.07	22.345			
5,100.0	5,073.6	5,040.1	5,002.7	13.4	15.5	-65.02	-576.7	-539.4	545.4	520.7	24.68	22.098			
5,200.0	5,172.7	5,139.3	5,101.0	13.7	15.8	-66.09	-588.7	-545.0	553.0	527.7	25.29	21.866			
5,300.0	5,271.8	5,238.5	5,199.3	14.1	16.2	-67.13	-600.7	-550.5	560.9	534.9	25.91	21.648			
5,400.0	5,370.9	5,337.7	5,297.6	14.4	16.5	-68.15	-612.7	-556.1	568.9	542.3	26.53	21.443			
5,500.0	5,469.9	5,436.8	5,395.8	14.7	16.9	-69.13	-624.7	-561.6	577.0	549.9	27.15	21.251			
5,600.0	5,569.0	5,536.0	5,494.1	15.1	17.2	-70.09	-636.7	-567.2	585.4	557.6	27.78	21.071			
5,700.0	5,668.1	5,635.2	5,592.5	15.4	17.5	-71.06	-648.8	-572.8	594.1	565.7	28.39	20.928			
5,800.0	5,767.7	5,734.6	5,690.9	15.6	17.9	-71.82	-660.8	-578.3	603.9	575.0	28.90	20.895			
5,900.0	5,867.4	5,852.8	5,808.2	15.8	18.2	-72.31	-673.8	-584.4	613.7	584.3	29.38	20.889			
6,000.0	5,967.4	5,978.7	5,933.7	16.0	18.4	-72.52	-682.9	-588.6	620.6	590.8	29.79	20.831			
6,100.0	6,067.4	6,105.1	6,060.0	16.1	18.6	-170.73	-687.1	-590.5	624.0	591.9	32.04	19.476			
6,200.0	6,167.4	6,213.4	6,168.4	16.3	18.8	-170.72	-687.3	-590.6	624.2	591.8	32.39	19.269			
6,300.0	6,267.4	6,313.4	6,268.4	16.5	18.9	-170.72	-687.3	-590.6	624.2	591.5	32.72	19.075			
6,400.0	6,367.4	6,404.7	6,359.5	16.6	19.1	-170.47	-687.3	-593.4	624.7	591.6	33.08	18.884			
6,500.0	6,467.4	6,491.2	6,445.1	16.8	19.3	-169.37	-687.3	-605.6	627.2	593.7	33.53	18.708 SF			
6,600.0	6,567.3	6,573.0	6,524.3	17.0	19.5	102.33	-687.3	-626.1	633.1	601.3	31.78	19.919			
6,700.0	6,666.0	6,644.4	6,591.3	17.0	19.7	104.42	-687.3	-650.7	646.1	614.2	31.85	20.284			
6,800.0	6,761.8	6,700.0	6,641.7	17.0	20.0	105.87	-687.3	-674.2	669.1	637.2	31.84	21.011			
6,900.0	6,853.1	6,750.0	6,685.5	16.9	20.2	106.60	-687.3	-698.3	704.0	672.2	31.85	22.103			
7,000.0	6,938.3	6,775.4	6,707.1	16.9	20.3	104.68	-687.3	-711.7	751.2	719.1	32.12	23.391			
7,100.0	7,016.0	6,800.0	6,727.5	16.9	20.4	101.50	-687.3	-725.3	809.5	776.8	32.68	24.767			
7,200.0	7,084.8	6,800.0	6,727.5	17.1	20.4	94.75	-687.3	-725.3	876.7	843.0	33.71	26.005			
7,300.0	7,143.5	6,800.0	6,727.5	17.6	20.4	86.57	-687.3	-725.3	950.4	915.6	34.78	27.324			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design		Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W - Wiedeman 28F-304 - Wellbore #1 - Plan #1 (8)										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	1.0	1.0	0.0	0.0	-96.21	-32.8	-301.3	303.1					
100.0	100.0	101.0	101.0	0.1	0.1	-96.21	-32.8	-301.3	303.1	302.9	0.23	1,335.094		
200.0	200.0	201.0	201.0	0.3	0.3	-96.21	-32.8	-301.3	303.1	302.4	0.68	447.988		
300.0	300.0	301.0	301.0	0.6	0.6	-96.21	-32.8	-301.3	303.1	302.0	1.13	269.151		
400.0	400.0	401.0	401.0	0.8	0.8	-96.21	-32.8	-301.3	303.1	301.5	1.58	192.360		
500.0	500.0	501.0	501.0	1.0	1.0	-96.21	-32.8	-301.3	303.1	301.1	2.03	149.661		
600.0	600.0	601.0	601.0	1.2	1.2	-96.21	-32.8	-301.3	303.1	300.6	2.47	122.475		
700.0	700.0	701.0	701.0	1.5	1.5	-96.21	-32.8	-301.3	303.1	300.2	2.92	103.647		
800.0	800.0	801.0	801.0	1.7	1.7	-96.21	-32.8	-301.3	303.1	299.7	3.37	89.836		
900.0	900.0	901.0	901.0	1.9	1.9	-96.21	-32.8	-301.3	303.1	299.3	3.82	79.274		
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-96.21	-32.8	-301.3	303.1	298.8	4.27	70.933		
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	-96.21	-32.8	-301.3	303.1	298.4	4.72	64.181		
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-96.21	-32.8	-301.3	303.1	297.9	5.17	58.603		
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	-96.21	-32.8	-301.3	303.1	297.5	5.62	53.916		
1,366.3	1,366.3	1,367.3	1,367.3	3.0	3.0	-96.21	-32.8	-301.3	303.1	297.2	5.92	51.200 CC		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-96.21	-32.8	-301.3	303.1	297.0	6.07	49.943 ES		
1,500.0	1,500.0	1,494.7	1,494.7	3.3	3.2	-96.44	-34.1	-302.1	304.1	297.6	6.48	46.920		
1,600.0	1,600.0	1,588.3	1,588.1	3.5	3.4	-97.11	-38.0	-304.6	307.3	300.4	6.88	44.686		
1,700.0	1,700.0	1,681.5	1,681.0	3.7	3.6	-98.19	-44.5	-308.7	312.5	305.3	7.28	42.958		
1,800.0	1,800.0	1,774.0	1,773.0	3.9	3.8	-99.64	-53.4	-314.4	320.1	312.4	7.68	41.663		
1,900.0	1,900.0	1,866.4	1,864.3	4.2	4.0	-101.39	-64.8	-321.6	330.1	322.0	8.10	40.744		
2,000.0	2,000.0	1,965.1	1,961.8	4.4	4.2	-103.31	-78.1	-330.0	341.4	332.9	8.55	39.952		
2,100.0	2,100.0	2,064.0	2,059.4	4.6	4.5	-6.84	-91.4	-338.5	351.4	342.4	8.97	39.187		
2,200.0	2,199.8	2,163.1	2,157.2	4.8	4.8	-8.63	-104.8	-347.0	358.2	348.8	9.38	38.188		
2,300.0	2,299.5	2,262.3	2,255.2	5.0	5.1	-10.46	-118.1	-355.5	362.0	352.2	9.79	36.965		
2,400.0	2,398.7	2,361.6	2,353.2	5.2	5.4	-12.37	-131.5	-363.9	362.7	352.5	10.21	35.541		
2,500.0	2,497.8	2,460.8	2,451.1	5.5	5.7	-14.33	-144.9	-372.4	362.5	351.8	10.65	34.033		
2,504.4	2,502.1	2,465.1	2,455.4	5.5	5.7	-14.42	-145.5	-372.8	362.5	351.8	10.67	33.970		
2,600.0	2,596.8	2,560.0	2,549.0	5.7	6.0	-16.29	-158.3	-380.9	362.7	351.6	11.10	32.673		
2,700.0	2,695.9	2,659.2	2,647.0	6.0	6.3	-18.25	-171.6	-389.4	363.3	351.8	11.55	31.447		
2,800.0	2,795.0	2,758.4	2,744.9	6.2	6.7	-20.20	-185.0	-397.9	364.4	352.3	12.01	30.341		
2,900.0	2,894.1	2,857.6	2,842.9	6.5	7.0	-22.13	-198.4	-406.4	365.8	353.4	12.47	29.343		
3,000.0	2,993.1	2,956.9	2,940.8	6.8	7.3	-24.05	-211.7	-414.8	367.7	354.8	12.93	28.440		
3,100.0	3,092.2	3,056.1	3,038.8	7.1	7.7	-25.94	-225.1	-423.3	370.0	356.7	13.40	27.624		
3,200.0	3,191.3	3,155.3	3,136.7	7.4	8.0	-27.81	-238.5	-431.8	372.8	358.9	13.87	26.883		
3,300.0	3,290.3	3,254.5	3,234.7	7.7	8.4	-29.65	-251.9	-440.3	375.9	361.5	14.34	26.210		
3,400.0	3,389.4	3,353.7	3,332.6	8.0	8.7	-31.46	-265.2	-448.8	379.4	364.6	14.82	25.597		
3,500.0	3,488.5	3,452.9	3,430.5	8.3	9.1	-33.23	-278.6	-457.3	383.3	367.9	15.31	25.039		
3,600.0	3,587.6	3,552.2	3,528.5	8.6	9.5	-34.97	-292.0	-465.7	387.5	371.7	15.80	24.527		
3,700.0	3,686.6	3,651.4	3,626.4	8.9	9.8	-36.67	-305.4	-474.2	392.1	375.8	16.30	24.059		
3,800.0	3,785.7	3,750.6	3,724.4	9.2	10.2	-38.33	-318.7	-482.7	397.0	380.2	16.80	23.629		
3,900.0	3,884.8	3,849.8	3,822.3	9.5	10.5	-39.95	-332.1	-491.2	402.3	385.0	17.31	23.233		
4,000.0	3,983.9	3,949.0	3,920.3	9.8	10.9	-41.52	-345.5	-499.7	407.9	390.0	17.83	22.868		
4,100.0	4,082.9	4,048.2	4,018.2	10.1	11.3	-43.05	-358.8	-508.2	413.7	395.4	18.36	22.531		
4,200.0	4,182.0	4,147.4	4,116.1	10.5	11.6	-44.54	-372.2	-516.7	419.9	401.0	18.90	22.219		
4,300.0	4,281.1	4,246.7	4,214.1	10.8	12.0	-45.99	-385.6	-525.1	426.4	406.9	19.44	21.930		
4,400.0	4,380.1	4,345.9	4,312.0	11.1	12.4	-47.39	-399.0	-533.6	433.1	413.1	19.99	21.662		
4,500.0	4,479.2	4,445.1	4,410.0	11.4	12.7	-48.75	-412.3	-542.1	440.0	419.5	20.55	21.412		
4,600.0	4,578.3	4,544.3	4,507.9	11.8	13.1	-50.06	-425.7	-550.6	447.2	426.1	21.12	21.180		
4,700.0	4,677.4	4,643.5	4,605.9	12.1	13.5	-51.34	-439.1	-559.1	454.7	433.0	21.69	20.963		
4,800.0	4,776.4	4,742.7	4,703.8	12.4	13.8	-52.57	-452.5	-567.6	462.3	440.1	22.27	20.761		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design		Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W - Wiedeman 28F-304 - Wellbore #1 - Plan #1 (8										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)						
4,900.0	4,875.5	4,853.6	4,813.4	12.7	14.2	-53.91	-466.7	-576.6	469.4	446.6	22.87	20.525					
5,000.0	4,974.6	4,972.5	4,931.5	13.1	14.5	-55.36	-478.1	-583.9	473.0	449.5	23.48	20.141					
5,100.0	5,073.6	5,091.5	5,050.1	13.4	14.7	-56.86	-485.5	-588.5	472.7	448.6	24.10	19.613					
5,200.0	5,172.7	5,210.1	5,168.6	13.7	14.9	-58.46	-488.6	-590.5	468.5	443.8	24.72	18.954					
5,300.0	5,271.8	5,314.2	5,272.8	14.1	15.1	-59.95	-488.8	-590.6	461.6	436.3	25.31	18.240					
5,400.0	5,370.9	5,413.3	5,371.9	14.4	15.2	-61.43	-488.8	-590.6	454.9	429.0	25.89	17.570					
5,500.0	5,469.9	5,512.3	5,470.9	14.7	15.4	-62.94	-488.8	-590.6	448.5	422.0	26.48	16.935					
5,600.0	5,569.0	5,611.4	5,570.0	15.1	15.5	-64.50	-488.8	-590.6	442.5	415.4	27.09	16.334					
5,700.0	5,668.1	5,710.6	5,669.1	15.4	15.7	-65.97	-488.8	-590.6	437.0	409.3	27.66	15.796					
5,800.0	5,767.7	5,810.1	5,768.7	15.6	15.8	-67.08	-488.8	-590.6	433.0	404.9	28.14	15.386					
5,900.0	5,867.4	5,909.9	5,868.4	15.8	16.0	-67.81	-488.8	-590.6	430.6	402.0	28.57	15.070					
6,000.0	5,967.4	6,009.8	5,968.4	16.0	16.1	-68.15	-488.8	-590.6	429.5	400.6	28.95	14.836					
6,054.4	6,021.8	6,064.2	6,022.8	16.0	16.2	-68.21	-488.8	-590.6	429.3	400.2	29.15	14.731					
6,100.0	6,067.4	6,109.8	6,068.4	16.1	16.3	-166.45	-488.8	-590.6	429.4	399.6	29.83	14.398					
6,200.0	6,167.4	6,209.8	6,168.4	16.3	16.4	-166.45	-488.8	-590.6	429.4	399.3	30.19	14.227					
6,300.0	6,267.4	6,309.8	6,268.4	16.5	16.6	-166.45	-488.8	-590.6	429.4	398.9	30.55	14.058					
6,400.0	6,367.4	6,409.8	6,368.4	16.6	16.8	-166.45	-488.8	-590.6	429.4	398.5	30.91	13.893					
6,500.0	6,467.4	6,500.0	6,458.5	16.8	16.9	-166.09	-488.8	-593.4	430.2	398.9	31.30	13.746 SF					
6,600.0	6,567.3	6,586.8	6,544.4	17.0	17.2	105.55	-488.8	-605.6	434.7	403.7	31.02	14.016					
6,700.0	6,666.0	6,664.3	6,619.5	17.0	17.4	108.45	-488.8	-624.8	447.4	416.3	31.03	14.416					
6,800.0	6,761.8	6,729.0	6,680.4	17.0	17.7	111.27	-488.8	-646.5	471.8	440.9	30.91	15.264					
6,900.0	6,853.1	6,779.1	6,726.2	16.9	17.9	112.70	-488.8	-666.8	510.6	479.8	30.77	16.591					
7,000.0	6,938.3	6,815.2	6,758.3	16.9	18.1	111.89	-488.8	-683.2	564.1	533.2	30.85	18.287					
7,100.0	7,016.0	6,838.8	6,778.9	16.9	18.2	108.27	-488.8	-694.8	630.3	598.9	31.38	20.087					
7,200.0	7,084.8	6,850.0	6,788.5	17.1	18.3	101.14	-488.8	-700.6	706.3	673.8	32.53	21.712					
7,300.0	7,143.5	6,850.0	6,788.5	17.6	18.3	90.19	-488.8	-700.6	788.9	754.9	33.93	23.247					
7,400.0	7,191.2	6,850.0	6,788.5	18.3	18.3	77.51	-488.8	-700.6	875.1	840.5	34.61	25.282					
7,500.0	7,227.0	6,850.0	6,788.5	19.4	18.3	64.64	-488.8	-700.6	962.7	928.8	33.93	28.378					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design		Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W - Wiedeman 28F-314 - Wellbore #1 - Plan #1 (8)										Offset Site Error:		0.0 ft	
Survey Program:		0-MWD										Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance								
Measured Depth	Vertical 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)				
0.0	0.0	1.0	1.0	0.0	0.0	-84.47	29.1	-301.3	302.7						
100.0	100.0	101.0	101.0	0.1	0.1	-84.47	29.1	-301.3	302.7	302.5	0.23	1,333.452			
200.0	200.0	201.0	201.0	0.3	0.3	-84.47	29.1	-301.3	302.7	302.0	0.68	447.437			
300.0	300.0	301.0	301.0	0.6	0.6	-84.47	29.1	-301.3	302.7	301.6	1.13	268.820			
400.0	400.0	401.0	401.0	0.8	0.8	-84.47	29.1	-301.3	302.7	301.1	1.58	192.124			
500.0	500.0	501.0	501.0	1.0	1.0	-84.47	29.1	-301.3	302.7	300.7	2.03	149.477			
600.0	600.0	601.0	601.0	1.2	1.2	-84.47	29.1	-301.3	302.7	300.2	2.47	122.324			
700.0	700.0	701.0	701.0	1.5	1.5	-84.47	29.1	-301.3	302.7	299.8	2.92	103.519			
800.0	800.0	801.0	801.0	1.7	1.7	-84.47	29.1	-301.3	302.7	299.3	3.37	89.726			
900.0	900.0	901.0	901.0	1.9	1.9	-84.47	29.1	-301.3	302.7	298.9	3.82	79.176			
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-84.47	29.1	-301.3	302.7	298.4	4.27	70.846			
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	-84.47	29.1	-301.3	302.7	298.0	4.72	64.102			
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-84.47	29.1	-301.3	302.7	297.5	5.17	58.530			
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	-84.47	29.1	-301.3	302.7	297.1	5.62	53.850			
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	-84.47	29.1	-301.3	302.7	296.6	6.07	49.863			
1,500.0	1,500.0	1,501.0	1,501.0	3.3	3.3	-84.47	29.1	-301.3	302.7	296.2	6.52	46.425			
1,566.3	1,566.3	1,567.3	1,567.3	3.4	3.4	-84.47	29.1	-301.3	302.7	295.9	6.82	44.395			
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-84.47	29.1	-301.3	302.7	295.7	6.97	43.445			
1,700.0	1,700.0	1,691.9	1,691.9	3.7	3.7	-84.38	29.8	-302.6	304.2	296.8	7.39	41.154			
1,800.0	1,800.0	1,782.6	1,782.5	3.9	3.9	-84.10	31.7	-306.5	308.7	300.9	7.81	39.519			
1,900.0	1,900.0	1,873.0	1,872.6	4.2	4.1	-83.65	34.8	-313.0	316.2	308.0	8.24	38.389			
2,000.0	2,000.0	1,963.1	1,962.1	4.4	4.3	-83.06	39.2	-322.0	326.7	318.0	8.67	37.679			
2,100.0	2,100.0	2,062.5	2,060.7	4.6	4.5	15.94	44.7	-333.2	336.9	327.9	9.06	37.169			
2,200.0	2,199.8	2,162.1	2,159.5	4.8	4.8	16.79	50.1	-344.5	343.9	334.4	9.46	36.342			
2,300.0	2,299.5	2,261.8	2,258.5	5.0	5.0	17.80	55.6	-355.7	347.6	337.8	9.86	35.259			
2,400.0	2,398.7	2,361.5	2,357.4	5.2	5.3	18.99	61.1	-367.0	348.2	338.0	10.26	33.949			
2,500.0	2,497.8	2,461.2	2,456.3	5.5	5.6	20.26	66.6	-378.3	347.6	336.9	10.69	32.513			
2,600.0	2,596.8	2,560.9	2,555.2	5.7	5.9	21.53	72.0	-389.6	347.1	336.0	11.13	31.187			
2,700.0	2,695.9	2,660.6	2,654.1	6.0	6.2	22.80	77.5	-400.8	346.8	335.3	11.58	29.960			
2,800.0	2,795.0	2,760.3	2,753.0	6.2	6.4	24.08	83.0	-412.1	346.7	334.7	12.03	28.823			
2,814.4	2,809.3	2,774.7	2,767.3	6.3	6.5	24.26	83.8	-413.7	346.7	334.6	12.10	28.666			
2,900.0	2,894.1	2,860.0	2,852.0	6.5	6.7	25.36	88.5	-423.4	346.8	334.3	12.49	27.768			
3,000.0	2,993.1	2,959.7	2,950.9	6.8	7.0	26.63	94.0	-434.7	347.0	334.1	12.95	26.787			
3,100.0	3,092.2	3,059.4	3,049.8	7.1	7.3	27.91	99.4	-445.9	347.4	334.0	13.43	25.875			
3,200.0	3,191.3	3,159.1	3,148.7	7.4	7.6	29.18	104.9	-457.2	348.0	334.1	13.91	25.025			
3,300.0	3,290.3	3,258.8	3,247.6	7.7	7.9	30.44	110.4	-468.5	348.8	334.4	14.39	24.232			
3,400.0	3,389.4	3,358.5	3,346.5	8.0	8.2	31.70	115.9	-479.7	349.7	334.8	14.89	23.491			
3,500.0	3,488.5	3,458.2	3,445.4	8.3	8.5	32.95	121.3	-491.0	350.8	335.4	15.39	22.799			
3,600.0	3,587.6	3,557.9	3,544.3	8.6	8.8	34.20	126.8	-502.3	352.0	336.1	15.89	22.151			
3,700.0	3,686.6	3,657.6	3,643.2	8.9	9.1	35.43	132.3	-513.6	353.5	337.0	16.41	21.543			
3,800.0	3,785.7	3,757.3	3,742.1	9.2	9.5	36.65	137.8	-524.8	355.0	338.1	16.93	20.974			
3,900.0	3,884.8	3,857.0	3,841.0	9.5	9.8	37.87	143.3	-536.1	356.8	339.3	17.46	20.439			
4,000.0	3,983.9	3,956.7	3,939.9	9.8	10.1	39.07	148.7	-547.4	358.7	340.7	17.99	19.937			
4,100.0	4,082.9	4,056.4	4,038.9	10.1	10.4	40.25	154.2	-558.7	360.8	342.2	18.53	19.464			
4,200.0	4,182.0	4,156.1	4,137.8	10.5	10.7	41.43	159.7	-569.9	363.0	343.9	19.08	19.020			
4,300.0	4,281.1	4,269.8	4,250.8	10.8	11.0	42.80	165.0	-580.8	363.5	343.8	19.63	18.512			
4,400.0	4,380.1	4,383.6	4,364.3	11.1	11.2	44.29	168.3	-587.7	360.2	340.0	20.18	17.849			
4,500.0	4,479.2	4,496.8	4,477.5	11.4	11.4	45.95	169.7	-590.5	353.3	332.6	20.73	17.039			
4,600.0	4,578.3	4,598.6	4,579.3	11.8	11.6	47.62	169.7	-590.6	344.0	322.7	21.29	16.161			
4,700.0	4,677.4	4,697.7	4,678.4	12.1	11.8	49.32	169.7	-590.6	335.0	313.1	21.86	15.320			
4,800.0	4,776.4	4,796.8	4,777.4	12.4	12.0	51.12	169.7	-590.6	326.2	303.8	22.45	14.529			

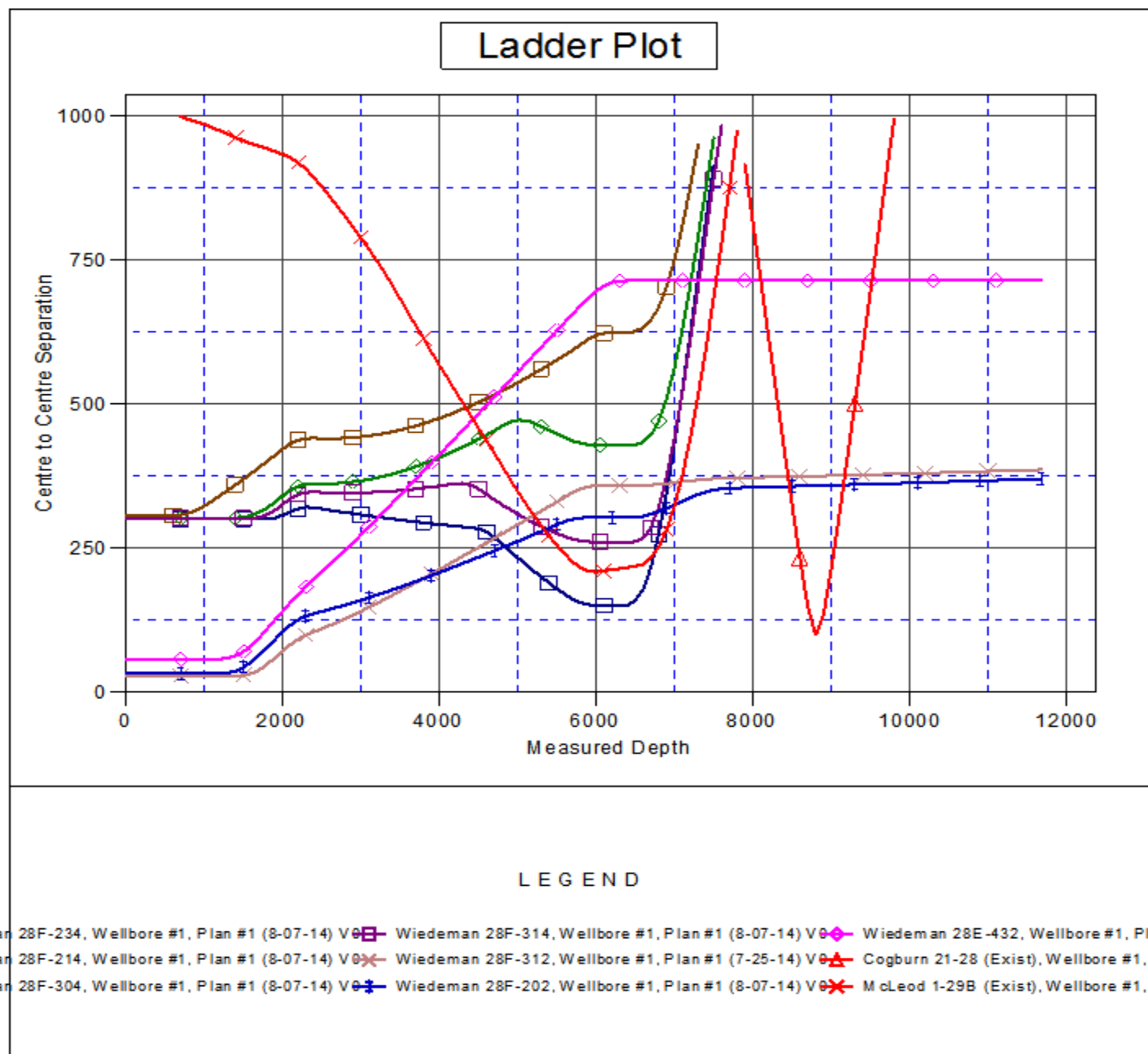
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W - Wiedeman 28F-314 - Wellbore #1 - Plan #1 (8)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,900.0	4,875.5	4,895.8	4,876.5	12.7	12.1	53.02	169.7	-590.6	317.8	294.8	23.05	13.787		
5,000.0	4,974.6	4,994.9	4,975.6	13.1	12.3	55.02	169.7	-590.6	309.8	286.1	23.66	13.091		
5,100.0	5,073.6	5,094.0	5,074.6	13.4	12.5	57.12	169.7	-590.6	302.1	277.8	24.29	12.441		
5,200.0	5,172.7	5,193.1	5,173.7	13.7	12.7	59.32	169.7	-590.6	294.9	270.0	24.92	11.836		
5,300.0	5,271.8	5,292.1	5,272.8	14.1	12.9	61.63	169.7	-590.6	288.2	262.6	25.56	11.274		
5,400.0	5,370.9	5,391.2	5,371.9	14.4	13.1	64.04	169.7	-590.6	281.9	255.7	26.21	10.756		
5,500.0	5,469.9	5,490.3	5,470.9	14.7	13.3	66.56	169.7	-590.6	276.2	249.3	26.87	10.280		
5,600.0	5,569.0	5,589.3	5,570.0	15.1	13.5	69.17	169.7	-590.6	271.0	243.5	27.53	9.846		
5,700.0	5,668.1	5,688.5	5,669.1	15.4	13.7	71.72	169.7	-590.6	266.6	238.5	28.15	9.471		
5,800.0	5,767.7	5,788.0	5,768.7	15.6	13.9	73.69	169.7	-590.6	263.7	235.0	28.67	9.199		
5,900.0	5,867.4	5,887.8	5,868.4	15.8	14.1	74.99	169.7	-590.6	262.0	232.9	29.12	8.995		
6,000.0	5,967.4	5,987.7	5,968.4	16.0	14.3	75.59	169.7	-590.6	261.2	231.7	29.52	8.849		
6,054.4	6,021.8	6,042.2	6,022.8	16.0	14.4	75.68	169.7	-590.6	261.1	231.4	29.73	8.784 CC, ES		
6,100.0	6,067.4	6,087.7	6,068.4	16.1	14.5	-22.65	169.7	-590.6	261.2	233.7	27.46	9.510		
6,200.0	6,167.4	6,187.7	6,168.4	16.3	14.7	-22.65	169.7	-590.6	261.2	233.3	27.88	9.370		
6,300.0	6,267.4	6,287.7	6,268.4	16.5	14.9	-22.65	169.7	-590.6	261.2	232.9	28.29	9.233		
6,400.0	6,367.4	6,387.7	6,368.4	16.6	15.1	-22.65	169.7	-590.6	261.2	232.5	28.70	9.100		
6,424.6	6,392.0	6,412.4	6,393.0	16.7	15.2	-22.65	169.7	-590.6	261.2	232.4	28.81	9.068		
6,500.0	6,467.4	6,481.1	6,461.8	16.8	15.3	-22.98	169.7	-592.2	261.9	232.8	29.12	8.994		
6,600.0	6,567.3	6,567.5	6,547.5	17.0	15.6	-115.21	169.7	-602.7	268.3	236.6	31.66	8.472 SF		
6,700.0	6,666.0	6,650.0	6,627.7	17.0	15.9	-119.80	169.7	-621.6	286.8	255.2	31.61	9.076		
6,800.0	6,761.8	6,712.0	6,686.4	17.0	16.1	-123.57	169.7	-641.5	321.6	290.3	31.31	10.272		
6,900.0	6,853.1	6,763.4	6,733.8	16.9	16.4	-125.75	169.7	-661.6	374.0	343.1	30.90	12.105		
7,000.0	6,938.3	6,800.0	6,766.5	16.9	16.6	-124.87	169.7	-677.7	442.0	411.4	30.67	14.412		
7,100.0	7,016.0	6,825.3	6,788.8	16.9	16.7	-120.31	169.7	-689.9	521.9	490.9	31.03	16.818		
7,200.0	7,084.8	6,839.3	6,800.8	17.1	16.8	-110.34	169.7	-696.8	609.8	577.4	32.39	18.827		
7,300.0	7,143.5	6,850.0	6,810.1	17.6	16.9	-94.88	169.7	-702.4	702.3	668.2	34.16	20.560		
7,400.0	7,191.2	6,850.0	6,810.1	18.3	16.9	-73.33	169.7	-702.4	796.9	762.8	34.09	23.373		
7,500.0	7,227.0	6,834.2	6,796.5	19.4	16.8	-51.44	169.7	-694.3	891.3	860.9	30.31	29.405		
7,600.0	7,250.3	6,821.4	6,785.4	20.7	16.7	-37.14	169.7	-687.9	984.0	957.7	26.24	37.501		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-25-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4777.0ft (Original Well Elev) Coordinates are relative to: Wiedeman 28F-412
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.46°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Wiedeman 28F-412
Project:	SEC.28-T4N-R66W	TVD Reference:	WELL @ 4777.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W	MD Reference:	WELL @ 4777.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Wiedeman 28F-412	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
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Reference Depths are relative to WELL @ 4777.0ft (Original Well Elev) Coordinates are relative to: Wiedeman 28F-412
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