PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Wiedeman 28E-234**

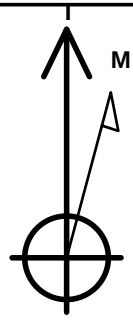
Surface Location: Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4763.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1348277.00	3197776.19	40.287250	-104.791050	

Original Well Elev WELL @ 4778.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 946'FNL & 240'FWL, SEC.28	1.0	0.0	0.0	Point
BHL 358'FNL & 2163'FEL, SEC.30	7035.0	624.2	-7727.7	Point



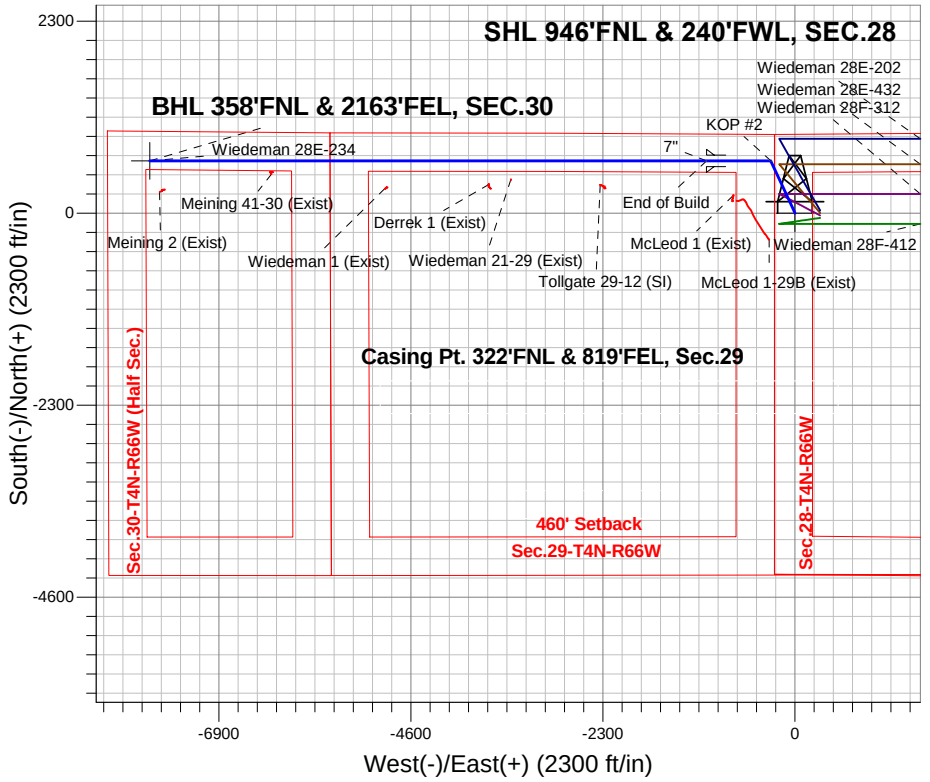
Azimuths to True North
Magnetic North: 8.45°

Magnetic Field
Strength: 52738.9snT
Dip Angle: 66.85°
Date: 8/6/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	KOP #1
6317.6	6360.8	KOP #2
7081.6	7566.2	End of Build

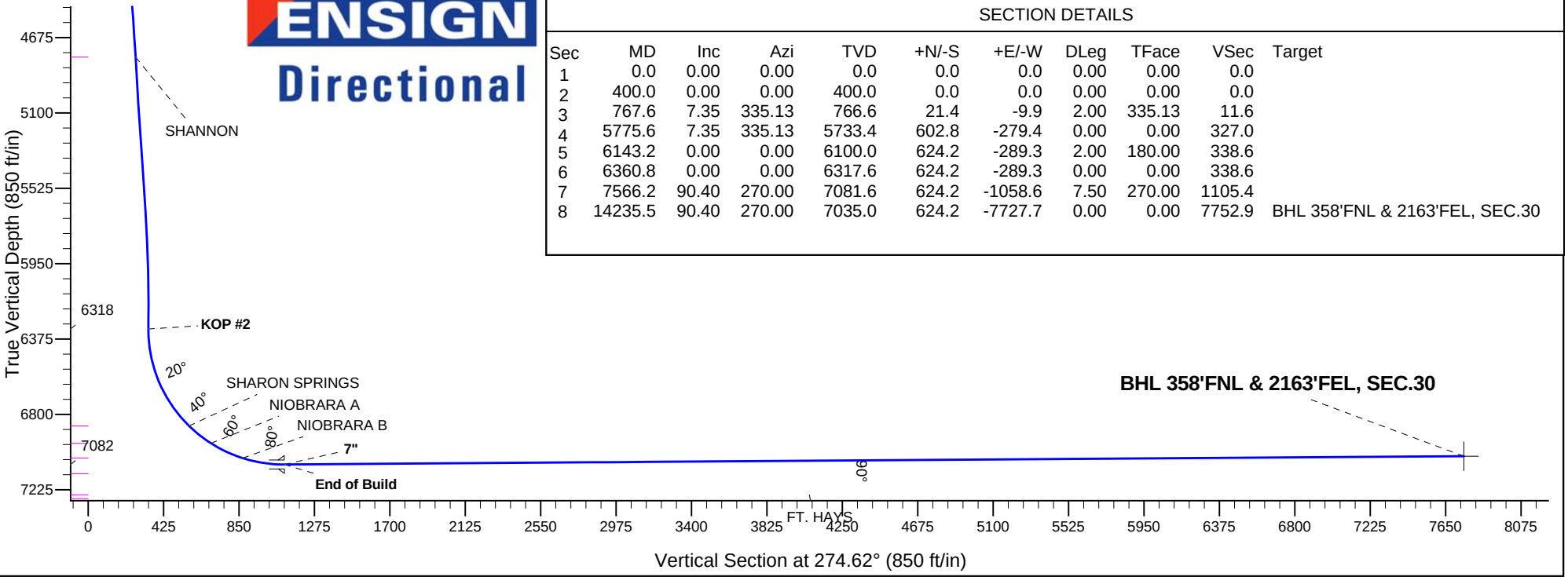
Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W
Wiedeman 28E-234
Plan #1 (8-06-14)



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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	767.6	7.35	335.13	766.6	21.4	-9.9	2.00	335.13	11.6	
4	5775.6	7.35	335.13	5733.4	602.8	-279.4	0.00	0.00	327.0	
5	6143.2	0.00	0.00	6100.0	624.2	-289.3	2.00	180.00	338.6	
6	6360.8	0.00	0.00	6317.6	624.2	-289.3	0.00	0.00	338.6	
7	7566.2	90.40	270.00	7081.6	624.2	-1058.6	7.50	270.00	1105.4	
8	14235.5	90.40	270.00	7035.0	624.2	-7727.7	0.00	0.00	7752.9	BHL 358'FNL & 2163'FEL, SEC.30



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T4N-R66W
Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W
Wiedeman 28E-234

Wellbore #1

Plan: Plan #1 (8-06-14)

Standard Planning Report

11 August, 2014

PDC ENERGY
Growing E&P Value

Database:	landmark	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Project:	SEC.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**North Reference:**	True
Well:	Wiedeman 28E-234	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-06-14)		

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 - West Pad Sec.28-T4N-R66W

Site Position:		**Northing:**	1,348,277.01 ft	**Latitude:**	40.287250
From:	Lat/Long	**Easting:**	3,197,776.19 ft	**Longitude:**	-104.791050
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.46 °

Well Wiedeman 28E-234

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,348,277.00 ft	**Latitude:**	40.287250
	+E/-W	0.0 ft	**Easting:**	3,197,776.19 ft	**Longitude:**	-104.791050
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,763.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/6/2014	8.45	66.85	52,739

Design Plan #1 (8-06-14)

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	274.62

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
767.6	7.35	335.13	766.6	21.4	-9.9	2.00	2.00	0.00	335.13	
5,775.6	7.35	335.13	5,733.4	602.8	-279.4	0.00	0.00	0.00	0.00	
6,143.2	0.00	0.00	6,100.0	624.2	-289.3	2.00	-2.00	0.00	180.00	
6,360.8	0.00	0.00	6,317.6	624.2	-289.3	0.00	0.00	0.00	0.00	
7,566.2	90.40	270.00	7,081.6	624.2	-1,058.6	7.50	7.50	0.00	270.00	
14,235.5	90.40	270.00	7,035.0	624.2	-7,727.7	0.00	0.00	0.00	0.00	BHL 358'FNL & 216

Database:	landmark	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
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Project:	SEC.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**North Reference:**	True
Well:	Wiedeman 28E-234	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-06-14)		

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
KOP #1									
500.0	2.00	335.13	500.0	1.6	-0.7	0.9	2.00	2.00	0.00
600.0	4.00	335.13	599.8	6.3	-2.9	3.4	2.00	2.00	0.00
700.0	6.00	335.13	699.5	14.2	-6.6	7.7	2.00	2.00	0.00
767.6	7.35	335.13	766.6	21.4	-9.9	11.6	2.00	2.00	0.00
800.0	7.35	335.13	798.7	25.1	-11.6	13.6	0.00	0.00	0.00
900.0	7.35	335.13	897.9	36.7	-17.0	19.9	0.00	0.00	0.00
1,000.0	7.35	335.13	997.1	48.4	-22.4	26.2	0.00	0.00	0.00
1,100.0	7.35	335.13	1,096.3	60.0	-27.8	32.5	0.00	0.00	0.00
1,200.0	7.35	335.13	1,195.4	71.6	-33.2	38.8	0.00	0.00	0.00
1,300.0	7.35	335.13	1,294.6	83.2	-38.6	45.1	0.00	0.00	0.00
1,400.0	7.35	335.13	1,393.8	94.8	-43.9	51.4	0.00	0.00	0.00
1,500.0	7.35	335.13	1,493.0	106.4	-49.3	57.7	0.00	0.00	0.00
1,600.0	7.35	335.13	1,592.1	118.0	-54.7	64.0	0.00	0.00	0.00
1,700.0	7.35	335.13	1,691.3	129.6	-60.1	70.3	0.00	0.00	0.00
1,800.0	7.35	335.13	1,790.5	141.2	-65.5	76.6	0.00	0.00	0.00
1,900.0	7.35	335.13	1,889.7	152.8	-70.8	82.9	0.00	0.00	0.00
2,000.0	7.35	335.13	1,988.9	164.5	-76.2	89.2	0.00	0.00	0.00
2,100.0	7.35	335.13	2,088.0	176.1	-81.6	95.5	0.00	0.00	0.00
2,200.0	7.35	335.13	2,187.2	187.7	-87.0	101.8	0.00	0.00	0.00
2,300.0	7.35	335.13	2,286.4	199.3	-92.4	108.1	0.00	0.00	0.00
2,400.0	7.35	335.13	2,385.6	210.9	-97.7	114.4	0.00	0.00	0.00
2,500.0	7.35	335.13	2,484.7	222.5	-103.1	120.7	0.00	0.00	0.00
2,600.0	7.35	335.13	2,583.9	234.1	-108.5	127.0	0.00	0.00	0.00
2,700.0	7.35	335.13	2,683.1	245.7	-113.9	133.3	0.00	0.00	0.00
2,800.0	7.35	335.13	2,782.3	257.3	-119.3	139.6	0.00	0.00	0.00
2,900.0	7.35	335.13	2,881.5	268.9	-124.7	145.9	0.00	0.00	0.00
3,000.0	7.35	335.13	2,980.6	280.6	-130.0	152.2	0.00	0.00	0.00
3,100.0	7.35	335.13	3,079.8	292.2	-135.4	158.5	0.00	0.00	0.00
3,200.0	7.35	335.13	3,179.0	303.8	-140.8	164.8	0.00	0.00	0.00
3,300.0	7.35	335.13	3,278.2	315.4	-146.2	171.1	0.00	0.00	0.00
3,400.0	7.35	335.13	3,377.3	327.0	-151.6	177.4	0.00	0.00	0.00
3,500.0	7.35	335.13	3,476.5	338.6	-156.9	183.7	0.00	0.00	0.00
3,600.0	7.35	335.13	3,575.7	350.2	-162.3	190.0	0.00	0.00	0.00
3,700.0	7.35	335.13	3,674.9	361.8	-167.7	196.3	0.00	0.00	0.00
3,731.4	7.35	335.13	3,706.0	365.5	-169.4	198.3	0.00	0.00	0.00
PARKMAN									
3,800.0	7.35	335.13	3,774.1	373.4	-173.1	202.6	0.00	0.00	0.00
3,900.0	7.35	335.13	3,873.2	385.0	-178.5	208.9	0.00	0.00	0.00
4,000.0	7.35	335.13	3,972.4	396.7	-183.8	215.2	0.00	0.00	0.00
4,100.0	7.35	335.13	4,071.6	408.3	-189.2	221.5	0.00	0.00	0.00
4,200.0	7.35	335.13	4,170.8	419.9	-194.6	227.8	0.00	0.00	0.00
4,300.0	7.35	335.13	4,270.0	431.5	-200.0	234.1	0.00	0.00	0.00
4,383.7	7.35	335.13	4,353.0	441.2	-204.5	239.4	0.00	0.00	0.00
SUSSEX									
4,400.0	7.35	335.13	4,369.1	443.1	-205.4	240.4	0.00	0.00	0.00
4,500.0	7.35	335.13	4,468.3	454.7	-210.8	246.7	0.00	0.00	0.00

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Project:	SEC.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**North Reference:**	True
Well:	Wiedeman 28E-234	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-06-14)		

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	7.35	335.13	4,567.5	466.3	-216.1	253.0	0.00	0.00	0.00
4,700.0	7.35	335.13	4,666.7	477.9	-221.5	259.3	0.00	0.00	0.00
4,800.0	7.35	335.13	4,765.8	489.5	-226.9	265.6	0.00	0.00	0.00
4,818.3	7.35	335.13	4,784.0	491.7	-227.9	266.7	0.00	0.00	0.00
SHANNON									
4,900.0	7.35	335.13	4,865.0	501.2	-232.3	271.9	0.00	0.00	0.00
5,000.0	7.35	335.13	4,964.2	512.8	-237.7	278.2	0.00	0.00	0.00
5,100.0	7.35	335.13	5,063.4	524.4	-243.0	284.5	0.00	0.00	0.00
5,200.0	7.35	335.13	5,162.6	536.0	-248.4	290.8	0.00	0.00	0.00
5,300.0	7.35	335.13	5,261.7	547.6	-253.8	297.1	0.00	0.00	0.00
5,400.0	7.35	335.13	5,360.9	559.2	-259.2	303.4	0.00	0.00	0.00
5,500.0	7.35	335.13	5,460.1	570.8	-264.6	309.7	0.00	0.00	0.00
5,600.0	7.35	335.13	5,559.3	582.4	-269.9	316.0	0.00	0.00	0.00
5,700.0	7.35	335.13	5,658.4	594.0	-275.3	322.3	0.00	0.00	0.00
5,775.6	7.35	335.13	5,733.4	602.8	-279.4	327.0	0.00	0.00	0.00
5,800.0	6.86	335.13	5,757.6	605.5	-280.7	328.5	2.00	-2.00	0.00
5,900.0	4.86	335.13	5,857.1	614.8	-285.0	333.5	2.00	-2.00	0.00
6,000.0	2.86	335.13	5,956.9	620.9	-287.8	336.9	2.00	-2.00	0.00
6,100.0	0.86	335.13	6,056.8	623.9	-289.2	338.5	2.00	-2.00	0.00
6,143.2	0.00	0.00	6,100.0	624.2	-289.3	338.6	2.00	-2.00	0.00
6,200.0	0.00	0.00	6,156.8	624.2	-289.3	338.6	0.00	0.00	0.00
6,300.0	0.00	0.00	6,256.8	624.2	-289.3	338.6	0.00	0.00	0.00
6,360.8	0.00	0.00	6,317.6	624.2	-289.3	338.6	0.00	0.00	0.00
KOP #2									
6,400.0	2.94	270.00	6,356.8	624.2	-290.3	339.6	7.50	7.50	0.00
6,500.0	10.44	270.00	6,456.0	624.2	-301.9	351.2	7.50	7.50	0.00
6,600.0	17.94	270.00	6,552.9	624.2	-326.4	375.6	7.50	7.50	0.00
6,700.0	25.44	270.00	6,645.8	624.2	-363.4	412.4	7.50	7.50	0.00
6,800.0	32.94	270.00	6,733.0	624.2	-412.1	461.0	7.50	7.50	0.00
6,900.0	40.44	270.00	6,813.1	624.2	-471.8	520.5	7.50	7.50	0.00
6,969.6	45.66	270.00	6,864.0	624.2	-519.3	567.9	7.50	7.50	0.00
SHARON SPRINGS									
7,000.0	47.94	270.00	6,884.8	624.2	-541.5	589.9	7.50	7.50	0.00
7,100.0	55.44	270.00	6,946.8	624.2	-619.9	668.1	7.50	7.50	0.00
7,127.6	57.51	270.00	6,962.0	624.2	-642.9	691.0	7.50	7.50	0.00
NIOBRARA A									
7,200.0	62.94	270.00	6,997.9	624.2	-705.7	753.6	7.50	7.50	0.00
7,300.0	70.44	270.00	7,037.5	624.2	-797.5	845.1	7.50	7.50	0.00
7,326.8	72.44	270.00	7,046.0	624.2	-822.8	870.4	7.50	7.50	0.00
NIOBRARA B									
7,400.0	77.94	270.00	7,064.7	624.2	-893.6	941.0	7.50	7.50	0.00
7,500.0	85.44	270.00	7,079.2	624.2	-992.5	1,039.5	7.50	7.50	0.00
7,566.2	90.40	270.00	7,081.6	624.2	-1,058.6	1,105.4	7.50	7.50	0.00
End of Build - 7"									
7,600.0	90.40	270.00	7,081.3	624.2	-1,092.4	1,139.1	0.00	0.00	0.00
7,700.0	90.40	270.00	7,080.6	624.2	-1,192.4	1,238.8	0.00	0.00	0.00
7,800.0	90.40	270.00	7,079.9	624.2	-1,292.4	1,338.5	0.00	0.00	0.00
7,900.0	90.40	270.00	7,079.2	624.2	-1,392.4	1,438.1	0.00	0.00	0.00
8,000.0	90.40	270.00	7,078.5	624.2	-1,492.4	1,537.8	0.00	0.00	0.00
8,100.0	90.40	270.00	7,077.8	624.2	-1,592.4	1,637.5	0.00	0.00	0.00
8,200.0	90.40	270.00	7,077.1	624.2	-1,692.4	1,737.2	0.00	0.00	0.00

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Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**North Reference:**	True
Well:	Wiedeman 28E-234	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-06-14)		

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)
8,300.0	90.40	270.00	7,076.4	624.2	-1,792.4	1,836.8	0.00	0.00	0.00
8,400.0	90.40	270.00	7,075.7	624.2	-1,892.4	1,936.5	0.00	0.00	0.00
8,500.0	90.40	270.00	7,075.0	624.2	-1,992.4	2,036.2	0.00	0.00	0.00
8,600.0	90.40	270.00	7,074.3	624.2	-2,092.4	2,135.9	0.00	0.00	0.00
8,700.0	90.40	270.00	7,073.6	624.2	-2,192.4	2,235.5	0.00	0.00	0.00
8,800.0	90.40	270.00	7,072.9	624.2	-2,292.4	2,335.2	0.00	0.00	0.00
8,900.0	90.40	270.00	7,072.2	624.2	-2,392.4	2,434.9	0.00	0.00	0.00
9,000.0	90.40	270.00	7,071.6	624.2	-2,492.4	2,534.5	0.00	0.00	0.00
9,100.0	90.40	270.00	7,070.9	624.2	-2,592.4	2,634.2	0.00	0.00	0.00
9,200.0	90.40	270.00	7,070.2	624.2	-2,692.4	2,733.9	0.00	0.00	0.00
9,300.0	90.40	270.00	7,069.5	624.2	-2,792.4	2,833.6	0.00	0.00	0.00
9,400.0	90.40	270.00	7,068.8	624.2	-2,892.4	2,933.2	0.00	0.00	0.00
9,500.0	90.40	270.00	7,068.1	624.2	-2,992.4	3,032.9	0.00	0.00	0.00
9,600.0	90.40	270.00	7,067.4	624.2	-3,092.4	3,132.6	0.00	0.00	0.00
9,700.0	90.40	270.00	7,066.7	624.2	-3,192.4	3,232.3	0.00	0.00	0.00
9,800.0	90.40	270.00	7,066.0	624.2	-3,292.4	3,331.9	0.00	0.00	0.00
9,900.0	90.40	270.00	7,065.3	624.2	-3,392.4	3,431.6	0.00	0.00	0.00
10,000.0	90.40	270.00	7,064.6	624.2	-3,492.4	3,531.3	0.00	0.00	0.00
10,100.0	90.40	270.00	7,063.9	624.2	-3,592.4	3,630.9	0.00	0.00	0.00
10,200.0	90.40	270.00	7,063.2	624.2	-3,692.4	3,730.6	0.00	0.00	0.00
10,300.0	90.40	270.00	7,062.5	624.2	-3,792.4	3,830.3	0.00	0.00	0.00
10,400.0	90.40	270.00	7,061.8	624.2	-3,892.4	3,930.0	0.00	0.00	0.00
10,500.0	90.40	270.00	7,061.1	624.2	-3,992.3	4,029.6	0.00	0.00	0.00
10,600.0	90.40	270.00	7,060.4	624.2	-4,092.3	4,129.3	0.00	0.00	0.00
10,700.0	90.40	270.00	7,059.7	624.2	-4,192.3	4,229.0	0.00	0.00	0.00
10,800.0	90.40	270.00	7,059.0	624.2	-4,292.3	4,328.7	0.00	0.00	0.00
10,900.0	90.40	270.00	7,058.3	624.2	-4,392.3	4,428.3	0.00	0.00	0.00
11,000.0	90.40	270.00	7,057.6	624.2	-4,492.3	4,528.0	0.00	0.00	0.00
11,100.0	90.40	270.00	7,056.9	624.2	-4,592.3	4,627.7	0.00	0.00	0.00
11,200.0	90.40	270.00	7,056.2	624.2	-4,692.3	4,727.4	0.00	0.00	0.00
11,300.0	90.40	270.00	7,055.5	624.2	-4,792.3	4,827.0	0.00	0.00	0.00
11,400.0	90.40	270.00	7,054.8	624.2	-4,892.3	4,926.7	0.00	0.00	0.00
11,500.0	90.40	270.00	7,054.1	624.2	-4,992.3	5,026.4	0.00	0.00	0.00
11,600.0	90.40	270.00	7,053.4	624.2	-5,092.3	5,126.0	0.00	0.00	0.00
11,700.0	90.40	270.00	7,052.7	624.2	-5,192.3	5,225.7	0.00	0.00	0.00
11,800.0	90.40	270.00	7,052.0	624.2	-5,292.3	5,325.4	0.00	0.00	0.00
11,900.0	90.40	270.00	7,051.3	624.2	-5,392.3	5,425.1	0.00	0.00	0.00
12,000.0	90.40	270.00	7,050.6	624.2	-5,492.3	5,524.7	0.00	0.00	0.00
12,100.0	90.40	270.00	7,049.9	624.2	-5,592.3	5,624.4	0.00	0.00	0.00
12,200.0	90.40	270.00	7,049.2	624.2	-5,692.3	5,724.1	0.00	0.00	0.00
12,300.0	90.40	270.00	7,048.5	624.2	-5,792.3	5,823.8	0.00	0.00	0.00
12,400.0	90.40	270.00	7,047.8	624.2	-5,892.3	5,923.4	0.00	0.00	0.00
12,500.0	90.40	270.00	7,047.1	624.2	-5,992.3	6,023.1	0.00	0.00	0.00
12,600.0	90.40	270.00	7,046.4	624.2	-6,092.3	6,122.8	0.00	0.00	0.00
12,700.0	90.40	270.00	7,045.7	624.2	-6,192.3	6,222.4	0.00	0.00	0.00
12,800.0	90.40	270.00	7,045.0	624.2	-6,292.3	6,322.1	0.00	0.00	0.00
12,900.0	90.40	270.00	7,044.3	624.2	-6,392.3	6,421.8	0.00	0.00	0.00
13,000.0	90.40	270.00	7,043.6	624.2	-6,492.3	6,521.5	0.00	0.00	0.00
13,100.0	90.40	270.00	7,042.9	624.2	-6,592.3	6,621.1	0.00	0.00	0.00
13,200.0	90.40	270.00	7,042.2	624.2	-6,692.3	6,720.8	0.00	0.00	0.00
13,300.0	90.40	270.00	7,041.5	624.2	-6,792.3	6,820.5	0.00	0.00	0.00
13,400.0	90.40	270.00	7,040.8	624.2	-6,892.3	6,920.2	0.00	0.00	0.00

Database:	landmark	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Project:	SEC.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**North Reference:**	True
Well:	Wiedeman 28E-234	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-06-14)		

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)
13,500.0	90.40	270.00	7,040.1	624.2	-6,992.3	7,019.8	0.00	0.00	0.00
13,600.0	90.40	270.00	7,039.4	624.2	-7,092.3	7,119.5	0.00	0.00	0.00
13,700.0	90.40	270.00	7,038.7	624.2	-7,192.3	7,219.2	0.00	0.00	0.00
13,800.0	90.40	270.00	7,038.0	624.2	-7,292.3	7,318.8	0.00	0.00	0.00
13,900.0	90.40	270.00	7,037.3	624.2	-7,392.3	7,418.5	0.00	0.00	0.00
14,000.0	90.40	270.00	7,036.6	624.2	-7,492.3	7,518.2	0.00	0.00	0.00
14,100.0	90.40	270.00	7,035.9	624.2	-7,592.3	7,617.9	0.00	0.00	0.00
14,200.0	90.40	270.00	7,035.2	624.2	-7,692.3	7,717.5	0.00	0.00	0.00
14,235.5	90.40	270.00	7,035.0	624.2	-7,727.7	7,752.9	0.00	0.00	0.00

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,566.2	7,081.6	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,731.4	3,706.0	PARKMAN			
4,383.7	4,353.0	SUSSEX			
4,818.3	4,784.0	SHANNON			
6,969.6	6,864.0	SHARON SPRINGS			
7,127.6	6,962.0	NIOBRARA A			
7,326.8	7,046.0	NIOBRARA B			
	7,134.0	NIOBRARA C			
	7,253.0	FT. HAYS			
	7,275.0	CODELL			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
400.0	400.0	0.0	0.0	KOP #1
6,360.8	6,317.6	624.2	-289.3	KOP #2
7,566.2	7,081.6	624.2	-1,058.6	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T4N-R66W
Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W
Wiedeman 28E-234

Wellbore #1
Plan #1 (8-06-14)

Anticollision Report

11 August, 2014

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Reference Plan #1 (8-06-14)

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	14,235.5	Plan #1 (8-06-14) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Existing Wells Sec.28-T4N-R66W						
Derrek 1 (Exist) - Wellbore #1 - Wellbore #1	10,173.6	7,037.5	281.4	171.0	2.549	CC, ES
Derrek 1 (Exist) - Wellbore #1 - Wellbore #1	10,200.0	7,037.3	282.7	171.5	2.543	SF
Lodwick 4-28 (Exist) - Wellbore #1 - Wellbore #1	1,710.0	1,680.6	684.1	675.7	81.778	CC
Lodwick 4-28 (Exist) - Wellbore #1 - Wellbore #1	1,900.0	1,867.4	684.6	675.2	72.490	ES
Lodwick 4-28 (Exist) - Wellbore #1 - Wellbore #1	6,400.0	6,352.1	846.5	815.5	27.316	SF
McLeod 1 (Exist) - Wellbore #1 - Wellbore #1	7,232.4	6,998.1	411.6	374.0	10.942	CC, ES
McLeod 1 (Exist) - Wellbore #1 - Wellbore #1	7,300.0	7,023.7	416.3	377.6	10.758	SF
McLeod 1-29B (Exist) - Wellbore #1 - Wellbore #1	3,164.5	3,138.1	477.6	461.4	29.518	CC
McLeod 1-29B (Exist) - Wellbore #1 - Wellbore #1	3,300.0	3,273.9	478.2	461.2	28.212	ES
McLeod 1-29B (Exist) - Wellbore #1 - Wellbore #1	3,900.0	3,834.7	505.1	485.0	25.119	SF
Meining 2 (Exist) - Wellbore #1 - Wellbore #1	14,100.3	7,005.3	362.8	141.7	1.641	CC, ES, SF
Meining 41-30 (Exist) - Wellbore #1 - Wellbore #1	12,783.1	7,024.6	155.3	-27.5	0.850	Level 1, CC, ES, SF
Tollgate 29-12 (SI) - Wellbore #1 - Wellbore #1	8,841.3	7,055.2	289.2	213.8	3.833	CC, ES
Tollgate 29-12 (SI) - Wellbore #1 - Wellbore #1	8,900.0	7,054.7	295.1	218.1	3.831	SF
Wiedeman 1 (Exist) - Wellbore #1 - Wellbore #1	11,420.8	7,030.5	330.7	185.2	2.272	CC, ES, SF
Wiedeman 21-29 (Exist) - Wellbore #1 - Wellbore #1	9,911.2	7,036.2	219.6	-11.1	0.952	Level 1, CC, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W						
Wiedeman 28E-202 - Wellbore #1 - Plan #1 (8-07-14)	4,035.5	4,058.5	241.7	215.4	9.209	CC
Wiedeman 28E-202 - Wellbore #1 - Plan #1 (8-07-14)	4,300.0	4,322.2	242.5	214.5	8.649	ES
Wiedeman 28E-202 - Wellbore #1 - Plan #1 (8-07-14)	6,400.0	6,446.3	284.4	246.9	7.571	SF
Wiedeman 28E-432 - Wellbore #1 - Plan #1 (7-25-14)	6,300.0	6,317.6	108.2	72.5	3.028	CC, ES, SF
Wiedeman 28F-202 - Wellbore #1 - Plan #1 (8-07-14)	400.0	399.0	314.8	313.2	200.348	CC, ES
Wiedeman 28F-202 - Wellbore #1 - Plan #1 (8-07-14)	5,500.0	5,431.6	987.9	959.4	34.690	SF
Wiedeman 28F-312 - Wellbore #1 - Plan #1 (7-25-14)	400.0	399.0	302.7	301.1	192.673	CC, ES
Wiedeman 28F-312 - Wellbore #1 - Plan #1 (7-25-14)	6,300.0	6,290.9	407.0	373.0	11.983	SF
Wiedeman 28F-412 - Wellbore #1 - Plan #1 (7-25-14)	400.0	399.0	306.9	305.3	195.334	CC, ES
Wiedeman 28F-412 - Wellbore #1 - Plan #1 (7-25-14)	6,600.0	6,576.1	766.5	733.8	23.440	SF
Wiedeman 28F-432 - Wellbore #1 - Plan #1 (7-25-14)	400.0	399.0	324.4	322.8	206.480	CC, ES
Wiedeman 28F-432 - Wellbore #1 - Plan #1 (7-25-14)	4,400.0	4,301.1	991.1	968.8	44.373	SF
Wiedeman 28G-212 - Wellbore #1 - Plan #1 (7-25-14)	200.0	198.0	350.2	349.5	522.864	CC
Wiedeman 28G-212 - Wellbore #1 - Plan #1 (7-25-14)	300.0	296.1	350.5	349.4	320.351	ES
Wiedeman 28G-212 - Wellbore #1 - Plan #1 (7-25-14)	2,900.0	2,741.5	993.8	978.4	64.260	SF
Wiedeman 28G-312 - Wellbore #1 - Plan #1 (7-25-14)	400.0	398.0	336.3	334.7	214.356	CC, ES
Wiedeman 28G-312 - Wellbore #1 - Plan #1 (7-25-14)	3,400.0	3,266.8	994.8	977.1	56.015	SF
Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W						
Wiedeman 28E-404 - Wellbore #1 - Plan #1 (8-07-14)	200.0	200.0	29.1	28.5	43.222	CC, ES
Wiedeman 28E-404 - Wellbore #1 - Plan #1 (8-07-14)	14,235.5	14,457.8	371.1	47.7	1.148	Level 2, SF
Wiedeman 28F-214 - Wellbore #1 - Plan #1 (8-07-14)	400.0	400.0	58.3	56.7	37.047	CC, ES
Wiedeman 28F-214 - Wellbore #1 - Plan #1 (8-07-14)	14,235.5	14,205.5	641.2	220.5	1.524	SF
Wiedeman 28F-234 - Wellbore #1 - Plan #1 (8-07-14)	400.0	400.0	120.2	118.6	76.410	CC, ES
Wiedeman 28F-234 - Wellbore #1 - Plan #1 (8-07-14)	900.0	883.5	170.7	166.9	45.315	SF
Wiedeman 28F-304 - Wellbore #1 - Plan #1 (8-07-14)	400.0	400.0	91.1	89.5	57.886	CC, ES
Wiedeman 28F-304 - Wellbore #1 - Plan #1 (8-07-14)	1,400.0	1,393.8	191.0	184.8	31.067	SF
Wiedeman 28F-314 - Wellbore #1 - Plan #1 (8-07-14)	400.0	400.0	29.1	27.6	18.524	CC, ES
Wiedeman 28F-314 - Wellbore #1 - Plan #1 (8-07-14)	14,235.5	14,304.4	519.4	103.3	1.248	Level 2, SF
Wiedeman 28G-214 - Wellbore #1 - Plan #1 (8-07-14)	200.0	199.0	178.5	177.8	265.619	CC, ES
Wiedeman 28G-214 - Wellbore #1 - Plan #1 (8-07-14)	2,900.0	2,716.4	970.9	956.9	69.340	SF
Wiedeman 28G-314 - Wellbore #1 - Plan #1 (8-07-14)	400.0	400.0	149.4	147.8	94.934	CC, ES
Wiedeman 28G-314 - Wellbore #1 - Plan #1 (8-07-14)	900.0	865.0	225.3	221.6	59.870	SF

Offset Design Existing Wells Sec.28-T4N-R66W - Derrek 1 (Exist) - Wellbore #1 - Wellbore #1

Survey Program: 100-NS-GYRO-MS

Offset Site Error: 0.0 ft

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,300.0	7,069.5	7,044.1	7,043.5	73.7	13.2	-91.24	342.7	-3,666.0	917.8	831.3	86.48	10.613	
9,400.0	7,068.8	7,043.4	7,042.7	76.4	13.2	-91.09	342.7	-3,666.0	823.2	734.0	89.20	9.228	
9,500.0	7,068.1	7,042.6	7,042.0	79.1	13.2	-90.94	342.7	-3,666.0	730.0	638.1	91.93	7.941	
9,600.0	7,067.4	7,041.9	7,041.2	81.8	13.2	-90.79	342.7	-3,666.0	638.9	544.3	94.66	6.749	
9,700.0	7,066.7	7,041.1	7,040.5	84.5	13.2	-90.64	342.7	-3,666.0	550.9	453.5	97.40	5.656	
9,800.0	7,066.0	7,040.4	7,039.7	87.2	13.2	-90.48	342.7	-3,666.0	467.7	367.6	100.14	4.671	
9,900.0	7,065.3	7,039.6	7,039.0	90.0	13.2	-90.33	342.8	-3,666.0	392.5	289.6	102.89	3.815	
10,000.0	7,064.6	7,038.8	7,038.2	92.7	13.2	-90.17	342.8	-3,666.0	330.7	225.0	105.63	3.130	
10,100.0	7,063.9	7,038.1	7,037.4	95.5	13.2	-90.02	342.8	-3,666.0	290.9	182.5	108.38	2.684	
10,173.6	7,063.4	7,037.5	7,036.9	97.5	13.2	-89.90	342.8	-3,666.0	281.4	171.0	110.41	2.549	CC, ES

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.28-T4N-R66W - Derrek 1 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,200.0	7,063.2	7,037.3	7,036.7	98.2	13.2	-89.86	342.8	-3,666.0	282.7	171.5	111.14	2.543	SF
10,300.0	7,062.5	7,036.5	7,035.9	101.0	13.2	-89.70	342.8	-3,666.0	308.5	194.6	113.89	2.709	
10,400.0	7,061.8	7,035.7	7,035.1	103.7	13.2	-89.54	342.8	-3,666.0	361.2	244.5	116.65	3.096	
10,500.0	7,061.1	7,034.9	7,034.3	106.5	13.2	-89.38	342.8	-3,666.0	431.0	311.5	119.40	3.609	
10,600.0	7,060.4	7,034.1	7,033.5	109.2	13.2	-89.22	342.8	-3,666.0	510.9	388.7	122.16	4.182	
10,700.0	7,059.7	7,033.3	7,032.7	112.0	13.2	-89.05	342.8	-3,666.0	596.9	472.0	124.92	4.778	
10,800.0	7,059.0	7,032.5	7,031.9	114.8	13.2	-88.89	342.8	-3,666.0	686.7	559.0	127.68	5.378	
10,900.0	7,058.3	7,031.7	7,031.1	117.5	13.2	-88.73	342.8	-3,666.0	779.0	648.5	130.44	5.972	
11,000.0	7,057.6	7,030.9	7,030.3	120.3	13.2	-88.56	342.8	-3,666.0	873.0	739.8	133.20	6.554	
11,100.0	7,056.9	7,030.1	7,029.5	123.1	13.2	-88.39	342.8	-3,666.0	968.2	832.2	135.96	7.121	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.28-T4N-R66W - Lodwick 4-28 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	53.24	419.0	560.8	700.2				
100.0	100.0	82.0	82.0	0.1	0.1	53.24	418.8	560.8	699.9	699.7	0.22	3,163.550	
156.6	156.6	137.6	137.6	0.2	0.2	53.25	418.7	560.8	699.9	699.4	0.43	1,634.348	
200.0	200.0	179.7	179.7	0.3	0.3	53.25	418.8	560.8	699.9	699.3	0.59	1,190.519	
300.0	300.0	281.5	281.5	0.6	0.4	53.23	419.1	560.7	700.0	699.1	0.97	718.252	
400.0	400.0	382.3	382.3	0.8	0.6	53.21	419.2	560.5	699.9	698.5	1.42	494.142	
500.0	500.0	482.6	482.6	1.0	0.9	78.20	419.3	560.1	699.3	697.4	1.88	371.381	
600.0	599.8	581.2	581.2	1.2	1.1	78.57	419.9	559.5	698.1	695.7	2.35	296.633	
700.0	699.5	683.2	683.2	1.5	1.4	79.24	420.6	558.8	696.2	693.4	2.85	244.178	
800.0	798.7	779.4	779.4	1.7	1.6	80.16	420.9	558.2	693.8	690.5	3.35	206.915	
900.0	897.9	880.7	880.6	2.0	1.9	81.15	421.6	557.8	691.7	687.9	3.89	177.939	
1,000.0	997.1	979.5	979.5	2.3	2.1	82.08	422.6	556.8	689.6	685.1	4.44	155.379	
1,100.0	1,096.3	1,076.1	1,076.0	2.6	2.4	82.99	423.7	556.0	687.9	682.9	4.99	137.950	
1,200.0	1,195.4	1,173.3	1,173.3	2.9	2.6	83.92	424.9	555.7	686.7	681.2	5.52	124.368	
1,300.0	1,294.6	1,274.9	1,274.8	3.3	2.8	84.93	425.8	555.6	685.9	679.8	6.07	112.963	
1,400.0	1,393.8	1,372.7	1,372.7	3.6	3.1	85.89	426.8	555.2	684.9	678.3	6.62	103.424	
1,500.0	1,493.0	1,470.0	1,469.9	3.9	3.3	86.86	427.7	555.2	684.6	677.4	7.17	95.490	
1,600.0	1,592.1	1,572.8	1,572.7	4.2	3.5	87.84	429.2	555.0	684.5	676.7	7.74	88.421	
1,700.0	1,691.3	1,671.0	1,671.0	4.5	3.8	88.80	430.2	554.4	684.1	675.8	8.31	82.333	
1,710.0	1,701.2	1,680.6	1,680.6	4.6	3.8	88.89	430.3	554.4	684.1	675.7	8.37	81.778	CC
1,800.0	1,790.5	1,769.7	1,769.7	4.8	4.0	89.77	431.3	554.2	684.2	675.3	8.88	77.072	
1,900.0	1,889.7	1,867.4	1,867.3	5.2	4.3	90.68	432.9	553.9	684.6	675.2	9.44	72.490	ES
2,000.0	1,988.9	1,965.6	1,965.5	5.5	4.5	91.60	434.5	553.8	685.5	675.5	10.01	68.482	
2,100.0	2,088.0	2,062.7	2,062.5	5.8	4.8	92.50	436.3	553.8	686.7	676.1	10.56	65.008	
2,200.0	2,187.2	2,163.4	2,163.3	6.1	5.0	93.46	438.0	554.2	688.3	677.2	11.12	61.884	
2,300.0	2,286.4	2,260.2	2,260.1	6.4	5.2	94.35	439.8	554.2	689.9	678.2	11.68	59.093	
2,400.0	2,385.6	2,357.2	2,357.0	6.8	5.5	95.24	441.8	554.9	692.3	680.1	12.22	56.671	
2,500.0	2,484.7	2,454.7	2,454.5	7.1	5.7	96.15	443.6	555.7	695.1	682.3	12.75	54.516	
2,600.0	2,583.9	2,553.8	2,553.6	7.4	5.9	97.04	445.8	556.8	698.3	685.0	13.29	52.541	
2,700.0	2,683.1	2,653.8	2,653.5	7.7	6.1	97.92	448.2	557.7	701.5	687.7	13.84	50.699	
2,800.0	2,782.3	2,754.3	2,754.0	8.1	6.4	98.83	450.1	558.7	704.9	690.5	14.38	49.008	
2,900.0	2,881.5	2,853.3	2,853.0	8.4	6.6	99.70	452.1	559.3	708.2	693.2	14.93	47.424	
3,000.0	2,980.6	2,951.7	2,951.4	8.7	6.8	100.53	454.6	560.2	711.9	696.4	15.48	45.978	
3,100.0	3,079.8	3,050.9	3,050.5	9.0	7.1	101.39	456.6	561.1	715.8	699.7	16.03	44.647	
3,200.0	3,179.0	3,146.4	3,146.0	9.4	7.3	102.19	458.8	562.2	720.0	703.5	16.57	43.466	
3,300.0	3,278.2	3,242.5	3,242.1	9.7	7.5	103.00	461.1	563.9	725.1	708.0	17.09	42.425	
3,400.0	3,377.3	3,342.3	3,341.8	10.0	7.8	103.82	463.5	565.8	730.4	712.8	17.62	41.462	
3,500.0	3,476.5	3,438.1	3,437.6	10.3	7.9	104.66	465.1	567.8	736.0	717.9	18.12	40.624	
3,600.0	3,575.7	3,531.1	3,530.5	10.7	8.1	105.48	466.5	570.6	742.6	724.0	18.59	39.944	
3,700.0	3,674.9	3,629.3	3,628.7	11.0	8.3	106.37	467.6	574.1	749.7	730.7	19.05	39.348	
3,800.0	3,774.1	3,730.7	3,730.0	11.3	8.4	107.30	468.3	577.5	757.0	737.5	19.51	38.793	
3,900.0	3,873.2	3,831.9	3,831.2	11.6	8.6	108.21	469.0	580.6	764.0	744.1	19.98	38.245	
4,000.0	3,972.4	3,933.9	3,933.1	12.0	8.8	109.08	470.0	583.5	771.1	750.7	20.46	37.691	
4,100.0	4,071.6	4,047.2	4,046.4	12.3	9.0	110.04	470.9	585.6	777.4	756.4	20.93	37.144	
4,200.0	4,170.8	4,166.9	4,166.0	12.6	9.1	111.16	469.9	585.0	781.4	760.1	21.29	36.695	
4,300.0	4,270.0	4,275.9	4,275.0	12.9	9.1	112.22	468.2	582.3	783.5	761.8	21.64	36.210	
4,400.0	4,369.1	4,381.8	4,380.8	13.3	9.2	113.28	466.2	578.6	785.0	763.0	22.00	35.688	
4,500.0	4,468.3	4,481.7	4,480.6	13.6	9.3	114.25	464.5	574.7	786.1	763.7	22.36	35.151	
4,600.0	4,567.5	4,574.5	4,573.3	13.9	9.4	115.12	463.3	571.3	787.8	765.1	22.74	34.638	
4,700.0	4,666.7	4,667.5	4,666.3	14.2	9.5	115.93	462.9	568.8	790.6	767.5	23.14	34.162	
4,800.0	4,765.8	4,763.2	4,762.0	14.6	9.7	116.73	462.9	566.8	794.3	770.7	23.57	33.691	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.28-T4N-R66W - Lodwick 4-28 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,865.0	4,859.4	4,858.2	14.9	9.9	117.45	463.9	565.1	798.4	774.3	24.05	33.199	
5,000.0	4,964.2	4,957.9	4,956.6	15.2	10.1	118.16	465.2	563.8	803.0	778.4	24.54	32.715	
5,100.0	5,063.4	5,055.6	5,054.4	15.5	10.3	118.87	466.2	562.5	807.7	782.7	25.04	32.258	
5,200.0	5,162.6	5,152.3	5,151.0	15.9	10.6	119.56	467.4	561.6	812.9	787.4	25.54	31.831	
5,300.0	5,261.7	5,249.7	5,248.5	16.2	10.8	120.25	468.5	560.9	818.5	792.5	26.05	31.424	
5,400.0	5,360.9	5,351.1	5,349.9	16.5	11.1	120.97	469.5	560.3	824.4	797.8	26.55	31.046	
5,500.0	5,460.1	5,450.6	5,449.3	16.8	11.3	121.69	470.0	559.2	829.9	802.9	27.04	30.695	
5,600.0	5,559.3	5,554.8	5,553.5	17.2	11.5	122.42	470.8	558.2	835.8	808.2	27.53	30.354	
5,700.0	5,658.4	5,662.7	5,661.4	17.5	11.8	123.16	472.0	555.9	840.5	812.4	28.03	29.983	
5,800.0	5,757.6	5,762.3	5,760.9	17.8	12.0	123.85	473.2	553.4	844.8	816.3	28.50	29.645	
5,900.0	5,857.1	5,857.8	5,856.4	18.0	12.2	124.42	474.0	551.2	848.1	819.2	28.90	29.345	
6,000.0	5,956.9	5,954.9	5,953.5	18.2	12.4	124.72	475.7	549.6	850.0	820.7	29.31	29.002	
6,100.0	6,056.8	6,054.2	6,052.8	18.4	12.7	124.77	477.8	548.1	850.0	820.3	29.71	28.609	
6,200.0	6,156.8	6,153.1	6,151.6	18.5	12.9	99.79	479.9	546.8	848.5	819.7	28.83	29.429	
6,300.0	6,256.8	6,251.7	6,250.2	18.7	13.2	99.65	482.3	545.6	847.0	817.7	29.26	28.942	
6,367.9	6,324.7	6,319.3	6,317.8	18.8	13.3	-170.48	484.1	545.0	847.2	816.3	30.86	27.456	
6,400.0	6,356.8	6,352.1	6,350.6	18.8	13.4	-170.53	485.0	544.6	846.5	815.5	30.99	27.316	SF
6,500.0	6,456.0	6,450.6	6,449.0	19.1	13.7	-170.69	487.5	543.5	856.5	825.4	31.08	27.555	
6,600.0	6,552.9	6,548.5	6,546.9	19.4	13.9	-170.79	489.5	542.5	879.4	848.7	30.69	28.658	
6,700.0	6,645.8	6,642.4	6,640.7	19.7	14.2	-170.84	491.5	541.3	914.4	884.6	29.81	30.675	
6,800.0	6,733.0	6,728.2	6,726.5	20.2	14.4	-170.77	493.2	540.4	961.5	933.0	28.47	33.769	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.28-T4N-R66W - McLeod 1 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-79.20	142.1	-744.9	758.4				
100.0	100.0	85.2	85.2	0.1	0.1	-79.20	142.2	-745.0	758.5	758.3	0.23	3,362.484	
200.0	200.0	182.7	182.7	0.3	0.4	-79.19	142.4	-745.5	759.0	758.3	0.69	1,101.522	
300.0	300.0	284.4	284.4	0.6	0.6	-79.17	142.7	-746.1	759.6	758.5	1.18	642.215	
400.0	400.0	383.6	383.6	0.8	0.9	-79.18	142.7	-746.6	760.1	758.5	1.65	459.868	
500.0	500.0	486.1	486.1	1.0	1.1	-54.46	142.4	-747.2	759.6	757.5	2.09	363.265	
600.0	599.8	584.9	584.8	1.2	1.3	-54.85	142.1	-747.5	756.8	754.3	2.54	298.402	
700.0	699.5	682.5	682.4	1.5	1.6	-55.46	142.2	-748.0	752.4	749.4	3.02	248.946	
800.0	798.7	780.7	780.6	1.7	1.8	-56.27	142.3	-748.7	746.4	742.8	3.53	211.230	
900.0	897.9	877.0	876.9	2.0	2.1	-57.07	142.4	-749.7	740.3	736.2	4.06	182.513	
1,000.0	997.1	974.3	974.2	2.3	2.3	-57.86	142.8	-751.0	734.7	730.1	4.59	160.188	
1,100.0	1,096.3	1,076.4	1,076.4	2.6	2.6	-58.68	143.7	-752.2	729.3	724.2	5.12	142.374	
1,200.0	1,195.4	1,177.2	1,177.1	2.9	2.8	-59.48	144.7	-753.1	723.6	718.0	5.65	128.113	
1,300.0	1,294.6	1,279.8	1,279.7	3.3	3.0	-60.30	145.9	-753.7	717.9	711.7	6.16	116.519	
1,400.0	1,393.8	1,383.4	1,383.3	3.6	3.2	-61.09	147.6	-753.6	711.7	705.0	6.64	107.172	
1,500.0	1,493.0	1,483.9	1,483.8	3.9	3.4	-61.85	149.5	-753.2	705.2	698.1	7.10	99.339	
1,600.0	1,592.1	1,580.5	1,580.3	4.2	3.5	-62.62	151.0	-752.8	698.9	691.3	7.57	92.295	
1,700.0	1,691.3	1,681.4	1,681.3	4.5	3.7	-63.43	152.7	-752.7	693.0	684.9	8.07	85.826	
1,800.0	1,790.5	1,779.2	1,779.1	4.8	3.9	-64.21	154.6	-752.4	687.0	678.5	8.58	80.068	
1,900.0	1,889.7	1,880.2	1,880.0	5.2	4.1	-65.03	156.5	-752.2	681.4	672.3	9.10	74.868	
2,000.0	1,988.9	1,981.6	1,981.5	5.5	4.3	-65.89	158.2	-751.7	675.5	665.9	9.62	70.234	
2,100.0	2,088.0	2,080.0	2,079.8	5.8	4.5	-66.70	160.2	-751.1	669.7	659.5	10.14	66.058	
2,200.0	2,187.2	2,180.8	2,180.6	6.1	4.7	-67.53	162.5	-750.5	664.0	653.3	10.67	62.228	
2,300.0	2,286.4	2,278.5	2,278.3	6.4	4.9	-68.35	164.7	-749.9	658.4	647.2	11.20	58.762	
2,400.0	2,385.6	2,379.6	2,379.4	6.8	5.2	-69.22	166.9	-749.3	653.1	641.3	11.75	55.581	
2,500.0	2,484.7	2,482.2	2,481.9	7.1	5.4	-70.14	168.8	-748.3	647.4	635.2	12.29	52.696	
2,600.0	2,583.9	2,581.9	2,581.6	7.4	5.6	-71.06	170.7	-746.9	641.6	628.8	12.81	50.077	
2,700.0	2,683.1	2,680.5	2,680.1	7.7	5.8	-71.99	172.5	-745.7	636.1	622.7	13.34	47.683	
2,800.0	2,782.3	2,777.8	2,777.5	8.1	6.0	-72.96	173.8	-744.6	630.9	617.0	13.87	45.497	
2,900.0	2,881.5	2,875.4	2,875.1	8.4	6.2	-73.96	174.9	-743.7	626.2	611.8	14.40	43.485	
3,000.0	2,980.6	2,974.3	2,973.9	8.7	6.4	-75.01	175.8	-743.0	621.9	607.0	14.95	41.603	
3,100.0	3,079.8	3,070.5	3,070.1	9.0	6.6	-76.02	176.9	-742.6	618.0	602.5	15.51	39.844	
3,200.0	3,179.0	3,168.4	3,168.0	9.4	6.9	-77.07	177.8	-742.5	614.8	598.7	16.09	38.201	
3,300.0	3,278.2	3,267.5	3,267.1	9.7	7.1	-78.10	179.2	-742.7	611.9	595.2	16.69	36.670	
3,400.0	3,377.3	3,367.7	3,367.2	10.0	7.4	-79.15	180.6	-742.8	609.1	591.8	17.28	35.246	
3,500.0	3,476.5	3,469.2	3,468.7	10.3	7.6	-80.21	182.2	-742.7	606.3	588.5	17.87	33.922	
3,600.0	3,575.7	3,566.7	3,566.3	10.7	7.9	-81.28	183.4	-742.4	603.6	585.1	18.45	32.708	
3,700.0	3,674.9	3,664.7	3,664.2	11.0	8.1	-82.31	185.0	-742.6	601.5	582.4	19.04	31.588	
3,800.0	3,774.1	3,766.4	3,766.0	11.3	8.4	-83.35	187.0	-742.9	599.5	579.9	19.64	30.523	
3,900.0	3,873.2	3,864.3	3,863.8	11.6	8.6	-84.36	189.0	-742.8	597.4	577.2	20.23	29.533	
4,000.0	3,972.4	3,965.1	3,964.6	12.0	8.9	-85.39	191.2	-743.2	595.9	575.1	20.83	28.613	
4,100.0	4,071.6	4,064.7	4,064.2	12.3	9.2	-86.42	193.4	-743.1	594.1	572.7	21.42	27.739	
4,200.0	4,170.8	4,163.9	4,163.3	12.6	9.4	-87.51	195.0	-743.0	592.7	570.7	22.00	26.935	
4,300.0	4,270.0	4,263.1	4,262.6	12.9	9.7	-88.65	196.2	-742.6	591.4	568.9	22.58	26.191	
4,400.0	4,369.1	4,361.0	4,360.5	13.3	9.9	-89.81	196.9	-742.2	590.6	567.4	23.14	25.525	
4,500.0	4,468.3	4,459.1	4,458.5	13.6	10.1	-91.01	197.3	-741.9	590.2	566.5	23.68	24.921	
4,540.0	4,508.0	4,498.5	4,497.9	13.7	10.2	-91.49	197.4	-741.8	590.2	566.3	23.90	24.691	
4,600.0	4,567.5	4,557.7	4,557.1	13.9	10.3	-92.21	197.7	-741.7	590.2	566.0	24.25	24.342	
4,700.0	4,666.7	4,658.7	4,658.2	14.2	10.6	-93.42	198.3	-741.6	590.5	565.7	24.81	23.803	
4,800.0	4,765.8	4,759.2	4,758.7	14.6	10.8	-94.67	198.6	-740.9	590.6	565.3	25.32	23.330	
4,900.0	4,865.0	4,858.1	4,857.5	14.9	11.0	-95.90	198.9	-740.1	591.0	565.2	25.82	22.893	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.28-T4N-R66W - McLeod 1 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,964.2	4,956.6	4,956.0	15.2	11.2	-97.09	199.5	-739.7	591.8	565.4	26.33	22.472	
5,100.0	5,063.4	5,056.8	5,056.2	15.5	11.4	-98.32	199.8	-739.1	592.8	566.0	26.85	22.084	
5,200.0	5,162.6	5,156.7	5,156.2	15.9	11.6	-99.53	200.5	-738.4	593.9	566.5	27.37	21.698	
5,300.0	5,261.7	5,253.0	5,252.4	16.2	11.8	-100.64	201.3	-738.1	595.4	567.5	27.91	21.333	
5,400.0	5,360.9	5,349.7	5,349.1	16.5	12.0	-101.72	202.1	-738.5	597.7	569.3	28.44	21.015	
5,500.0	5,460.1	5,450.7	5,450.1	16.8	12.3	-102.86	202.8	-738.9	600.4	571.4	28.98	20.714	
5,600.0	5,559.3	5,551.4	5,550.8	17.2	12.5	-103.98	203.8	-739.0	602.8	573.3	29.53	20.410	
5,700.0	5,658.4	5,650.4	5,649.8	17.5	12.8	-105.07	204.7	-739.0	605.5	575.4	30.08	20.127	
5,800.0	5,757.6	5,750.9	5,750.2	17.8	13.1	-106.12	206.1	-739.4	608.3	577.7	30.62	19.863	
5,900.0	5,857.1	5,852.7	5,852.1	18.0	13.3	-106.97	207.7	-739.6	610.3	579.2	31.09	19.630	
6,000.0	5,956.9	5,952.7	5,952.1	18.2	13.6	-107.50	209.3	-739.3	611.0	579.5	31.52	19.385	
6,100.0	6,056.8	6,053.8	6,053.1	18.4	13.8	-107.74	210.4	-738.8	610.9	578.9	31.92	19.136	
6,200.0	6,156.8	6,153.9	6,153.3	18.5	14.1	-132.58	211.8	-738.0	609.4	580.6	28.82	21.147	
6,300.0	6,256.8	6,253.3	6,252.6	18.7	14.3	-132.54	213.0	-737.4	608.2	578.9	29.26	20.785	
6,400.0	6,356.8	6,351.4	6,350.8	18.8	14.5	-42.67	213.8	-736.4	606.2	573.1	33.05	18.341	
6,500.0	6,456.0	6,448.3	6,447.7	19.1	14.7	-43.92	214.0	-735.7	597.0	563.9	33.12	18.027	
6,600.0	6,552.9	6,541.9	6,541.3	19.4	14.9	-46.52	214.2	-735.2	579.0	546.0	32.99	17.550	
6,700.0	6,645.8	6,632.8	6,632.1	19.7	15.0	-50.59	214.1	-735.7	553.9	521.0	32.82	16.874	
6,800.0	6,733.0	6,723.3	6,722.6	20.2	15.2	-56.56	214.3	-735.7	522.2	489.3	32.88	15.882	
6,900.0	6,813.1	6,800.0	6,799.3	20.8	15.3	-63.74	214.5	-735.8	487.4	454.0	33.37	14.607	
7,000.0	6,884.8	6,869.2	6,868.6	21.5	15.4	-71.97	214.2	-736.0	453.8	419.5	34.31	13.229	
7,100.0	6,946.8	6,929.9	6,929.2	22.5	15.4	-80.28	213.3	-735.8	427.0	391.4	35.62	11.988	
7,200.0	6,997.9	6,983.1	6,982.4	23.7	15.4	-87.64	212.7	-735.9	412.6	375.5	37.09	11.124	
7,232.4	7,012.1	6,998.1	6,997.4	24.2	15.4	-89.59	212.6	-736.1	411.6	374.0	37.62	10.942	CC, ES
7,300.0	7,037.5	7,023.7	7,023.0	25.1	15.4	-92.52	212.4	-736.3	416.3	377.6	38.70	10.758	SF
7,400.0	7,064.7	7,050.9	7,050.2	26.8	15.5	-94.22	212.2	-736.5	440.9	400.4	40.58	10.866	
7,500.0	7,079.2	7,065.3	7,064.7	28.7	15.5	-92.48	212.1	-736.6	485.1	442.4	42.73	11.352	
7,600.0	7,081.3	7,067.8	7,067.1	30.7	15.5	-89.35	212.0	-736.6	544.5	499.6	44.87	12.136	
7,700.0	7,080.6	7,067.6	7,066.9	32.9	15.5	-89.31	212.1	-736.6	614.5	567.4	47.13	13.040	
7,800.0	7,079.9	7,067.3	7,066.6	35.1	15.5	-89.28	212.1	-736.6	692.0	642.5	49.47	13.988	
7,900.0	7,079.2	7,067.1	7,066.4	37.4	15.5	-89.24	212.1	-736.6	774.6	722.7	51.88	14.931	
8,000.0	7,078.5	7,066.8	7,066.1	39.8	15.5	-89.21	212.1	-736.6	860.9	806.5	54.34	15.843	
8,100.0	7,077.8	7,066.6	7,065.9	42.3	15.5	-89.17	212.1	-736.6	949.9	893.0	56.84	16.711	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-78.20	145.7	-697.5	712.6				
100.0	100.0	93.2	93.2	0.1	0.1	-78.19	145.7	-697.1	712.2	712.0	0.24	3,008.630	
200.0	200.0	199.0	199.0	0.3	0.3	-78.18	145.6	-695.9	711.1	710.5	0.60	1,180.123	
300.0	300.0	304.9	304.8	0.6	0.4	-78.15	145.5	-693.8	709.1	708.1	0.97	732.307	
400.0	400.0	410.7	410.6	0.8	0.6	-78.12	145.3	-690.8	706.3	705.0	1.33	529.457	
500.0	500.0	516.3	516.2	1.0	0.7	-53.40	145.1	-687.0	701.7	700.0	1.70	413.449	
600.0	599.8	620.5	620.3	1.2	0.9	-53.82	144.9	-682.4	694.2	692.0	2.12	327.320	
700.0	699.5	722.7	722.3	1.5	1.2	-54.52	144.8	-677.3	684.2	681.5	2.63	260.402	
800.0	798.7	817.9	817.4	1.7	1.4	-55.33	145.2	-672.5	672.4	669.2	3.13	215.146	
900.0	897.9	914.8	914.2	2.0	1.7	-56.02	146.8	-668.0	660.8	657.2	3.64	181.505	
1,000.0	997.1	1,019.0	1,018.2	2.3	1.9	-56.72	149.1	-662.7	649.0	644.8	4.18	155.108	
1,100.0	1,096.3	1,121.0	1,120.0	2.6	2.2	-57.41	151.6	-656.7	636.6	631.8	4.73	134.512	
1,200.0	1,195.4	1,222.2	1,221.0	2.9	2.5	-58.10	154.1	-650.4	623.9	618.6	5.29	118.039	
1,300.0	1,294.6	1,323.0	1,321.6	3.3	2.7	-58.73	157.6	-643.7	610.9	605.1	5.84	104.602	
1,400.0	1,393.8	1,422.0	1,420.2	3.6	3.0	-59.31	161.7	-636.8	597.8	591.4	6.39	93.508	
1,500.0	1,493.0	1,517.3	1,515.3	3.9	3.3	-60.08	163.7	-630.6	585.1	578.2	6.94	84.261	
1,600.0	1,592.1	1,611.1	1,608.9	4.2	3.5	-61.03	164.2	-625.4	573.3	565.8	7.50	76.486	
1,700.0	1,691.3	1,704.9	1,702.6	4.5	3.8	-62.12	163.7	-621.2	562.7	554.6	8.05	69.929	
1,800.0	1,790.5	1,804.3	1,801.9	4.8	4.0	-63.39	162.6	-617.2	552.7	544.1	8.61	64.203	
1,900.0	1,889.7	1,904.9	1,902.4	5.2	4.2	-64.86	160.1	-612.8	542.6	533.4	9.17	59.188	
2,000.0	1,988.9	2,001.8	1,999.2	5.5	4.5	-66.40	157.0	-608.4	532.7	523.0	9.71	54.857	
2,100.0	2,088.0	2,095.9	2,093.1	5.8	4.7	-68.02	153.2	-604.8	524.0	513.7	10.24	51.165	
2,200.0	2,187.2	2,190.1	2,187.1	6.1	4.9	-69.77	148.8	-602.0	516.6	505.8	10.76	47.997	
2,300.0	2,286.4	2,287.5	2,284.5	6.4	5.1	-71.55	144.7	-599.6	510.3	499.0	11.30	45.175	
2,400.0	2,385.6	2,387.7	2,384.5	6.8	5.3	-73.33	141.5	-597.1	504.3	492.4	11.85	42.543	
2,500.0	2,484.7	2,487.7	2,484.5	7.1	5.5	-75.02	139.4	-594.5	498.5	486.1	12.43	40.101	
2,600.0	2,583.9	2,587.5	2,584.2	7.4	5.7	-76.91	135.9	-591.4	492.9	479.9	13.01	37.892	
2,700.0	2,683.1	2,684.2	2,680.7	7.7	6.0	-78.96	131.1	-588.0	487.9	474.3	13.57	35.952	
2,800.0	2,782.3	2,781.3	2,777.5	8.1	6.2	-81.23	124.6	-584.6	484.0	469.8	14.13	34.252	
2,900.0	2,881.5	2,877.1	2,873.0	8.4	6.4	-83.60	117.4	-581.3	481.1	466.4	14.68	32.766	
3,000.0	2,980.6	2,978.7	2,974.1	8.7	6.6	-86.26	108.8	-577.3	479.1	463.9	15.25	31.409	
3,100.0	3,079.8	3,074.5	3,069.5	9.0	6.8	-88.93	99.7	-572.7	477.8	462.0	15.82	30.210	
3,164.5	3,143.8	3,138.1	3,132.6	9.2	7.0	-90.74	93.3	-569.6	477.6	461.4	16.18	29.518	CC
3,200.0	3,179.0	3,173.1	3,167.4	9.4	7.1	-91.75	89.7	-567.8	477.7	461.3	16.38	29.161	
3,300.0	3,278.2	3,273.9	3,267.5	9.7	7.3	-94.62	79.9	-562.4	478.2	461.2	16.95	28.212	ES
3,400.0	3,377.3	3,374.5	3,367.5	10.0	7.6	-97.52	70.1	-556.1	479.2	461.7	17.52	27.356	
3,500.0	3,476.5	3,476.5	3,468.6	10.3	7.8	-100.66	59.2	-547.9	480.5	462.4	18.08	26.569	
3,600.0	3,575.7	3,573.4	3,564.4	10.7	8.1	-103.74	48.4	-539.0	482.6	464.0	18.63	25.905	
3,700.0	3,674.9	3,664.4	3,654.5	11.0	8.3	-106.61	37.9	-530.8	486.6	467.5	19.15	25.411	
3,800.0	3,774.1	3,747.2	3,736.3	11.3	8.5	-109.19	27.2	-524.6	494.1	474.5	19.63	25.166	
3,900.0	3,873.2	3,834.7	3,822.5	11.6	8.8	-111.99	13.4	-518.4	505.1	485.0	20.11	25.119	SF
4,000.0	3,972.4	3,930.9	3,917.0	12.0	9.0	-115.10	-3.1	-510.9	518.3	497.7	20.58	25.182	
4,100.0	4,071.6	4,032.8	4,017.3	12.3	9.3	-118.11	-19.4	-503.4	532.3	511.3	21.06	25.280	
4,200.0	4,170.8	4,132.5	4,115.7	12.6	9.5	-120.77	-33.6	-496.5	546.5	525.0	21.52	25.395	
4,300.0	4,270.0	4,225.7	4,207.7	12.9	9.8	-123.20	-47.2	-489.5	561.7	539.7	21.97	25.569	
4,400.0	4,369.1	4,331.0	4,311.5	13.3	10.1	-125.82	-62.4	-481.1	577.6	555.2	22.42	25.757	
4,500.0	4,468.3	4,431.8	4,411.2	13.6	10.3	-128.09	-75.1	-473.4	593.0	570.1	22.88	25.923	
4,600.0	4,567.5	4,521.0	4,499.4	13.9	10.6	-130.04	-86.6	-466.3	609.4	586.1	23.30	26.151	
4,700.0	4,666.7	4,614.0	4,591.2	14.2	10.8	-131.98	-99.2	-459.0	627.3	603.6	23.73	26.433	
4,800.0	4,765.8	4,709.0	4,685.0	14.6	11.1	-133.88	-112.7	-451.4	646.4	622.2	24.16	26.756	
4,900.0	4,865.0	4,808.1	4,782.6	14.9	11.4	-135.86	-126.9	-442.3	666.0	641.4	24.59	27.088	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,964.2	4,897.8	4,870.9	15.2	11.6	-137.64	-140.3	-433.2	686.5	661.5	25.00	27.462	
5,100.0	5,063.4	4,988.0	4,959.5	15.5	11.9	-139.35	-154.4	-423.9	708.5	683.1	25.41	27.884	
5,200.0	5,162.6	5,094.8	5,064.6	15.9	12.2	-141.17	-170.4	-413.9	730.6	704.7	25.84	28.267	
5,300.0	5,261.7	5,188.9	5,157.3	16.2	12.5	-142.66	-183.8	-405.1	752.6	726.3	26.27	28.652	
5,400.0	5,360.9	5,279.7	5,246.7	16.5	12.7	-144.06	-197.2	-396.3	775.5	748.9	26.68	29.068	
5,500.0	5,460.1	5,381.5	5,346.9	16.8	13.0	-145.52	-212.1	-386.6	798.8	771.6	27.11	29.459	
5,600.0	5,559.3	5,478.0	5,442.0	17.2	13.3	-146.81	-225.8	-377.6	822.1	794.6	27.54	29.849	
5,700.0	5,658.4	5,596.2	5,558.7	17.5	13.6	-148.22	-241.2	-367.6	844.9	816.8	28.01	30.158	
5,800.0	5,757.6	5,726.5	5,688.1	17.8	14.0	-149.60	-253.0	-357.6	863.9	835.4	28.53	30.286	
5,900.0	5,857.1	5,825.8	5,787.0	18.0	14.3	-150.57	-260.0	-351.0	879.2	850.3	28.96	30.362	
6,000.0	5,956.9	5,932.8	5,893.6	18.2	14.6	-151.28	-267.0	-345.8	891.3	861.9	29.39	30.320	
6,100.0	6,056.8	6,026.8	5,987.4	18.4	14.8	-151.74	-272.9	-341.9	900.2	870.4	29.78	30.226	
6,200.0	6,156.8	6,119.8	6,080.1	18.5	15.1	-176.91	-279.4	-338.1	907.2	874.9	32.37	28.030	
6,300.0	6,256.8	6,220.7	6,180.6	18.7	15.3	-177.22	-286.9	-333.5	914.4	881.6	32.82	27.858	
6,400.0	6,356.8	6,326.1	6,285.6	18.8	15.6	-87.44	-294.1	-328.4	920.9	889.9	31.06	29.653	
6,500.0	6,456.0	6,429.8	6,389.0	19.1	15.9	-88.06	-300.9	-323.6	927.0	895.4	31.54	29.389	
6,600.0	6,552.9	6,547.9	6,506.9	19.4	16.2	-89.72	-306.6	-320.3	931.4	899.3	32.08	29.037	
6,700.0	6,645.8	6,649.2	6,608.1	19.7	16.5	-91.84	-309.6	-318.0	935.2	902.6	32.64	28.654	
6,800.0	6,733.0	6,741.3	6,700.2	20.2	16.7	-94.21	-311.8	-316.6	941.1	907.8	33.27	28.283	
6,900.0	6,813.1	6,826.8	6,785.7	20.8	16.9	-96.62	-313.3	-315.6	950.6	916.6	34.02	27.942	
7,000.0	6,884.8	6,897.3	6,856.2	21.5	17.1	-98.45	-314.4	-314.8	965.7	930.7	34.95	27.628	
7,100.0	6,946.8	6,957.3	6,916.2	22.5	17.3	-99.56	-315.3	-314.1	988.2	952.0	36.16	27.327	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.28-T4N-R66W - Meining 2 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,200.0	7,042.2	6,971.6	6,971.0	181.5	14.5	-83.55	262.1	-7,590.9	970.0	775.5	194.49	4.987	
13,300.0	7,041.5	6,975.1	6,974.6	184.3	14.5	-84.11	262.1	-7,591.1	878.1	680.6	197.49	4.446	
13,400.0	7,040.8	6,978.8	6,978.2	187.1	14.5	-84.68	262.0	-7,591.3	788.2	587.7	200.47	3.932	
13,500.0	7,040.1	6,982.4	6,981.9	189.9	14.5	-85.25	261.9	-7,591.4	701.0	497.5	203.45	3.445	
13,600.0	7,039.4	6,986.1	6,985.6	192.7	14.5	-85.83	261.9	-7,591.6	617.6	411.2	206.41	2.992	
13,700.0	7,038.7	6,989.9	6,989.3	195.5	14.5	-86.42	261.8	-7,591.8	540.0	330.6	209.36	2.579	
13,800.0	7,038.0	6,993.7	6,993.1	198.3	14.5	-87.02	261.7	-7,591.9	470.8	258.5	212.30	2.217	
13,900.0	7,037.3	6,997.5	6,996.9	201.1	14.5	-87.62	261.7	-7,592.1	414.3	199.1	215.22	1.925	
14,000.0	7,036.6	7,001.4	7,000.8	203.8	14.6	-88.24	261.6	-7,592.3	376.3	158.2	218.12	1.725	
14,100.0	7,035.9	7,005.3	7,004.7	206.6	14.6	-88.86	261.5	-7,592.5	362.8	141.8	221.00	1.641	
14,100.3	7,035.9	7,005.3	7,004.7	206.7	14.6	-88.86	261.5	-7,592.5	362.8	141.7	221.00	1.641	CC, ES, SF
14,200.0	7,035.2	7,009.3	7,008.7	209.4	14.6	-89.49	261.4	-7,592.7	376.2	152.3	223.85	1.681	
14,235.5	7,035.0	7,010.7	7,010.1	210.4	14.6	-89.71	261.4	-7,592.7	387.1	162.2	224.86	1.721	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.28-T4N-R66W - Meining 41-30 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,800.0	7,052.0	7,045.0	7,044.5	142.5	13.1	-97.47	468.9	-6,275.1	995.1	840.7	154.37	6.446	
11,900.0	7,051.3	7,042.9	7,042.4	145.3	13.1	-96.71	468.9	-6,275.1	896.5	739.1	157.35	5.697	
12,000.0	7,050.6	7,040.8	7,040.3	148.1	13.1	-95.96	468.9	-6,275.2	798.2	637.9	160.31	4.979	
12,100.0	7,049.9	7,038.8	7,038.3	150.8	13.1	-95.20	468.9	-6,275.2	700.4	537.1	163.26	4.290	
12,200.0	7,049.2	7,036.7	7,036.2	153.6	13.1	-94.44	468.9	-6,275.2	603.3	437.1	166.18	3.630	
12,300.0	7,048.5	7,034.6	7,034.1	156.4	13.1	-93.68	468.9	-6,275.3	507.3	338.3	169.09	3.000	
12,400.0	7,047.8	7,032.5	7,032.0	159.2	13.1	-92.91	468.9	-6,275.3	413.3	241.3	171.97	2.403	
12,500.0	7,047.1	7,030.4	7,030.0	162.0	13.1	-92.15	468.9	-6,275.3	322.8	148.0	174.83	1.847	
12,600.0	7,046.4	7,028.4	7,027.9	164.8	13.1	-91.38	468.9	-6,275.3	240.0	62.4	177.67	1.351	Level 3
12,700.0	7,045.7	7,026.3	7,025.8	167.6	13.1	-90.62	468.9	-6,275.4	176.1	-4.4	180.47	0.976	Level 1
12,783.1	7,045.1	7,024.6	7,024.1	169.9	13.1	-89.98	468.9	-6,275.4	155.3	-27.5	182.78	0.850	Level 1, CC, ES, SF
12,800.0	7,045.0	7,024.2	7,023.7	170.3	13.1	-89.85	468.9	-6,275.4	156.2	-27.1	183.25	0.852	Level 1
12,900.0	7,044.3	7,022.1	7,021.7	173.1	13.1	-89.08	468.9	-6,275.4	194.3	8.3	186.00	1.045	Level 2
13,000.0	7,043.6	7,020.1	7,019.6	175.9	13.1	-88.32	468.9	-6,275.5	266.7	78.0	188.71	1.413	Level 3
13,100.0	7,042.9	7,018.0	7,017.5	178.7	13.1	-87.55	468.9	-6,275.5	352.8	161.4	191.39	1.843	
13,200.0	7,042.2	7,015.9	7,015.4	181.5	13.1	-86.79	468.9	-6,275.5	444.8	250.7	194.04	2.292	
13,300.0	7,041.5	7,013.8	7,013.4	184.3	13.1	-86.03	468.9	-6,275.5	539.6	343.0	196.66	2.744	
13,400.0	7,040.8	7,011.8	7,011.3	187.1	13.1	-85.26	468.9	-6,275.6	636.0	436.8	199.23	3.192	
13,500.0	7,040.1	7,009.7	7,009.2	189.9	13.1	-84.50	468.9	-6,275.6	733.4	531.6	201.77	3.635	
13,600.0	7,039.4	7,007.6	7,007.1	192.7	13.1	-83.75	468.9	-6,275.6	831.4	627.1	204.27	4.070	
13,700.0	7,038.7	7,005.5	7,005.0	195.5	13.1	-82.99	468.9	-6,275.7	929.8	723.0	206.73	4.497	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.28-T4N-R66W - Tollgate 29-12 (SI) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,900.0	7,079.2	7,063.0	7,061.7	37.4	14.6	-91.99	335.0	-2,333.7	984.7	933.6	51.12	19.263	
8,000.0	7,078.5	7,062.1	7,060.8	39.8	14.6	-91.81	335.0	-2,333.7	889.6	836.0	53.58	16.604	
8,100.0	7,077.8	7,061.2	7,059.9	42.3	14.6	-91.63	335.0	-2,333.7	795.7	739.6	56.08	14.188	
8,200.0	7,077.1	7,060.3	7,059.0	44.7	14.6	-91.46	335.0	-2,333.7	703.5	644.9	58.62	12.000	
8,300.0	7,076.4	7,059.4	7,058.2	47.3	14.6	-91.29	335.0	-2,333.7	613.7	552.5	61.19	10.029	
8,400.0	7,075.7	7,058.6	7,057.3	49.8	14.6	-91.13	335.0	-2,333.7	527.6	463.8	63.79	8.271	
8,500.0	7,075.0	7,057.8	7,056.5	52.4	14.6	-90.97	335.0	-2,333.7	447.4	381.0	66.41	6.737	
8,600.0	7,074.3	7,057.0	7,055.7	55.0	14.6	-90.81	335.0	-2,333.7	376.7	307.6	69.04	5.456	
8,700.0	7,073.6	7,056.2	7,055.0	57.6	14.6	-90.65	335.0	-2,333.7	321.9	250.2	71.69	4.490	
8,800.0	7,072.9	7,055.5	7,054.2	60.3	14.6	-90.50	335.0	-2,333.7	292.2	217.8	74.36	3.929	
8,841.3	7,072.7	7,055.2	7,053.9	61.4	14.6	-90.44	335.0	-2,333.7	289.2	213.8	75.46	3.833	CC, ES
8,900.0	7,072.2	7,054.7	7,053.5	62.9	14.6	-90.36	335.0	-2,333.7	295.1	218.1	77.04	3.831	SF
9,000.0	7,071.6	7,054.0	7,052.7	65.6	14.6	-90.21	335.0	-2,333.7	329.9	250.2	79.72	4.138	
9,100.0	7,070.9	7,053.3	7,052.0	68.3	14.6	-90.07	334.9	-2,333.7	388.0	305.6	82.42	4.708	
9,200.0	7,070.2	7,052.6	7,051.3	71.0	14.6	-89.93	334.9	-2,333.7	460.8	375.6	85.12	5.413	
9,300.0	7,069.5	7,051.9	7,050.6	73.7	14.6	-89.80	334.9	-2,333.7	542.3	454.4	87.84	6.173	
9,400.0	7,068.8	7,051.2	7,050.0	76.4	14.6	-89.66	334.9	-2,333.7	629.1	538.6	90.55	6.947	
9,500.0	7,068.1	7,050.6	7,049.3	79.1	14.6	-89.53	334.9	-2,333.7	719.4	626.1	93.28	7.712	
9,600.0	7,067.4	7,049.9	7,048.7	81.8	14.6	-89.41	334.9	-2,333.7	811.9	715.9	96.01	8.457	
9,700.0	7,066.7	7,049.3	7,048.0	84.5	14.6	-89.28	334.9	-2,333.7	906.1	807.3	98.74	9.177	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.28-T4N-R66W - Wiedeman 1 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,500.0	7,061.1	7,037.1	7,036.7	106.5	13.8	-90.87	293.4	-4,913.1	978.4	858.3	120.02	8.152	
10,600.0	7,060.4	7,036.4	7,036.0	109.2	13.8	-90.75	293.4	-4,913.1	884.9	762.1	122.79	7.207	
10,700.0	7,059.7	7,035.6	7,035.3	112.0	13.8	-90.63	293.4	-4,913.1	793.0	667.5	125.55	6.316	
10,800.0	7,059.0	7,034.9	7,034.6	114.8	13.8	-90.51	293.4	-4,913.1	703.4	575.0	128.32	5.481	
10,900.0	7,058.3	7,034.2	7,033.9	117.5	13.8	-90.38	293.4	-4,913.1	616.9	485.8	131.09	4.706	
11,000.0	7,057.6	7,033.5	7,033.1	120.3	13.8	-90.26	293.5	-4,913.1	535.2	401.3	133.87	3.998	
11,100.0	7,056.9	7,032.8	7,032.4	123.1	13.8	-90.13	293.5	-4,913.1	460.7	324.1	136.64	3.372	
11,200.0	7,056.2	7,032.1	7,031.7	125.8	13.8	-90.01	293.5	-4,913.1	397.6	258.2	139.41	2.852	
11,300.0	7,055.5	7,031.4	7,031.0	128.6	13.8	-89.88	293.5	-4,913.1	352.1	209.9	142.19	2.476	
11,400.0	7,054.8	7,030.6	7,030.3	131.4	13.8	-89.76	293.5	-4,913.1	331.4	186.4	144.96	2.286	
11,420.8	7,054.6	7,030.5	7,030.1	132.0	13.8	-89.73	293.5	-4,913.1	330.7	185.2	145.54	2.272	CC, ES, SF
11,500.0	7,054.1	7,029.9	7,029.5	134.2	13.8	-89.63	293.5	-4,913.1	340.1	192.3	147.73	2.302	
11,600.0	7,053.4	7,029.2	7,028.8	136.9	13.8	-89.51	293.5	-4,913.1	376.1	225.6	150.51	2.499	
11,700.0	7,052.7	7,028.5	7,028.1	139.7	13.8	-89.38	293.5	-4,913.1	432.8	279.5	153.29	2.824	
11,800.0	7,052.0	7,027.7	7,027.4	142.5	13.8	-89.26	293.5	-4,913.1	503.2	347.1	156.06	3.224	
11,900.0	7,051.3	7,027.0	7,026.6	145.3	13.8	-89.13	293.5	-4,913.1	582.2	423.4	158.84	3.666	
12,000.0	7,050.6	7,026.3	7,025.9	148.1	13.8	-89.00	293.5	-4,913.1	667.0	505.4	161.61	4.127	
12,100.0	7,049.9	7,025.5	7,025.2	150.8	13.8	-88.87	293.5	-4,913.1	755.4	591.0	164.39	4.595	
12,200.0	7,049.2	7,024.8	7,024.4	153.6	13.8	-88.75	293.5	-4,913.1	846.5	679.3	167.16	5.064	
12,300.0	7,048.5	7,024.0	7,023.7	156.4	13.8	-88.62	293.5	-4,913.1	939.3	769.4	169.94	5.528	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.28-T4N-R66W - Wiedeman 21-29 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7378-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,000.0	7,071.6	7,042.6	7,042.6	65.6	140.9	-91.66	404.6	-3,403.6	937.3	731.4	205.90	4.552	
9,100.0	7,070.9	7,041.9	7,041.9	68.3	140.8	-91.48	404.6	-3,403.6	840.4	631.8	208.60	4.029	
9,200.0	7,070.2	7,041.2	7,041.2	71.0	140.8	-91.30	404.6	-3,403.6	744.3	533.0	211.31	3.522	
9,300.0	7,069.5	7,040.5	7,040.5	73.7	140.8	-91.11	404.6	-3,403.6	649.4	435.4	214.02	3.034	
9,400.0	7,068.8	7,039.8	7,039.8	76.4	140.8	-90.93	404.6	-3,403.6	556.4	339.6	216.74	2.567	
9,500.0	7,068.1	7,039.1	7,039.1	79.1	140.8	-90.75	404.6	-3,403.6	466.1	246.7	219.46	2.124	
9,600.0	7,067.4	7,038.4	7,038.4	81.8	140.8	-90.57	404.6	-3,403.6	380.9	158.7	222.18	1.714	
9,700.0	7,066.7	7,037.7	7,037.7	84.5	140.8	-90.38	404.6	-3,403.6	304.7	79.8	224.91	1.355	Level 3
9,800.0	7,066.0	7,037.0	7,037.0	87.2	140.7	-90.20	404.6	-3,403.6	246.1	18.5	227.64	1.081	Level 2
9,900.0	7,065.3	7,036.3	7,036.3	90.0	140.7	-90.02	404.6	-3,403.6	219.9	-10.5	230.37	0.954	Level 1
9,911.2	7,065.2	7,036.2	7,036.2	90.3	140.7	-90.00	404.6	-3,403.6	219.6	-11.1	230.67	0.952	Level 1, CC, ES, SF
10,000.0	7,064.6	7,035.6	7,035.6	92.7	140.7	-89.84	404.6	-3,403.6	236.8	3.7	233.10	1.016	Level 2
10,100.0	7,063.9	7,034.9	7,034.9	95.5	140.7	-89.66	404.6	-3,403.6	289.6	53.7	235.83	1.228	Level 2
10,200.0	7,063.2	7,034.2	7,034.2	98.2	140.7	-89.47	404.6	-3,403.6	362.8	124.2	238.56	1.521	
10,300.0	7,062.5	7,033.5	7,033.5	101.0	140.7	-89.29	404.6	-3,403.6	446.5	205.2	241.30	1.850	
10,400.0	7,061.8	7,032.8	7,032.8	103.7	140.7	-89.11	404.6	-3,403.6	535.8	291.8	244.03	2.196	
10,500.0	7,061.1	7,032.1	7,032.1	106.5	140.6	-88.93	404.6	-3,403.6	628.4	381.6	246.76	2.546	
10,600.0	7,060.4	7,031.4	7,031.4	109.2	140.6	-88.75	404.6	-3,403.6	722.9	473.4	249.50	2.898	
10,700.0	7,059.7	7,030.7	7,030.7	112.0	140.6	-88.56	404.6	-3,403.6	818.8	566.5	252.23	3.246	
10,800.0	7,059.0	7,030.0	7,030.0	114.8	140.6	-88.38	404.6	-3,403.6	915.5	660.5	254.96	3.591	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28E-202 - Wellbore #1 - Plan #1 (8-

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	84.48	29.1	301.3	302.7				
100.0	100.0	99.0	99.0	0.1	0.1	84.48	29.1	301.3	302.7	302.5	0.22	1,353.533	
200.0	200.0	199.0	199.0	0.3	0.3	84.48	29.1	301.3	302.7	302.0	0.67	450.427	
300.0	300.0	299.0	299.0	0.6	0.6	84.48	29.1	301.3	302.7	301.6	1.12	269.895	
400.0	400.0	399.0	399.0	0.8	0.8	84.48	29.1	301.3	302.7	301.1	1.57	192.672	
500.0	500.0	499.0	499.0	1.0	1.0	109.64	29.1	301.3	303.3	301.3	2.02	150.196	
600.0	599.8	598.8	598.8	1.2	1.2	110.54	29.1	301.3	305.1	302.6	2.47	123.513	
700.0	699.5	698.5	698.5	1.5	1.5	111.99	29.1	301.3	308.3	305.3	2.93	105.110	
800.0	798.7	797.7	797.7	1.7	1.7	113.96	29.1	301.3	313.0	309.6	3.41	91.658	
900.0	897.9	902.8	902.7	2.0	1.9	115.89	30.7	300.4	317.5	313.6	3.92	81.025	
1,000.0	997.1	1,008.6	1,008.4	2.3	2.2	117.19	35.7	297.5	320.4	316.0	4.43	72.296	
1,100.0	1,096.3	1,114.9	1,114.3	2.6	2.4	117.88	44.2	292.7	321.5	316.5	4.96	64.791	
1,200.0	1,195.4	1,221.4	1,219.8	2.9	2.7	117.98	56.0	286.0	320.6	315.0	5.52	58.121	
1,300.0	1,294.6	1,327.7	1,324.7	3.3	3.0	117.48	71.2	277.3	317.6	311.5	6.10	52.058	
1,400.0	1,393.8	1,430.5	1,425.5	3.6	3.3	116.47	88.8	267.3	313.0	306.3	6.72	46.586	
1,500.0	1,493.0	1,530.2	1,523.2	3.9	3.7	115.39	106.2	257.4	308.3	300.9	7.35	41.918	
1,600.0	1,592.1	1,629.9	1,620.9	4.2	4.1	114.28	123.7	247.4	303.6	295.6	8.01	37.902	
1,700.0	1,691.3	1,729.7	1,718.5	4.5	4.4	113.13	141.1	237.5	299.1	290.5	8.69	34.436	
1,800.0	1,790.5	1,829.4	1,816.2	4.8	4.8	111.94	158.6	227.6	294.8	285.4	9.38	31.427	
1,900.0	1,889.7	1,929.1	1,913.9	5.2	5.2	110.72	176.0	217.6	290.5	280.4	10.09	28.804	
2,000.0	1,988.9	2,028.8	2,011.6	5.5	5.6	109.47	193.4	207.7	286.4	275.6	10.80	26.505	
2,100.0	2,088.0	2,128.5	2,109.2	5.8	6.0	108.18	210.9	197.8	282.4	270.9	11.54	24.482	
2,200.0	2,187.2	2,228.2	2,206.9	6.1	6.5	106.85	228.3	187.8	278.6	266.3	12.28	22.692	
2,300.0	2,286.4	2,327.9	2,304.6	6.4	6.9	105.49	245.8	177.9	274.9	261.9	13.03	21.103	
2,400.0	2,385.6	2,427.7	2,402.3	6.8	7.3	104.09	263.2	168.0	271.4	257.6	13.78	19.687	
2,500.0	2,484.7	2,527.4	2,499.9	7.1	7.7	102.65	280.6	158.0	268.0	253.5	14.55	18.422	
2,600.0	2,583.9	2,627.1	2,597.6	7.4	8.1	101.18	298.1	148.1	264.9	249.5	15.32	17.287	
2,700.0	2,683.1	2,726.8	2,695.3	7.7	8.6	99.68	315.5	138.2	261.9	245.8	16.10	16.268	
2,800.0	2,782.3	2,826.5	2,793.0	8.1	9.0	98.14	332.9	128.2	259.0	242.2	16.88	15.350	
2,900.0	2,881.5	2,926.2	2,890.6	8.4	9.4	96.57	350.4	118.3	256.4	238.8	17.66	14.522	
3,000.0	2,980.6	3,025.9	2,988.3	8.7	9.8	94.97	367.8	108.4	254.0	235.6	18.44	13.774	
3,100.0	3,079.8	3,125.7	3,086.0	9.0	10.3	93.34	385.3	98.4	251.8	232.6	19.22	13.098	
3,200.0	3,179.0	3,225.4	3,183.7	9.4	10.7	91.68	402.7	88.5	249.8	229.8	20.00	12.487	
3,300.0	3,278.2	3,325.1	3,281.3	9.7	11.1	90.00	420.1	78.5	248.0	227.2	20.78	11.933	
3,400.0	3,377.3	3,424.8	3,379.0	10.0	11.6	88.29	437.6	68.6	246.4	224.8	21.55	11.433	
3,500.0	3,476.5	3,524.5	3,476.7	10.3	12.0	86.57	455.0	58.7	245.0	222.7	22.32	10.980	
3,600.0	3,575.7	3,624.2	3,574.3	10.7	12.4	84.82	472.5	48.7	243.9	220.8	23.07	10.570	
3,700.0	3,674.9	3,723.9	3,672.0	11.0	12.9	83.06	489.9	38.8	243.0	219.2	23.82	10.201	
3,800.0	3,774.1	3,823.7	3,769.7	11.3	13.3	81.29	507.3	28.9	242.3	217.8	24.56	9.867	
3,900.0	3,873.2	3,923.4	3,867.4	11.6	13.7	79.51	524.8	18.9	241.9	216.6	25.28	9.567	
4,000.0	3,972.4	4,023.1	3,965.0	12.0	14.2	77.73	542.2	9.0	241.7	215.7	26.00	9.298	
4,035.5	4,007.6	4,058.5	3,999.7	12.1	14.3	77.10	548.4	5.5	241.7	215.4	26.24	9.209	CC
4,100.0	4,071.6	4,122.8	4,062.7	12.3	14.6	75.95	559.7	-0.9	241.7	215.0	26.69	9.056	
4,200.0	4,170.8	4,222.5	4,160.4	12.6	15.0	74.17	577.1	-10.9	242.0	214.6	27.37	8.841	
4,300.0	4,270.0	4,322.2	4,258.1	12.9	15.5	72.39	594.5	-20.8	242.5	214.5	28.04	8.649	ES
4,400.0	4,369.1	4,421.9	4,355.7	13.3	15.9	70.62	612.0	-30.7	243.2	214.6	28.68	8.480	
4,500.0	4,468.3	4,521.7	4,453.4	13.6	16.3	68.87	629.4	-40.7	244.2	214.9	29.32	8.331	
4,600.0	4,567.5	4,621.4	4,551.1	13.9	16.8	67.13	646.8	-50.6	245.4	215.5	29.93	8.200	
4,700.0	4,666.7	4,721.1	4,648.8	14.2	17.2	65.41	664.3	-60.5	246.8	216.3	30.52	8.087	
4,800.0	4,765.8	4,820.8	4,746.4	14.6	17.6	63.71	681.7	-70.5	248.5	217.4	31.10	7.990	
4,900.0	4,865.0	4,920.5	4,844.1	14.9	18.1	62.03	699.2	-80.4	250.3	218.7	31.66	7.907	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28E-202 - Wellbore #1 - Plan #1 (8-

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,964.2	5,020.2	4,941.8	15.2	18.5	60.38	716.6	-90.3	252.4	220.2	32.20	7.838	
5,100.0	5,063.4	5,120.0	5,039.5	15.5	18.9	58.76	734.0	-100.3	254.7	222.0	32.73	7.782	
5,200.0	5,162.6	5,219.7	5,137.1	15.9	19.4	57.17	751.5	-110.2	257.2	223.9	33.24	7.737	
5,300.0	5,261.7	5,319.4	5,234.8	16.2	19.8	55.61	768.9	-120.1	259.8	226.1	33.74	7.702	
5,400.0	5,360.9	5,419.1	5,332.5	16.5	20.3	54.08	786.4	-130.1	262.7	228.5	34.22	7.678	
5,500.0	5,460.1	5,518.8	5,430.2	16.8	20.7	52.58	803.8	-140.0	265.8	231.1	34.69	7.662	
5,600.0	5,559.3	5,618.5	5,527.8	17.2	21.1	51.12	821.2	-150.0	269.0	233.8	35.14	7.654	
5,700.0	5,658.4	5,718.4	5,625.6	17.5	21.6	49.70	838.7	-159.9	272.4	236.8	35.59	7.654	
5,800.0	5,757.6	5,824.2	5,729.7	17.8	21.9	48.55	855.5	-169.5	274.9	238.9	36.00	7.635	
5,900.0	5,857.1	5,930.2	5,834.6	18.0	22.2	47.69	868.9	-177.1	276.9	240.6	36.30	7.627	
6,000.0	5,956.9	6,036.5	5,940.2	18.2	22.5	46.92	879.0	-182.9	279.0	242.5	36.54	7.635	
6,100.0	6,056.8	6,142.9	6,046.3	18.4	22.7	46.24	885.6	-186.7	281.3	244.6	36.73	7.658	
6,200.0	6,156.8	6,249.5	6,152.8	18.5	22.8	20.85	888.9	-188.5	283.3	248.4	34.91	8.115	
6,300.0	6,256.8	6,352.5	6,255.8	18.7	23.0	20.78	889.2	-188.7	283.5	248.3	35.25	8.042	
6,333.2	6,290.0	6,385.7	6,289.0	18.7	23.0	110.84	889.2	-188.7	283.6	246.3	37.34	7.595	
6,400.0	6,356.8	6,446.3	6,349.6	18.8	23.1	111.15	889.2	-187.3	284.4	246.9	37.57	7.571	SF
6,500.0	6,456.0	6,530.9	6,433.6	19.1	23.1	114.07	889.2	-177.6	293.6	255.4	38.16	7.692	
6,600.0	6,552.9	6,605.6	6,506.5	19.4	23.1	118.36	889.2	-161.4	315.5	276.8	38.74	8.145	
6,700.0	6,645.8	6,666.7	6,564.7	19.7	23.1	121.87	889.2	-142.8	354.0	315.1	38.87	9.106	
6,800.0	6,733.0	6,713.1	6,607.8	20.2	23.1	123.11	889.2	-125.7	409.5	371.0	38.53	10.628	
6,900.0	6,813.1	6,750.0	6,641.3	20.8	23.0	121.81	889.2	-110.2	479.8	441.8	38.02	12.619	
7,000.0	6,884.8	6,766.5	6,656.0	21.5	23.0	115.21	889.2	-102.7	560.9	523.1	37.83	14.826	
7,100.0	6,946.8	6,777.1	6,665.4	22.5	23.0	103.84	889.2	-97.8	649.2	610.8	38.39	16.908	
7,200.0	6,997.9	6,779.5	6,667.5	23.7	23.0	86.47	889.2	-96.7	741.4	702.3	39.14	18.942	
7,300.0	7,037.5	6,775.1	6,663.6	25.1	23.0	66.11	889.2	-98.7	835.2	797.1	38.07	21.939	
7,400.0	7,064.7	6,765.3	6,654.9	26.8	23.0	48.49	889.2	-103.3	928.4	893.6	34.85	26.643	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	301.3	301.3				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	301.3	301.3	301.1	0.22	1,347.252	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	301.3	301.3	300.6	0.67	448.337	
300.0	300.0	299.0	299.0	0.6	0.6	90.00	0.0	301.3	301.3	300.2	1.12	268.643	
400.0	400.0	399.0	399.0	0.8	0.8	90.00	0.0	301.3	301.3	299.7	1.57	191.778	
500.0	500.0	499.0	499.0	1.0	1.0	115.15	0.0	301.3	302.0	300.0	2.02	149.563	
600.0	599.8	598.8	598.8	1.2	1.2	116.00	0.0	301.3	304.3	301.8	2.47	123.185	
700.0	699.5	698.5	698.5	1.5	1.5	117.39	0.0	301.3	308.2	305.3	2.93	105.133	
800.0	798.7	797.7	797.7	1.7	1.7	119.26	0.0	301.3	314.0	310.5	3.41	92.056	
900.0	897.9	896.9	896.9	2.0	1.9	121.24	0.0	301.3	320.4	316.5	3.90	82.155	
1,000.0	997.1	996.1	996.1	2.3	2.1	123.15	0.0	301.3	327.3	322.9	4.40	74.465	
1,100.0	1,096.3	1,095.3	1,095.3	2.6	2.3	124.97	0.0	301.3	334.5	329.6	4.89	68.378	
1,200.0	1,195.4	1,194.4	1,194.4	2.9	2.6	126.72	0.0	301.3	342.0	336.7	5.39	63.474	
1,300.0	1,294.6	1,303.8	1,303.8	3.3	2.8	128.37	1.4	300.1	348.5	342.6	5.90	59.058	
1,400.0	1,393.8	1,414.5	1,414.3	3.6	3.1	129.59	6.2	296.2	352.1	345.7	6.42	54.884	
1,500.0	1,493.0	1,525.6	1,524.9	3.9	3.3	130.39	14.2	289.4	352.6	345.7	6.94	50.822	
1,600.0	1,592.1	1,636.8	1,635.1	4.2	3.6	130.79	25.5	280.0	350.0	342.5	7.47	46.831	
1,700.0	1,691.3	1,739.8	1,736.7	4.5	3.9	130.90	38.2	269.3	345.0	337.0	8.00	43.101	
1,800.0	1,790.5	1,839.6	1,835.3	4.8	4.2	130.99	50.6	258.9	339.9	331.3	8.53	39.828	
1,900.0	1,889.7	1,939.5	1,933.8	5.2	4.5	131.09	63.1	248.5	334.7	325.7	9.07	36.910	
2,000.0	1,988.9	2,039.4	2,032.3	5.5	4.8	131.18	75.5	238.0	329.6	320.0	9.61	34.303	
2,100.0	2,088.0	2,139.2	2,130.9	5.8	5.1	131.28	88.0	227.6	324.5	314.3	10.15	31.957	
2,200.0	2,187.2	2,239.1	2,229.4	6.1	5.4	131.39	100.5	217.2	319.4	308.7	10.70	29.841	
2,300.0	2,286.4	2,339.0	2,328.0	6.4	5.8	131.49	112.9	206.8	314.3	303.0	11.25	27.925	
2,400.0	2,385.6	2,438.8	2,426.5	6.8	6.1	131.60	125.4	196.3	309.1	297.3	11.81	26.183	
2,500.0	2,484.7	2,538.7	2,525.0	7.1	6.5	131.72	137.8	185.9	304.0	291.7	12.36	24.594	
2,600.0	2,583.9	2,638.6	2,623.6	7.4	6.8	131.84	150.3	175.5	298.9	286.0	12.92	23.139	
2,700.0	2,683.1	2,738.4	2,722.1	7.7	7.2	131.96	162.7	165.1	293.8	280.3	13.47	21.802	
2,800.0	2,782.3	2,838.3	2,820.6	8.1	7.5	132.08	175.2	154.6	288.7	274.6	14.03	20.571	
2,900.0	2,881.5	2,938.2	2,919.2	8.4	7.9	132.21	187.6	144.2	283.6	269.0	14.59	19.434	
3,000.0	2,980.6	3,038.0	3,017.7	8.7	8.2	132.35	200.1	133.8	278.4	263.3	15.15	18.380	
3,100.0	3,079.8	3,137.9	3,116.3	9.0	8.6	132.49	212.5	123.4	273.3	257.6	15.71	17.401	
3,200.0	3,179.0	3,237.8	3,214.8	9.4	9.0	132.64	225.0	112.9	268.2	252.0	16.27	16.490	
3,300.0	3,278.2	3,337.6	3,313.3	9.7	9.3	132.79	237.4	102.5	263.1	246.3	16.82	15.639	
3,400.0	3,377.3	3,437.5	3,411.9	10.0	9.7	132.95	249.9	92.1	258.0	240.6	17.38	14.844	
3,500.0	3,476.5	3,537.4	3,510.4	10.3	10.1	133.11	262.3	81.7	252.9	235.0	17.94	14.099	
3,600.0	3,575.7	3,637.2	3,608.9	10.7	10.4	133.28	274.8	71.2	247.8	229.3	18.49	13.400	
3,700.0	3,674.9	3,737.1	3,707.5	11.0	10.8	133.46	287.2	60.8	242.7	223.7	19.05	12.742	
3,800.0	3,774.1	3,837.0	3,806.0	11.3	11.2	133.64	299.7	50.4	237.6	218.0	19.60	12.123	
3,900.0	3,873.2	3,936.8	3,904.6	11.6	11.5	133.84	312.1	40.0	232.5	212.4	20.15	11.538	
4,000.0	3,972.4	4,036.7	4,003.1	12.0	11.9	134.04	324.6	29.5	227.4	206.7	20.70	10.985	
4,100.0	4,071.6	4,136.6	4,101.6	12.3	12.3	134.25	337.0	19.1	222.3	201.1	21.25	10.462	
4,200.0	4,170.8	4,236.4	4,200.2	12.6	12.6	134.47	349.5	8.7	217.3	195.5	21.80	9.967	
4,300.0	4,270.0	4,336.3	4,298.7	12.9	13.0	134.70	361.9	-1.8	212.2	189.8	22.34	9.496	
4,400.0	4,369.1	4,436.2	4,397.3	13.3	13.4	134.95	374.4	-12.2	207.1	184.2	22.89	9.050	
4,500.0	4,468.3	4,536.0	4,495.8	13.6	13.8	135.20	386.8	-22.6	202.0	178.6	23.43	8.624	
4,600.0	4,567.5	4,635.9	4,594.3	13.9	14.1	135.47	399.3	-33.0	197.0	173.0	23.96	8.220	
4,700.0	4,666.7	4,735.8	4,692.9	14.2	14.5	135.76	411.7	-43.5	191.9	167.4	24.50	7.834	
4,800.0	4,765.8	4,835.6	4,791.4	14.6	14.9	136.05	424.2	-53.9	186.8	161.8	25.03	7.465	
4,900.0	4,865.0	4,935.5	4,889.9	14.9	15.2	136.37	436.7	-64.3	181.8	156.2	25.55	7.114	
5,000.0	4,964.2	5,035.4	4,988.5	15.2	15.6	136.70	449.1	-74.7	176.7	150.7	26.08	6.777	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,063.4	5,135.2	5,087.0	15.5	16.0	137.06	461.6	-85.2	171.7	145.1	26.60	6.456	
5,200.0	5,162.6	5,235.1	5,185.6	15.9	16.4	137.43	474.0	-95.6	166.7	139.5	27.11	6.147	
5,300.0	5,261.7	5,335.0	5,284.1	16.2	16.7	137.83	486.5	-106.0	161.6	134.0	27.62	5.852	
5,400.0	5,360.9	5,434.8	5,382.6	16.5	17.1	138.25	498.9	-116.4	156.6	128.5	28.12	5.569	
5,500.0	5,460.1	5,534.7	5,481.2	16.8	17.5	138.70	511.4	-126.9	151.6	123.0	28.62	5.297	
5,600.0	5,559.3	5,634.6	5,579.7	17.2	17.9	139.18	523.8	-137.3	146.6	117.5	29.11	5.036	
5,700.0	5,658.4	5,734.5	5,678.2	17.5	18.2	139.70	536.3	-147.7	141.6	112.0	29.60	4.785	
5,800.0	5,757.6	5,834.3	5,776.8	17.8	18.6	140.20	548.7	-158.1	136.6	106.5	30.07	4.541	
5,900.0	5,857.1	5,932.4	5,873.6	18.0	18.9	140.04	560.7	-168.2	129.9	99.3	30.53	4.253	
6,000.0	5,956.9	6,028.4	5,968.7	18.2	19.2	139.39	570.5	-176.4	123.0	92.0	30.99	3.970	
6,100.0	6,056.8	6,124.5	6,064.4	18.4	19.4	138.28	577.8	-182.5	116.6	85.1	31.46	3.705	
6,200.0	6,156.8	6,220.9	6,160.6	18.5	19.6	112.02	582.6	-186.5	111.0	75.5	35.50	3.126	
6,300.0	6,256.8	6,317.6	6,257.2	18.7	19.7	111.26	585.0	-188.5	108.2	72.5	35.73	3.028	CC, ES, SF
6,342.7	6,299.5	6,359.0	6,298.6	18.8	19.8	-158.91	585.2	-188.7	108.3	75.7	32.64	3.319	
6,400.0	6,356.8	6,416.2	6,355.8	18.8	19.9	-158.99	585.2	-188.7	108.8	75.9	32.88	3.310	
6,500.0	6,456.0	6,515.4	6,455.0	19.1	20.0	-160.71	585.2	-188.7	119.8	86.5	33.30	3.597	
6,600.0	6,552.9	6,603.9	6,543.5	19.4	20.2	-163.28	585.2	-187.3	144.7	111.4	33.29	4.347	
6,700.0	6,645.8	6,676.8	6,615.9	19.7	20.2	-165.77	585.2	-179.5	190.2	157.5	32.71	5.815	
6,800.0	6,733.0	6,736.0	6,674.0	20.2	20.2	-167.33	585.2	-168.0	253.9	222.4	31.51	8.057	
6,900.0	6,813.1	6,780.9	6,717.3	20.8	20.2	-167.69	585.2	-156.4	331.7	301.9	29.78	11.137	
7,000.0	6,884.8	6,812.3	6,747.2	21.5	20.2	-166.56	585.2	-146.7	419.5	391.8	27.71	15.138	
7,100.0	6,946.8	6,832.0	6,765.8	22.5	20.2	-162.55	585.2	-140.0	514.0	488.2	25.80	19.922	
7,200.0	6,997.9	6,850.0	6,782.5	23.7	20.2	-150.68	585.2	-133.5	612.3	585.8	26.47	23.128	
7,300.0	7,037.5	6,850.0	6,782.5	25.1	20.2	-66.46	585.2	-133.5	711.9	673.0	38.92	18.291	
7,400.0	7,064.7	6,850.0	6,782.5	26.8	20.2	-18.55	585.2	-133.5	811.4	789.1	22.28	36.420	
7,500.0	7,079.2	6,828.8	6,762.8	28.7	20.2	-8.98	585.2	-141.1	908.7	891.0	17.72	51.292	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	106.82	-91.1	301.3	314.8				
100.0	100.0	99.0	99.0	0.1	0.1	106.82	-91.1	301.3	314.8	314.5	0.22	1,407.457	
200.0	200.0	199.0	199.0	0.3	0.3	106.82	-91.1	301.3	314.8	314.1	0.67	468.372	
300.0	300.0	299.0	299.0	0.6	0.6	106.82	-91.1	301.3	314.8	313.6	1.12	280.648	
400.0	400.0	399.0	399.0	0.8	0.8	106.82	-91.1	301.3	314.8	313.2	1.57	200.348	CC, ES
500.0	500.0	499.0	499.0	1.0	1.0	131.90	-91.1	301.3	315.9	313.9	2.02	156.370	
600.0	599.8	598.8	598.8	1.2	1.2	132.55	-91.1	301.3	319.5	317.0	2.47	129.252	
700.0	699.5	698.5	698.5	1.5	1.5	133.59	-91.1	301.3	325.4	322.5	2.93	111.086	
800.0	798.7	797.7	797.7	1.7	1.7	135.00	-91.1	301.3	333.8	330.4	3.40	98.256	
900.0	897.9	896.9	896.9	2.0	1.9	136.51	-91.1	301.3	343.0	339.2	3.87	88.578	
1,000.0	997.1	996.1	996.1	2.3	2.1	137.93	-91.1	301.3	352.5	348.1	4.35	80.995	
1,100.0	1,096.3	1,095.3	1,095.3	2.6	2.3	139.29	-91.1	301.3	362.1	357.3	4.83	74.934	
1,200.0	1,195.4	1,194.4	1,194.4	2.9	2.6	140.57	-91.1	301.3	371.9	366.6	5.31	70.003	
1,300.0	1,294.6	1,299.8	1,299.8	3.3	2.8	142.09	-92.1	299.9	381.2	375.4	5.78	65.929	
1,400.0	1,393.8	1,405.1	1,404.9	3.6	3.0	144.04	-95.3	295.3	389.0	382.8	6.23	62.478	
1,500.0	1,493.0	1,509.7	1,509.1	3.9	3.2	146.40	-100.6	287.6	395.8	389.1	6.68	59.266	
1,600.0	1,592.1	1,612.4	1,611.0	4.2	3.4	149.11	-108.0	277.1	401.9	394.8	7.14	56.282	
1,700.0	1,691.3	1,710.3	1,708.0	4.5	3.7	151.78	-115.7	266.0	408.5	400.8	7.61	53.655	
1,800.0	1,790.5	1,808.2	1,804.9	4.8	3.9	154.36	-123.4	255.0	415.9	407.8	8.10	51.360	
1,900.0	1,889.7	1,906.2	1,901.9	5.2	4.2	156.84	-131.1	243.9	424.1	415.5	8.59	49.354	
2,000.0	1,988.9	2,004.1	1,998.9	5.5	4.5	159.23	-138.8	232.9	433.2	424.1	9.10	47.607	
2,100.0	2,088.0	2,102.0	2,095.9	5.8	4.8	161.53	-146.6	221.8	443.0	433.4	9.61	46.079	
2,200.0	2,187.2	2,199.9	2,192.9	6.1	5.1	163.72	-154.3	210.8	453.5	443.3	10.13	44.744	
2,300.0	2,286.4	2,297.9	2,289.9	6.4	5.4	165.81	-162.0	199.8	464.6	453.9	10.66	43.576	
2,400.0	2,385.6	2,395.8	2,386.9	6.8	5.7	167.81	-169.7	188.7	476.3	465.1	11.19	42.553	
2,500.0	2,484.7	2,493.7	2,483.9	7.1	6.0	169.71	-177.4	177.7	488.6	476.9	11.73	41.654	
2,600.0	2,583.9	2,591.7	2,580.9	7.4	6.3	171.52	-185.1	166.6	501.4	489.2	12.27	40.865	
2,700.0	2,683.1	2,689.6	2,677.9	7.7	6.6	173.23	-192.8	155.6	514.7	501.9	12.81	40.169	
2,800.0	2,782.3	2,787.5	2,774.9	8.1	6.9	174.87	-200.5	144.5	528.5	515.1	13.36	39.555	
2,900.0	2,881.5	2,885.4	2,871.9	8.4	7.2	176.42	-208.2	133.5	542.6	528.7	13.91	39.012	
3,000.0	2,980.6	2,983.4	2,968.9	8.7	7.6	177.89	-215.9	122.5	557.1	542.6	14.46	38.530	
3,100.0	3,079.8	3,081.3	3,065.9	9.0	7.9	179.29	-223.6	111.4	572.0	557.0	15.01	38.103	
3,200.0	3,179.0	3,179.2	3,162.9	9.4	8.2	-179.39	-231.3	100.4	587.2	571.6	15.57	37.723	
3,300.0	3,278.2	3,277.2	3,259.9	9.7	8.5	-178.12	-239.1	89.3	602.6	586.5	16.12	37.384	
3,400.0	3,377.3	3,375.1	3,356.9	10.0	8.9	-176.93	-246.8	78.3	618.4	601.7	16.68	37.082	
3,500.0	3,476.5	3,473.0	3,453.9	10.3	9.2	-175.79	-254.5	67.2	634.4	617.2	17.23	36.812	
3,600.0	3,575.7	3,570.9	3,550.9	10.7	9.5	-174.70	-262.2	56.2	650.7	632.9	17.79	36.570	
3,700.0	3,674.9	3,668.9	3,647.9	11.0	9.9	-173.67	-269.9	45.2	667.1	648.8	18.35	36.353	
3,800.0	3,774.1	3,766.8	3,744.9	11.3	10.2	-172.69	-277.6	34.1	683.8	664.9	18.91	36.158	
3,900.0	3,873.2	3,864.7	3,841.9	11.6	10.5	-171.75	-285.3	23.1	700.7	681.2	19.47	35.984	
4,000.0	3,972.4	3,962.6	3,938.9	12.0	10.9	-170.86	-293.0	12.0	717.7	697.7	20.03	35.827	
4,100.0	4,071.6	4,060.6	4,035.9	12.3	11.2	-170.01	-300.7	1.0	734.9	714.3	20.59	35.685	
4,200.0	4,170.8	4,158.5	4,132.9	12.6	11.5	-169.20	-308.4	-10.1	752.2	731.1	21.16	35.558	
4,300.0	4,270.0	4,256.4	4,229.9	12.9	11.9	-168.42	-316.1	-21.1	769.7	748.0	21.72	35.443	
4,400.0	4,369.1	4,354.4	4,326.9	13.3	12.2	-167.68	-323.9	-32.1	787.4	765.1	22.28	35.339	
4,500.0	4,468.3	4,452.3	4,423.9	13.6	12.5	-166.97	-331.6	-43.2	805.1	782.3	22.84	35.246	
4,600.0	4,567.5	4,550.2	4,520.9	13.9	12.9	-166.29	-339.3	-54.2	823.0	799.6	23.41	35.161	
4,700.0	4,666.7	4,648.1	4,617.9	14.2	13.2	-165.64	-347.0	-65.3	840.9	817.0	23.97	35.085	
4,800.0	4,765.8	4,746.1	4,714.9	14.6	13.6	-165.02	-354.7	-76.3	859.0	834.5	24.53	35.016	
4,900.0	4,865.0	4,844.0	4,811.9	14.9	13.9	-164.42	-362.4	-87.4	877.2	852.1	25.10	34.954	
5,000.0	4,964.2	4,941.9	4,908.9	15.2	14.2	-163.85	-370.1	-98.4	895.4	869.8	25.66	34.898	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,063.4	5,039.9	5,005.9	15.5	14.6	-163.30	-377.8	-109.4	913.8	887.6	26.22	34.847	
5,200.0	5,162.6	5,137.8	5,102.9	15.9	14.9	-162.77	-385.5	-120.5	932.2	905.4	26.79	34.802	
5,300.0	5,261.7	5,235.7	5,199.9	16.2	15.2	-162.26	-393.2	-131.5	950.7	923.3	27.35	34.761	
5,400.0	5,360.9	5,333.6	5,296.9	16.5	15.6	-161.77	-400.9	-142.6	969.3	941.3	27.91	34.724	
5,500.0	5,460.1	5,431.6	5,393.9	16.8	15.9	-161.30	-408.7	-153.6	987.9	959.4	28.48	34.690	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	95.52	-29.1	301.3	302.7				
100.0	100.0	99.0	99.0	0.1	0.1	95.52	-29.1	301.3	302.7	302.5	0.22	1,353.540	
200.0	200.0	199.0	199.0	0.3	0.3	95.52	-29.1	301.3	302.7	302.0	0.67	450.430	
300.0	300.0	299.0	299.0	0.6	0.6	95.52	-29.1	301.3	302.7	301.6	1.12	269.897	
400.0	400.0	399.0	399.0	0.8	0.8	95.52	-29.1	301.3	302.7	301.1	1.57	192.673	CC, ES
500.0	500.0	499.0	499.0	1.0	1.0	120.66	-29.1	301.3	303.6	301.6	2.02	150.314	
600.0	599.8	598.8	598.8	1.2	1.2	121.46	-29.1	301.3	306.3	303.8	2.47	123.978	
700.0	699.5	698.5	698.5	1.5	1.5	122.74	-29.1	301.3	310.9	308.0	2.93	106.090	
800.0	798.7	797.7	797.7	1.7	1.7	124.48	-29.1	301.3	317.6	314.2	3.41	93.247	
900.0	897.9	896.9	896.9	2.0	1.9	126.33	-29.1	301.3	325.1	321.2	3.89	83.539	
1,000.0	997.1	996.1	996.1	2.3	2.1	128.10	-29.1	301.3	332.9	328.5	4.38	75.979	
1,100.0	1,096.3	1,095.3	1,095.3	2.6	2.3	129.78	-29.1	301.3	340.9	336.1	4.87	69.978	
1,200.0	1,195.4	1,194.4	1,194.4	2.9	2.6	131.39	-29.1	301.3	349.3	343.9	5.36	65.130	
1,300.0	1,294.6	1,293.6	1,293.6	3.3	2.8	132.92	-29.1	301.3	357.9	352.1	5.85	61.151	
1,400.0	1,393.8	1,392.8	1,392.8	3.6	3.0	134.38	-29.1	301.3	366.8	360.5	6.34	57.839	
1,500.0	1,493.0	1,505.7	1,505.7	3.9	3.3	135.92	-28.2	299.6	374.2	367.4	6.85	54.652	
1,600.0	1,592.1	1,620.3	1,620.0	4.2	3.5	137.35	-25.2	293.8	377.9	370.6	7.35	51.426	
1,700.0	1,691.3	1,735.0	1,734.3	4.5	3.8	138.70	-20.0	284.0	377.8	369.9	7.85	48.105	
1,800.0	1,790.5	1,839.8	1,838.2	4.8	4.0	139.91	-13.8	272.2	374.7	366.4	8.34	44.927	
1,900.0	1,889.7	1,939.4	1,937.0	5.2	4.3	141.08	-7.7	260.7	371.5	362.7	8.82	42.148	
2,000.0	1,988.9	2,039.1	2,035.8	5.5	4.6	142.26	-1.6	249.3	368.6	359.3	9.29	39.670	
2,100.0	2,088.0	2,138.8	2,134.6	5.8	4.8	143.47	4.4	237.8	365.7	356.0	9.77	37.452	
2,200.0	2,187.2	2,238.4	2,233.4	6.1	5.1	144.69	10.5	226.4	363.1	352.8	10.24	35.460	
2,300.0	2,286.4	2,338.1	2,332.2	6.4	5.4	145.93	16.5	214.9	360.6	349.9	10.71	33.661	
2,400.0	2,385.6	2,437.7	2,431.0	6.8	5.7	147.19	22.6	203.4	358.2	347.1	11.18	32.031	
2,500.0	2,484.7	2,537.4	2,529.9	7.1	6.0	148.46	28.6	192.0	356.1	344.4	11.66	30.550	
2,600.0	2,583.9	2,637.1	2,628.7	7.4	6.3	149.75	34.7	180.5	354.1	342.0	12.13	29.200	
2,700.0	2,683.1	2,736.7	2,727.5	7.7	6.6	151.05	40.8	169.1	352.3	339.7	12.60	27.966	
2,800.0	2,782.3	2,836.4	2,826.3	8.1	6.9	152.36	46.8	157.6	350.7	337.7	13.07	26.834	
2,900.0	2,881.5	2,936.0	2,925.1	8.4	7.2	153.69	52.9	146.2	349.3	335.8	13.54	25.794	
3,000.0	2,980.6	3,035.7	3,023.9	8.7	7.5	155.02	58.9	134.7	348.1	334.1	14.02	24.836	
3,100.0	3,079.8	3,135.4	3,122.7	9.0	7.8	156.36	65.0	123.2	347.1	332.6	14.49	23.951	
3,200.0	3,179.0	3,235.0	3,221.5	9.4	8.1	157.71	71.0	111.8	346.2	331.2	14.97	23.131	
3,300.0	3,278.2	3,334.7	3,320.4	9.7	8.5	159.07	77.1	100.3	345.6	330.1	15.45	22.372	
3,400.0	3,377.3	3,434.3	3,419.2	10.0	8.8	160.43	83.1	88.9	345.1	329.2	15.93	21.666	
3,500.0	3,476.5	3,534.0	3,518.0	10.3	9.1	161.79	89.2	77.4	344.9	328.4	16.41	21.010	
3,579.9	3,555.8	3,613.7	3,597.0	10.6	9.3	162.88	94.0	68.3	344.8	328.0	16.81	20.517	
3,600.0	3,575.7	3,633.7	3,616.8	10.7	9.4	163.16	95.3	66.0	344.8	327.9	16.90	20.398	
3,700.0	3,674.9	3,733.3	3,715.6	11.0	9.7	164.52	101.3	54.5	344.9	327.5	17.40	19.826	
3,800.0	3,774.1	3,833.0	3,814.4	11.3	10.0	165.89	107.4	43.0	345.3	327.4	17.90	19.292	
3,900.0	3,873.2	3,932.6	3,913.2	11.6	10.4	167.24	113.4	31.6	345.8	327.4	18.40	18.792	
4,000.0	3,972.4	4,032.3	4,012.1	12.0	10.7	168.60	119.5	20.1	346.5	327.6	18.91	18.323	
4,100.0	4,071.6	4,132.0	4,110.9	12.3	11.0	169.95	125.5	8.7	347.4	328.0	19.43	17.884	
4,200.0	4,170.8	4,231.6	4,209.7	12.6	11.3	171.29	131.6	-2.8	348.6	328.6	19.95	17.471	
4,300.0	4,270.0	4,331.3	4,308.5	12.9	11.6	172.62	137.7	-14.3	349.9	329.4	20.48	17.083	
4,400.0	4,369.1	4,430.9	4,407.3	13.3	12.0	173.94	143.7	-25.7	351.4	330.3	21.02	16.718	
4,500.0	4,468.3	4,530.6	4,506.1	13.6	12.3	175.25	149.8	-37.2	353.0	331.5	21.56	16.374	
4,600.0	4,567.5	4,630.3	4,604.9	13.9	12.6	176.54	155.8	-48.6	354.9	332.8	22.11	16.051	
4,700.0	4,666.7	4,729.9	4,703.8	14.2	12.9	177.82	161.9	-60.1	356.9	334.3	22.67	15.746	
4,800.0	4,765.8	4,829.6	4,802.6	14.6	13.3	179.09	167.9	-71.5	359.2	335.9	23.23	15.458	
4,900.0	4,865.0	4,929.2	4,901.4	14.9	13.6	-179.66	174.0	-83.0	361.5	337.7	23.81	15.187	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,964.2	5,028.9	5,000.2	15.2	13.9	-178.43	180.0	-94.5	364.1	339.7	24.38	14.932	
5,100.0	5,063.4	5,128.6	5,099.0	15.5	14.2	-177.21	186.1	-105.9	366.8	341.9	24.97	14.691	
5,200.0	5,162.6	5,228.2	5,197.8	15.9	14.6	-176.02	192.2	-117.4	369.7	344.2	25.56	14.463	
5,300.0	5,261.7	5,327.9	5,296.6	16.2	14.9	-174.84	198.2	-128.8	372.8	346.6	26.16	14.248	
5,400.0	5,360.9	5,427.5	5,395.4	16.5	15.2	-173.68	204.3	-140.3	376.0	349.2	26.77	14.046	
5,500.0	5,460.1	5,527.2	5,494.3	16.8	15.5	-172.54	210.3	-151.7	379.4	352.0	27.38	13.854	
5,600.0	5,559.3	5,626.9	5,593.1	17.2	15.9	-171.42	216.4	-163.2	382.9	354.9	28.00	13.674	
5,700.0	5,658.4	5,721.0	5,686.5	17.5	16.1	-170.45	221.8	-173.5	387.0	358.4	28.56	13.549	
5,800.0	5,757.6	5,812.2	5,777.3	17.8	16.3	-169.83	225.8	-181.0	393.1	364.1	29.04	13.537	
5,900.0	5,857.1	5,900.0	5,864.9	18.0	16.5	-169.50	228.4	-185.9	399.0	369.6	29.43	13.561	
6,000.0	5,956.9	5,994.8	5,959.7	18.2	16.7	-169.37	229.7	-188.4	403.6	373.9	29.75	13.567	
6,100.0	6,056.8	6,090.9	6,055.8	18.4	16.8	-169.44	229.9	-188.7	406.6	376.6	30.03	13.542	
6,200.0	6,156.8	6,190.9	6,155.8	18.5	17.0	165.69	229.9	-188.7	407.0	373.3	33.61	12.108	
6,300.0	6,256.8	6,290.9	6,255.8	18.7	17.2	165.69	229.9	-188.7	407.0	373.0	33.96	11.983	SF
6,339.8	6,296.6	6,330.7	6,295.6	18.7	17.2	-104.37	229.9	-188.7	407.1	376.1	30.91	13.168	
6,400.0	6,356.8	6,390.9	6,355.8	18.8	17.3	-104.43	229.9	-188.7	407.2	376.0	31.16	13.068	
6,500.0	6,456.0	6,483.0	6,447.8	19.1	17.5	-105.80	229.9	-187.2	410.7	379.2	31.50	13.041	
6,600.0	6,552.9	6,562.6	6,526.9	19.4	17.5	-108.70	229.9	-178.1	422.1	390.4	31.68	13.323	
6,700.0	6,645.8	6,630.0	6,592.7	19.7	17.5	-111.80	229.9	-163.9	444.9	413.1	31.82	13.984	
6,800.0	6,733.0	6,682.9	6,643.5	20.2	17.5	-113.66	229.9	-148.8	482.3	450.3	32.06	15.046	
6,900.0	6,813.1	6,721.6	6,679.8	20.8	17.5	-113.33	229.9	-135.6	534.8	502.2	32.63	16.389	
7,000.0	6,884.8	6,750.0	6,706.0	21.5	17.5	-110.47	229.9	-124.7	600.7	566.8	33.82	17.761	
7,100.0	6,946.8	6,762.3	6,717.3	22.5	17.5	-103.63	229.9	-119.6	676.7	640.7	35.94	18.826	
7,200.0	6,997.9	6,768.2	6,722.6	23.7	17.5	-93.41	229.9	-117.2	759.7	721.2	38.45	19.756	
7,300.0	7,037.5	6,766.7	6,721.3	25.1	17.5	-80.01	229.9	-117.8	846.6	806.6	39.99	21.168	
7,400.0	7,064.7	6,750.0	6,706.0	26.8	17.5	-64.38	229.9	-124.7	935.2	896.5	38.80	24.106	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28F-412 - Wellbore #1 - Plan #1 (7-

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	100.95	-58.3	301.3	306.9				
100.0	100.0	99.0	99.0	0.1	0.1	100.95	-58.3	301.3	306.9	306.7	0.22	1,372.232	
200.0	200.0	199.0	199.0	0.3	0.3	100.95	-58.3	301.3	306.9	306.2	0.67	456.650	
300.0	300.0	299.0	299.0	0.6	0.6	100.95	-58.3	301.3	306.9	305.8	1.12	273.624	
400.0	400.0	399.0	399.0	0.8	0.8	100.95	-58.3	301.3	306.9	305.3	1.57	195.334	CC, ES
500.0	500.0	499.0	499.0	1.0	1.0	126.06	-58.3	301.3	307.9	305.9	2.02	152.429	
600.0	599.8	598.8	598.8	1.2	1.2	126.79	-58.3	301.3	311.0	308.6	2.47	125.870	
700.0	699.5	698.5	698.5	1.5	1.5	127.97	-58.3	301.3	316.3	313.4	2.93	107.957	
800.0	798.7	797.7	797.7	1.7	1.7	129.56	-58.3	301.3	323.9	320.5	3.40	95.202	
900.0	897.9	896.9	896.9	2.0	1.9	131.25	-58.3	301.3	332.2	328.3	3.88	85.571	
1,000.0	997.1	996.1	996.1	2.3	2.1	132.86	-58.3	301.3	340.8	336.5	4.37	78.051	
1,100.0	1,096.3	1,095.3	1,095.3	2.6	2.3	134.39	-58.3	301.3	349.7	344.8	4.85	72.062	
1,200.0	1,195.4	1,194.4	1,194.4	2.9	2.6	135.85	-58.3	301.3	358.8	353.5	5.34	67.208	
1,300.0	1,294.6	1,293.6	1,293.6	3.3	2.8	137.23	-58.3	301.3	368.1	362.3	5.82	63.210	
1,400.0	1,393.8	1,392.8	1,392.8	3.6	3.0	138.55	-58.3	301.3	377.7	371.3	6.31	59.872	
1,500.0	1,493.0	1,492.0	1,492.0	3.9	3.2	139.79	-58.3	301.3	387.4	380.6	6.79	57.049	
1,600.0	1,592.1	1,591.1	1,591.1	4.2	3.5	140.98	-58.3	301.3	397.3	390.0	7.27	54.638	
1,700.0	1,691.3	1,690.3	1,690.3	4.5	3.7	142.11	-58.3	301.3	407.3	399.6	7.75	52.557	
1,800.0	1,790.5	1,789.5	1,789.5	4.8	3.9	143.19	-58.3	301.3	417.5	409.3	8.23	50.747	
1,900.0	1,889.7	1,888.7	1,888.7	5.2	4.1	144.21	-58.3	301.3	427.9	419.2	8.70	49.160	
2,000.0	1,988.9	1,987.9	1,987.9	5.5	4.4	145.19	-58.3	301.3	438.3	429.2	9.18	47.760	
2,100.0	2,088.0	2,098.9	2,098.9	5.8	4.6	146.36	-58.5	299.6	447.8	438.1	9.66	46.371	
2,200.0	2,187.2	2,211.6	2,211.5	6.1	4.8	147.87	-59.4	293.6	454.4	444.3	10.11	44.933	
2,300.0	2,286.4	2,324.0	2,323.4	6.4	5.1	149.69	-60.9	283.2	458.5	447.9	10.57	43.372	
2,400.0	2,385.6	2,430.6	2,429.0	6.8	5.3	151.71	-62.9	269.6	460.3	449.3	11.02	41.767	
2,500.0	2,484.7	2,529.4	2,526.9	7.1	5.5	153.62	-64.8	256.3	462.2	450.7	11.47	40.313	
2,600.0	2,583.9	2,628.1	2,624.7	7.4	5.8	155.52	-66.8	243.0	464.6	452.7	11.92	38.984	
2,700.0	2,683.1	2,726.9	2,722.6	7.7	6.0	157.40	-68.7	229.8	467.5	455.2	12.38	37.774	
2,800.0	2,782.3	2,825.6	2,820.4	8.1	6.3	159.26	-70.6	216.5	471.0	458.1	12.85	36.663	
2,900.0	2,881.5	2,924.4	2,918.2	8.4	6.6	161.08	-72.6	203.2	474.9	461.6	13.32	35.646	
3,000.0	2,980.6	3,023.1	3,016.1	8.7	6.8	162.88	-74.5	189.9	479.3	465.5	13.81	34.713	
3,100.0	3,079.8	3,121.9	3,113.9	9.0	7.1	164.64	-76.4	176.6	484.2	469.9	14.30	33.856	
3,200.0	3,179.0	3,220.7	3,211.7	9.4	7.4	166.36	-78.4	163.3	489.6	474.8	14.80	33.069	
3,300.0	3,278.2	3,319.4	3,309.6	9.7	7.7	168.05	-80.3	150.1	495.3	480.0	15.31	32.345	
3,400.0	3,377.3	3,418.2	3,407.4	10.0	8.0	169.70	-82.2	136.8	501.6	485.7	15.83	31.679	
3,500.0	3,476.5	3,516.9	3,505.3	10.3	8.3	171.31	-84.2	123.5	508.2	491.8	16.36	31.065	
3,600.0	3,575.7	3,615.7	3,603.1	10.7	8.6	172.87	-86.1	110.2	515.2	498.3	16.89	30.500	
3,700.0	3,674.9	3,714.4	3,700.9	11.0	8.9	174.39	-88.0	96.9	522.6	505.2	17.43	29.979	
3,800.0	3,774.1	3,813.2	3,798.8	11.3	9.2	175.87	-90.0	83.6	530.4	512.4	17.98	29.498	
3,900.0	3,873.2	3,911.9	3,896.6	11.6	9.5	177.31	-91.9	70.3	538.5	520.0	18.53	29.054	
4,000.0	3,972.4	4,010.7	3,994.4	12.0	9.9	178.71	-93.8	57.1	546.9	527.8	19.09	28.645	
4,100.0	4,071.6	4,109.4	4,092.3	12.3	10.2	-179.94	-95.8	43.8	555.7	536.0	19.66	28.267	
4,200.0	4,170.8	4,208.2	4,190.1	12.6	10.5	-178.63	-97.7	30.5	564.8	544.5	20.23	27.917	
4,300.0	4,270.0	4,306.9	4,287.9	12.9	10.8	-177.36	-99.6	17.2	574.1	553.3	20.81	27.595	
4,400.0	4,369.1	4,405.7	4,385.8	13.3	11.1	-176.14	-101.6	3.9	583.8	562.4	21.39	27.296	
4,500.0	4,468.3	4,504.5	4,483.6	13.6	11.4	-174.95	-103.5	-9.4	593.6	571.7	21.97	27.021	
4,600.0	4,567.5	4,603.2	4,581.5	13.9	11.8	-173.80	-105.4	-22.6	603.8	581.2	22.56	26.766	
4,700.0	4,666.7	4,702.0	4,679.3	14.2	12.1	-172.69	-107.4	-35.9	614.2	591.0	23.15	26.530	
4,800.0	4,765.8	4,800.7	4,777.1	14.6	12.4	-171.61	-109.3	-49.2	624.8	601.0	23.74	26.311	
4,900.0	4,865.0	4,899.5	4,875.0	14.9	12.7	-170.57	-111.2	-62.5	635.6	611.2	24.34	26.110	
5,000.0	4,964.2	4,998.2	4,972.8	15.2	13.1	-169.57	-113.2	-75.8	646.6	621.6	24.94	25.923	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28F-412 - Wellbore #1 - Plan #1 (7-

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,063.4	5,097.0	5,070.6	15.5	13.4	-168.60	-115.1	-89.1	657.8	632.2	25.55	25.750	
5,200.0	5,162.6	5,195.7	5,168.5	15.9	13.7	-167.66	-117.0	-102.4	669.2	643.0	26.15	25.590	
5,300.0	5,261.7	5,294.5	5,266.3	16.2	14.0	-166.75	-119.0	-115.6	680.7	654.0	26.76	25.442	
5,400.0	5,360.9	5,393.2	5,364.2	16.5	14.4	-165.88	-120.9	-128.9	692.5	665.1	27.36	25.305	
5,500.0	5,460.1	5,492.0	5,462.0	16.8	14.7	-165.03	-122.8	-142.2	704.3	676.4	27.97	25.178	
5,600.0	5,559.3	5,590.7	5,559.8	17.2	15.0	-164.21	-124.8	-155.5	716.4	687.8	28.59	25.061	
5,700.0	5,658.4	5,689.5	5,657.7	17.5	15.3	-163.45	-126.6	-168.4	728.6	699.4	29.17	24.973	
5,800.0	5,757.6	5,788.6	5,756.3	17.8	15.6	-162.95	-128.1	-178.4	740.7	711.1	29.68	24.956	
5,900.0	5,857.1	5,888.2	5,855.7	18.0	15.8	-162.72	-129.1	-185.1	750.6	720.4	30.11	24.925	
6,000.0	5,956.9	5,988.3	5,955.7	18.2	15.9	-162.66	-129.5	-188.4	757.0	726.6	30.47	24.841	
6,100.0	6,056.8	6,088.4	6,055.8	18.4	16.1	-162.73	-129.6	-188.7	760.1	729.4	30.78	24.696	
6,200.0	6,156.8	6,188.4	6,155.8	18.5	16.3	172.40	-129.6	-188.7	760.4	728.7	31.71	23.980	
6,300.0	6,256.8	6,288.4	6,255.8	18.7	16.4	172.40	-129.6	-188.7	760.4	728.4	32.08	23.706	
6,339.8	6,296.6	6,328.2	6,295.6	18.7	16.5	-97.63	-129.6	-188.7	760.5	728.9	31.64	24.037	
6,400.0	6,356.8	6,388.4	6,355.8	18.8	16.6	-97.67	-129.6	-188.7	760.6	728.7	31.87	23.863	
6,500.0	6,456.0	6,487.6	6,455.0	19.1	16.8	-98.41	-129.6	-188.7	762.2	729.9	32.29	23.607	
6,600.0	6,552.9	6,576.1	6,543.5	19.4	16.9	-99.77	-129.6	-187.3	766.5	733.8	32.70	23.440 SF	
6,700.0	6,645.8	6,650.0	6,616.9	19.7	17.0	-101.57	-129.6	-179.3	776.4	743.3	33.09	23.466	
6,800.0	6,733.0	6,708.2	6,674.0	20.2	17.0	-102.95	-129.6	-168.0	794.4	760.9	33.53	23.692	
6,900.0	6,813.1	6,750.0	6,714.4	20.8	17.0	-103.14	-129.6	-157.2	822.6	788.4	34.18	24.065	
7,000.0	6,884.8	6,784.5	6,747.2	21.5	17.0	-102.21	-129.6	-146.7	861.8	826.6	35.15	24.520	
7,100.0	6,946.8	6,800.0	6,761.8	22.5	17.0	-99.04	-129.6	-141.5	911.5	874.9	36.60	24.904	
7,200.0	6,997.9	6,814.1	6,775.0	23.7	17.0	-94.65	-129.6	-136.5	970.3	931.9	38.38	25.284	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28F-432 - Wellbore #1 - Plan #1 (7-

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	111.75	-120.2	301.3	324.4				
100.0	100.0	99.0	99.0	0.1	0.1	111.75	-120.2	301.3	324.4	324.2	0.22	1,450.537	
200.0	200.0	199.0	199.0	0.3	0.3	111.75	-120.2	301.3	324.4	323.7	0.67	482.708	
300.0	300.0	299.0	299.0	0.6	0.6	111.75	-120.2	301.3	324.4	323.3	1.12	289.238	
400.0	400.0	399.0	399.0	0.8	0.8	111.75	-120.2	301.3	324.4	322.8	1.57	206.480	CC, ES
500.0	500.0	499.0	499.0	1.0	1.0	136.81	-120.2	301.3	325.7	323.7	2.02	161.165	
600.0	599.8	598.8	598.8	1.2	1.2	137.38	-120.2	301.3	329.5	327.0	2.47	133.293	
700.0	699.5	698.5	698.5	1.5	1.5	138.30	-120.2	301.3	336.0	333.1	2.93	114.712	
800.0	798.7	797.7	797.7	1.7	1.7	139.55	-120.2	301.3	345.1	341.7	3.39	101.668	
900.0	897.9	896.9	896.9	2.0	1.9	140.88	-120.2	301.3	354.9	351.1	3.86	91.833	
1,000.0	997.1	996.1	996.1	2.3	2.1	142.15	-120.2	301.3	365.0	360.6	4.34	84.104	
1,100.0	1,096.3	1,097.1	1,097.1	2.6	2.3	143.61	-121.5	300.3	375.0	370.2	4.79	78.219	
1,200.0	1,195.4	1,197.6	1,197.5	2.9	2.5	145.52	-125.6	297.2	384.7	379.5	5.23	73.616	
1,300.0	1,294.6	1,297.2	1,296.7	3.3	2.7	147.81	-132.5	291.9	394.6	389.0	5.67	69.621	
1,400.0	1,393.8	1,395.7	1,394.4	3.6	2.9	150.44	-141.9	284.7	405.0	398.9	6.13	66.105	
1,500.0	1,493.0	1,492.8	1,490.4	3.9	3.2	153.35	-153.8	275.7	416.3	409.7	6.61	62.998	
1,600.0	1,592.1	1,589.7	1,585.9	4.2	3.4	156.24	-166.5	266.0	428.7	421.6	7.11	60.280	
1,700.0	1,691.3	1,686.5	1,681.4	4.5	3.7	158.96	-179.1	256.3	442.1	434.5	7.63	57.955	
1,800.0	1,790.5	1,783.4	1,777.0	4.8	4.0	161.53	-191.8	246.6	456.5	448.4	8.16	55.974	
1,900.0	1,889.7	1,880.2	1,872.5	5.2	4.4	163.94	-204.5	236.9	471.8	463.2	8.69	54.297	
2,000.0	1,988.9	1,977.0	1,968.0	5.5	4.7	166.21	-217.2	227.1	487.9	478.7	9.23	52.861	
2,100.0	2,088.0	2,073.9	2,063.5	5.8	5.0	168.33	-229.9	217.4	504.8	495.0	9.77	51.648	
2,200.0	2,187.2	2,170.7	2,159.0	6.1	5.4	170.31	-242.6	207.7	522.2	511.9	10.32	50.615	
2,300.0	2,286.4	2,267.5	2,254.5	6.4	5.7	172.17	-255.3	198.0	540.3	529.4	10.86	49.733	
2,400.0	2,385.6	2,364.4	2,350.0	6.8	6.1	173.91	-267.9	188.3	558.9	547.5	11.41	48.978	
2,500.0	2,484.7	2,461.2	2,445.5	7.1	6.4	175.54	-280.6	178.6	577.9	566.0	11.96	48.331	
2,600.0	2,583.9	2,558.1	2,541.0	7.4	6.8	177.07	-293.3	168.9	597.4	584.9	12.51	47.774	
2,700.0	2,683.1	2,654.9	2,636.6	7.7	7.1	178.50	-306.0	159.2	617.3	604.3	13.05	47.295	
2,800.0	2,782.3	2,751.7	2,732.1	8.1	7.5	179.85	-318.7	149.5	637.6	624.0	13.60	46.880	
2,900.0	2,881.5	2,848.6	2,827.6	8.4	7.8	-178.89	-331.4	139.8	658.1	644.0	14.15	46.520	
3,000.0	2,980.6	2,945.4	2,923.1	8.7	8.2	-177.70	-344.1	130.1	679.0	664.3	14.69	46.208	
3,100.0	3,079.8	3,042.2	3,018.6	9.0	8.6	-176.59	-356.8	120.4	700.1	684.9	15.24	45.937	
3,200.0	3,179.0	3,139.1	3,114.1	9.4	8.9	-175.53	-369.4	110.7	721.5	705.7	15.79	45.700	
3,300.0	3,278.2	3,235.9	3,209.6	9.7	9.3	-174.54	-382.1	101.0	743.1	726.8	16.33	45.493	
3,400.0	3,377.3	3,332.8	3,305.1	10.0	9.7	-173.60	-394.8	91.3	764.9	748.0	16.88	45.312	
3,500.0	3,476.5	3,429.6	3,400.7	10.3	10.0	-172.72	-407.5	81.6	786.9	769.5	17.43	45.154	
3,600.0	3,575.7	3,526.4	3,496.2	10.7	10.4	-171.88	-420.2	71.9	809.1	791.1	17.97	45.015	
3,700.0	3,674.9	3,623.3	3,591.7	11.0	10.8	-171.08	-432.9	62.2	831.4	812.9	18.52	44.894	
3,800.0	3,774.1	3,720.1	3,687.2	11.3	11.2	-170.33	-445.6	52.5	853.8	834.8	19.06	44.787	
3,900.0	3,873.2	3,816.9	3,782.7	11.6	11.5	-169.62	-458.2	42.8	876.4	856.8	19.61	44.694	
4,000.0	3,972.4	3,913.8	3,878.2	12.0	11.9	-168.94	-470.9	33.1	899.2	879.0	20.16	44.612	
4,100.0	4,071.6	4,010.6	3,973.7	12.3	12.3	-168.29	-483.6	23.4	922.0	901.3	20.70	44.539	
4,200.0	4,170.8	4,107.5	4,069.2	12.6	12.6	-167.68	-496.3	13.7	944.9	923.7	21.25	44.476	
4,300.0	4,270.0	4,204.3	4,164.7	12.9	13.0	-167.09	-509.0	4.0	968.0	946.2	21.79	44.421	
4,400.0	4,369.1	4,301.1	4,260.3	13.3	13.4	-166.53	-521.7	-5.7	991.1	968.8	22.34	44.373	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28G-212 - Wellbore #1 - Plan #1 (7-

Offset Site Error: 0.0 ft

Survey Program: 0-MWD **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	120.64	-178.5	301.3	350.2				
100.0	100.0	98.0	98.0	0.1	0.1	120.64	-178.5	301.3	350.2	350.0	0.22	1,573.845	
200.0	200.0	198.0	198.0	0.3	0.3	120.64	-178.5	301.3	350.2	349.5	0.67	522.864	CC
300.0	300.0	296.1	296.1	0.6	0.5	120.90	-180.0	300.7	350.5	349.4	1.09	320.351	ES
400.0	400.0	393.9	393.8	0.8	0.7	121.70	-184.6	298.9	351.3	349.8	1.52	230.624	
500.0	500.0	491.2	490.7	1.0	1.0	148.00	-192.3	295.9	354.4	352.4	1.99	178.545	
600.0	599.8	587.3	586.1	1.2	1.2	150.11	-202.8	291.7	361.5	359.0	2.49	145.444	
700.0	699.5	681.6	679.3	1.5	1.6	152.77	-216.1	286.5	373.2	370.2	3.02	123.477	
800.0	798.7	773.8	770.0	1.7	1.9	155.83	-231.8	280.3	389.8	386.2	3.59	108.625	
900.0	897.9	864.1	858.1	2.0	2.3	159.10	-249.8	273.2	409.6	405.4	4.18	98.023	
1,000.0	997.1	955.5	946.9	2.3	2.7	162.42	-270.3	265.1	431.9	427.1	4.79	90.213	
1,100.0	1,096.3	1,049.5	1,038.0	2.6	3.2	165.56	-291.7	256.6	455.8	450.4	5.41	84.309	
1,200.0	1,195.4	1,143.5	1,129.2	2.9	3.6	168.39	-313.1	248.2	480.9	474.9	6.01	79.974	
1,300.0	1,294.6	1,237.5	1,220.3	3.3	4.1	170.95	-334.5	239.8	507.1	500.5	6.61	76.723	
1,400.0	1,393.8	1,331.5	1,311.4	3.6	4.6	173.27	-355.9	231.3	534.2	527.0	7.20	74.203	
1,500.0	1,493.0	1,425.5	1,402.6	3.9	5.1	175.37	-377.3	222.9	562.0	554.3	7.78	72.262	
1,600.0	1,592.1	1,519.5	1,493.7	4.2	5.6	177.28	-398.7	214.4	590.5	582.2	8.35	70.729	
1,700.0	1,691.3	1,613.5	1,584.9	4.5	6.0	179.01	-420.1	206.0	619.6	610.7	8.91	69.505	
1,800.0	1,790.5	1,707.5	1,676.0	4.8	6.5	-179.40	-441.5	197.5	649.2	639.7	9.47	68.516	
1,900.0	1,889.7	1,801.5	1,767.1	5.2	7.0	-177.95	-462.9	189.1	679.2	669.1	10.03	67.710	
2,000.0	1,988.9	1,895.5	1,858.3	5.5	7.5	-176.62	-484.3	180.6	709.5	699.0	10.58	67.046	
2,100.0	2,088.0	1,989.5	1,949.4	5.8	8.0	-175.40	-505.8	172.2	740.2	729.1	11.13	66.496	
2,200.0	2,187.2	2,083.5	2,040.6	6.1	8.5	-174.27	-527.2	163.7	771.2	759.5	11.68	66.035	
2,300.0	2,286.4	2,177.5	2,131.7	6.4	9.0	-173.23	-548.6	155.3	802.5	790.2	12.22	65.648	
2,400.0	2,385.6	2,271.5	2,222.8	6.8	9.4	-172.27	-570.0	146.9	833.9	821.1	12.77	65.320	
2,500.0	2,484.7	2,365.5	2,314.0	7.1	9.9	-171.37	-591.4	138.4	865.6	852.3	13.31	65.040	
2,600.0	2,583.9	2,459.5	2,405.1	7.4	10.4	-170.54	-612.8	130.0	897.4	883.6	13.85	64.801	
2,700.0	2,683.1	2,553.5	2,496.3	7.7	10.9	-169.76	-634.2	121.5	929.4	915.0	14.39	64.594	
2,800.0	2,782.3	2,647.5	2,587.4	8.1	11.4	-169.04	-655.6	113.1	961.6	946.6	14.93	64.416	
2,900.0	2,881.5	2,741.5	2,678.5	8.4	11.9	-168.36	-677.0	104.6	993.8	978.4	15.47	64.260	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Wiedeman 4N66W28F - East Pad Sec.28-T4N-R66W - Wiedeman 28G-312 - Wellbore #1 - Plan #1 (7- **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	116.37	-149.4	301.3	336.3				
100.0	100.0	98.0	98.0	0.1	0.1	116.37	-149.4	301.3	336.3	336.1	0.22	1,511.292	
200.0	200.0	198.0	198.0	0.3	0.3	116.37	-149.4	301.3	336.3	335.6	0.67	502.082	
300.0	300.0	298.0	298.0	0.6	0.6	116.37	-149.4	301.3	336.3	335.2	1.12	300.443	
400.0	400.0	398.0	398.0	0.8	0.8	116.37	-149.4	301.3	336.3	334.7	1.57	214.356	CC, ES
500.0	500.0	497.8	497.8	1.0	1.0	141.69	-150.9	300.6	337.7	335.7	1.99	169.381	
600.0	599.8	597.0	596.8	1.2	1.2	143.03	-155.5	298.4	342.0	339.6	2.41	141.706	
700.0	699.5	695.0	694.5	1.5	1.4	145.16	-163.0	294.7	349.6	346.7	2.86	122.052	
800.0	798.7	791.4	790.2	1.7	1.6	147.96	-173.4	289.7	360.9	357.6	3.35	107.670	
900.0	897.9	886.2	883.9	2.0	1.9	151.16	-186.4	283.4	374.4	370.5	3.88	96.617	
1,000.0	997.1	979.5	975.5	2.3	2.3	154.53	-201.9	275.9	389.9	385.4	4.43	87.942	
1,100.0	1,096.3	1,074.1	1,068.1	2.6	2.6	157.97	-219.6	267.3	407.3	402.3	5.02	81.149	
1,200.0	1,195.4	1,169.5	1,161.4	2.9	3.0	161.17	-237.4	258.7	426.2	420.6	5.61	75.943	
1,300.0	1,294.6	1,264.8	1,254.7	3.3	3.4	164.11	-255.2	250.1	446.4	440.2	6.20	71.965	
1,400.0	1,393.8	1,360.1	1,347.9	3.6	3.8	166.80	-273.0	241.5	467.6	460.8	6.79	68.888	
1,500.0	1,493.0	1,455.5	1,441.2	3.9	4.2	169.26	-290.8	232.8	489.8	482.4	7.37	66.469	
1,600.0	1,592.1	1,550.8	1,534.4	4.2	4.7	171.51	-308.7	224.2	512.8	504.8	7.94	64.574	
1,700.0	1,691.3	1,646.1	1,627.7	4.5	5.1	173.57	-326.5	215.6	536.5	528.0	8.51	63.053	
1,800.0	1,790.5	1,741.5	1,720.9	4.8	5.5	175.46	-344.3	207.0	560.8	551.7	9.07	61.823	
1,900.0	1,889.7	1,836.8	1,814.2	5.2	5.9	177.20	-362.1	198.3	585.7	576.1	9.63	60.822	
2,000.0	1,988.9	1,932.1	1,907.4	5.5	6.4	178.80	-379.9	189.7	611.1	600.9	10.18	60.001	
2,100.0	2,088.0	2,027.5	2,000.7	5.8	6.8	-179.72	-397.8	181.1	636.8	626.1	10.74	59.321	
2,200.0	2,187.2	2,122.8	2,093.9	6.1	7.2	-178.36	-415.6	172.5	663.0	651.7	11.28	58.755	
2,300.0	2,286.4	2,218.1	2,187.2	6.4	7.7	-177.10	-433.4	163.8	689.5	677.6	11.83	58.281	
2,400.0	2,385.6	2,313.5	2,280.5	6.8	8.1	-175.93	-451.2	155.2	716.2	703.9	12.37	57.882	
2,500.0	2,484.7	2,408.8	2,373.7	7.1	8.5	-174.85	-469.0	146.6	743.3	730.4	12.92	57.543	
2,600.0	2,583.9	2,504.1	2,467.0	7.4	9.0	-173.84	-486.8	138.0	770.5	757.1	13.46	57.256	
2,700.0	2,683.1	2,599.5	2,560.2	7.7	9.4	-172.90	-504.7	129.3	798.0	784.0	14.00	57.010	
2,800.0	2,782.3	2,694.8	2,653.5	8.1	9.8	-172.02	-522.5	120.7	825.7	811.2	14.54	56.799	
2,900.0	2,881.5	2,790.1	2,746.7	8.4	10.3	-171.19	-540.3	112.1	853.5	838.5	15.08	56.618	
3,000.0	2,980.6	2,885.5	2,840.0	8.7	10.7	-170.42	-558.1	103.5	881.5	865.9	15.61	56.461	
3,100.0	3,079.8	2,980.8	2,933.2	9.0	11.1	-169.69	-575.9	94.8	909.7	893.5	16.15	56.325	
3,200.0	3,179.0	3,076.1	3,026.5	9.4	11.6	-169.01	-593.8	86.2	937.9	921.3	16.69	56.207	
3,300.0	3,278.2	3,171.5	3,119.8	9.7	12.0	-168.37	-611.6	77.6	966.3	949.1	17.22	56.104	
3,400.0	3,377.3	3,266.8	3,213.0	10.0	12.4	-167.76	-629.4	69.0	994.8	977.1	17.76	56.015	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W - Wiedeman 28E-404 - Wellbore #1 - Plan #1 (8

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
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	129.666	
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	CC, ES
300.0	300.0	299.0	299.0	0.6	0.6	-1.00	30.8	-0.5	30.8	29.7	1.12	27.419	
400.0	400.0	397.8	397.6	0.8	0.8	-3.44	35.6	-2.1	35.8	34.2	1.58	22.638	
500.0	500.0	496.2	495.7	1.0	1.0	19.29	43.7	-4.8	42.5	40.5	2.03	20.900	
600.0	599.8	594.5	593.2	1.2	1.3	18.19	54.9	-8.5	49.3	46.8	2.49	19.810	
700.0	699.5	693.0	690.6	1.5	1.6	17.78	69.2	-13.2	56.1	53.1	2.96	18.962	
800.0	798.7	792.9	789.2	1.7	2.0	18.25	84.5	-18.3	60.5	57.1	3.43	17.625	
900.0	897.9	892.8	887.8	2.0	2.3	18.90	99.8	-23.4	64.2	60.3	3.93	16.353	
1,000.0	997.1	992.7	986.4	2.3	2.7	19.48	115.2	-28.4	67.9	63.5	4.43	15.343	
1,100.0	1,096.3	1,092.7	1,085.0	2.6	3.0	20.00	130.5	-33.5	71.6	66.7	4.93	14.524	
1,200.0	1,195.4	1,192.6	1,183.6	2.9	3.4	20.47	145.8	-38.5	75.4	69.9	5.44	13.846	
1,300.0	1,294.6	1,292.5	1,282.2	3.3	3.8	20.90	161.1	-43.6	79.1	73.1	5.96	13.280	
1,400.0	1,393.8	1,392.4	1,380.9	3.6	4.1	21.28	176.5	-48.7	82.8	76.3	6.47	12.796	
1,500.0	1,493.0	1,492.4	1,479.5	3.9	4.5	21.64	191.8	-53.7	86.5	79.6	6.99	12.380	
1,600.0	1,592.1	1,592.3	1,578.1	4.2	4.9	21.96	207.1	-58.8	90.3	82.8	7.51	12.019	
1,700.0	1,691.3	1,692.2	1,676.7	4.5	5.2	22.26	222.4	-63.9	94.0	86.0	8.03	11.702	
1,800.0	1,790.5	1,792.2	1,775.3	4.8	5.6	22.53	237.7	-68.9	97.8	89.2	8.56	11.422	
1,900.0	1,889.7	1,892.1	1,873.9	5.2	6.0	22.79	253.1	-74.0	101.5	92.4	9.08	11.173	
2,000.0	1,988.9	1,992.0	1,972.6	5.5	6.4	23.02	268.4	-79.1	105.3	95.6	9.61	10.950	
2,100.0	2,088.0	2,092.0	2,071.2	5.8	6.7	23.24	283.7	-84.1	109.0	98.9	10.14	10.750	
2,200.0	2,187.2	2,191.9	2,169.8	6.1	7.1	23.45	299.0	-89.2	112.7	102.1	10.67	10.568	
2,300.0	2,286.4	2,291.8	2,268.4	6.4	7.5	23.64	314.4	-94.2	116.5	105.3	11.20	10.403	
2,400.0	2,385.6	2,391.7	2,367.0	6.8	7.8	23.82	329.7	-99.3	120.2	108.5	11.73	10.252	
2,500.0	2,484.7	2,491.7	2,465.6	7.1	8.2	23.99	345.0	-104.4	124.0	111.7	12.26	10.113	
2,600.0	2,583.9	2,591.6	2,564.3	7.4	8.6	24.15	360.3	-109.4	127.8	115.0	12.79	9.986	
2,700.0	2,683.1	2,691.5	2,662.9	7.7	9.0	24.30	375.7	-114.5	131.5	118.2	13.33	9.869	
2,800.0	2,782.3	2,791.5	2,761.5	8.1	9.3	24.45	391.0	-119.6	135.3	121.4	13.86	9.760	
2,900.0	2,881.5	2,891.4	2,860.1	8.4	9.7	24.58	406.3	-124.6	139.0	124.6	14.39	9.659	
3,000.0	2,980.6	2,991.3	2,958.7	8.7	10.1	24.71	421.6	-129.7	142.8	127.8	14.93	9.565	
3,100.0	3,079.8	3,091.2	3,057.4	9.0	10.4	24.83	437.0	-134.8	146.5	131.1	15.46	9.477	
3,200.0	3,179.0	3,191.2	3,156.0	9.4	10.8	24.94	452.3	-139.8	150.3	134.3	16.00	9.395	
3,300.0	3,278.2	3,291.1	3,254.6	9.7	11.2	25.05	467.6	-144.9	154.0	137.5	16.53	9.318	
3,400.0	3,377.3	3,391.0	3,353.2	10.0	11.6	25.16	482.9	-149.9	157.8	140.7	17.07	9.246	
3,500.0	3,476.5	3,491.0	3,451.8	10.3	11.9	25.26	498.3	-155.0	161.6	144.0	17.60	9.178	
3,600.0	3,575.7	3,590.9	3,550.4	10.7	12.3	25.35	513.6	-160.1	165.3	147.2	18.14	9.114	
3,700.0	3,674.9	3,690.8	3,649.1	11.0	12.7	25.44	528.9	-165.1	169.1	150.4	18.68	9.053	
3,800.0	3,774.1	3,790.7	3,747.7	11.3	13.1	25.53	544.2	-170.2	172.8	153.6	19.21	8.996	
3,900.0	3,873.2	3,890.7	3,846.3	11.6	13.4	25.61	559.6	-175.3	176.6	156.9	19.75	8.942	
4,000.0	3,972.4	3,990.6	3,944.9	12.0	13.8	25.69	574.9	-180.3	180.4	160.1	20.29	8.890	
4,100.0	4,071.6	4,090.5	4,043.5	12.3	14.2	25.77	590.2	-185.4	184.1	163.3	20.82	8.842	
4,200.0	4,170.8	4,190.5	4,142.1	12.6	14.5	25.84	605.5	-190.5	187.9	166.5	21.36	8.795	
4,300.0	4,270.0	4,290.4	4,240.8	12.9	14.9	25.91	620.8	-195.5	191.6	169.7	21.90	8.751	
4,400.0	4,369.1	4,390.3	4,339.4	13.3	15.3	25.98	636.2	-200.6	195.4	173.0	22.44	8.709	
4,500.0	4,468.3	4,490.2	4,438.0	13.6	15.7	26.04	651.5	-205.6	199.2	176.2	22.98	8.669	
4,600.0	4,567.5	4,590.2	4,536.6	13.9	16.0	26.11	666.8	-210.7	202.9	179.4	23.51	8.630	
4,700.0	4,666.7	4,690.1	4,635.2	14.2	16.4	26.17	682.1	-215.8	206.7	182.6	24.05	8.593	
4,800.0	4,765.8	4,790.0	4,733.8	14.6	16.8	26.22	697.5	-220.8	210.5	185.9	24.59	8.558	
4,900.0	4,865.0	4,890.0	4,832.5	14.9	17.2	26.28	712.8	-225.9	214.2	189.1	25.13	8.524	
5,000.0	4,964.2	4,989.9	4,931.1	15.2	17.5	26.33	728.1	-231.0	218.0	192.3	25.67	8.492	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W - Wiedeman 28E-404 - Wellbore #1 - Plan #1 (8

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,063.4	5,089.8	5,029.7	15.5	17.9	26.39	743.4	-236.0	221.8	195.5	26.21	8.461	
5,200.0	5,162.6	5,189.7	5,128.3	15.9	18.3	26.44	758.8	-241.1	225.5	198.8	26.75	8.431	
5,300.0	5,261.7	5,289.7	5,226.9	16.2	18.6	26.49	774.1	-246.2	229.3	202.0	27.29	8.403	
5,400.0	5,360.9	5,389.6	5,325.5	16.5	19.0	26.53	789.4	-251.2	233.0	205.2	27.83	8.375	
5,500.0	5,460.1	5,489.5	5,424.2	16.8	19.4	26.58	804.7	-256.3	236.8	208.4	28.37	8.349	
5,600.0	5,559.3	5,589.5	5,522.8	17.2	19.8	26.62	820.1	-261.3	240.6	211.7	28.90	8.323	
5,700.0	5,658.4	5,689.4	5,621.4	17.5	20.1	26.67	835.4	-266.4	244.3	214.9	29.44	8.298	
5,800.0	5,757.6	5,789.3	5,720.0	17.8	20.5	26.71	850.7	-271.5	248.2	218.2	29.97	8.281	
5,900.0	5,857.1	5,889.1	5,818.5	18.0	20.9	26.54	866.0	-276.5	254.3	223.9	30.38	8.369	
6,000.0	5,956.9	5,996.3	5,924.5	18.2	21.2	26.11	881.2	-281.5	262.3	231.6	30.70	8.543	
6,100.0	6,056.8	6,105.5	6,033.0	18.4	21.5	25.64	892.8	-285.4	270.0	239.1	30.93	8.728	
6,200.0	6,156.8	6,215.2	6,142.4	18.5	21.7	0.28	900.5	-287.9	276.7	237.9	38.85	7.123	
6,300.0	6,256.8	6,325.3	6,252.4	18.7	21.9	0.03	904.3	-289.2	280.1	240.9	39.22	7.143	
6,400.0	6,356.8	6,429.7	6,356.8	18.8	22.0	90.20	904.6	-289.3	280.5	248.6	31.92	8.788	
6,500.0	6,456.0	6,528.9	6,456.0	19.1	22.2	92.54	904.6	-289.3	280.8	248.1	32.68	8.590	
6,600.0	6,552.9	6,627.9	6,555.0	19.4	22.3	97.06	904.6	-290.6	282.8	248.9	33.83	8.359	
6,700.0	6,645.8	6,731.3	6,657.5	19.7	22.5	101.89	904.6	-303.6	287.0	251.9	35.08	8.181	
6,800.0	6,733.0	6,838.6	6,761.0	20.2	22.8	106.46	904.6	-331.5	293.2	256.8	36.32	8.071	
6,900.0	6,813.1	6,950.0	6,863.2	20.8	23.1	110.65	904.6	-375.6	300.7	263.3	37.45	8.030	
7,000.0	6,884.8	7,065.8	6,961.5	21.5	23.6	114.39	904.6	-436.6	309.1	270.6	38.46	8.037	
7,100.0	6,946.8	7,185.9	7,052.5	22.5	24.3	117.61	904.6	-514.8	317.6	278.2	39.38	8.065	
7,200.0	6,997.9	7,310.2	7,132.6	23.7	25.2	120.25	904.6	-609.7	325.6	285.2	40.34	8.070	
7,300.0	7,037.5	7,438.2	7,197.8	25.1	26.5	122.27	904.6	-719.6	332.3	290.8	41.51	8.005	
7,400.0	7,064.7	7,569.2	7,244.7	26.8	28.2	123.66	904.6	-841.8	337.2	294.2	43.06	7.832	
7,500.0	7,079.2	7,702.1	7,270.2	28.7	30.4	124.40	904.6	-972.1	340.0	294.8	45.13	7.533	
7,600.0	7,081.3	7,822.5	7,274.5	30.7	32.6	124.56	904.6	-1,092.3	340.6	292.6	48.01	7.094	
7,700.0	7,080.6	7,922.5	7,274.6	32.9	34.6	124.66	904.7	-1,192.3	341.0	289.3	51.65	6.602	
7,800.0	7,079.9	8,022.5	7,274.6	35.1	36.7	124.77	904.7	-1,292.3	341.4	286.0	55.44	6.159	
7,900.0	7,079.2	8,122.5	7,274.7	37.4	38.9	124.87	904.7	-1,392.3	341.9	282.5	59.34	5.761	
8,000.0	7,078.5	8,222.5	7,274.7	39.8	41.1	124.97	904.7	-1,492.3	342.3	279.0	63.32	5.406	
8,100.0	7,077.8	8,322.5	7,274.8	42.3	43.5	125.08	904.7	-1,592.3	342.7	275.3	67.38	5.087	
8,200.0	7,077.1	8,422.5	7,274.8	44.7	45.9	125.18	904.7	-1,692.3	343.2	271.7	71.49	4.800	
8,300.0	7,076.4	8,522.5	7,274.9	47.3	48.3	125.28	904.7	-1,792.3	343.6	267.9	75.64	4.542	
8,400.0	7,075.7	8,622.5	7,274.9	49.8	50.8	125.38	904.7	-1,892.3	344.0	264.2	79.83	4.309	
8,500.0	7,075.0	8,722.5	7,275.0	52.4	53.4	125.48	904.7	-1,992.3	344.5	260.4	84.05	4.098	
8,600.0	7,074.3	8,822.5	7,275.0	55.0	55.9	125.59	904.7	-2,092.3	344.9	256.6	88.30	3.906	
8,700.0	7,073.6	8,922.5	7,275.1	57.6	58.5	125.69	904.7	-2,192.3	345.3	252.8	92.56	3.731	
8,800.0	7,072.9	9,022.5	7,275.2	60.3	61.1	125.79	904.7	-2,292.3	345.8	248.9	96.83	3.571	
8,900.0	7,072.2	9,122.5	7,275.2	62.9	63.7	125.89	904.7	-2,392.3	346.2	245.1	101.12	3.424	
9,000.0	7,071.6	9,222.5	7,275.3	65.6	66.3	125.99	904.7	-2,492.3	346.7	241.2	105.42	3.288	
9,100.0	7,070.9	9,322.5	7,275.3	68.3	69.0	126.09	904.7	-2,592.3	347.1	237.4	109.72	3.163	
9,200.0	7,070.2	9,422.5	7,275.4	71.0	71.6	126.19	904.7	-2,692.3	347.5	233.5	114.03	3.048	
9,300.0	7,069.5	9,522.5	7,275.4	73.7	74.3	126.29	904.7	-2,792.3	348.0	229.6	118.34	2.941	
9,400.0	7,068.8	9,622.5	7,275.5	76.4	77.0	126.39	904.7	-2,892.3	348.4	225.8	122.65	2.841	
9,500.0	7,068.1	9,722.5	7,275.5	79.1	79.7	126.49	904.7	-2,992.3	348.9	221.9	126.96	2.748	
9,600.0	7,067.4	9,822.5	7,275.6	81.8	82.4	126.59	904.7	-3,092.3	349.3	218.1	131.27	2.661	
9,700.0	7,066.7	9,922.5	7,275.6	84.5	85.1	126.69	904.7	-3,192.3	349.8	214.2	135.57	2.580	
9,800.0	7,066.0	10,022.5	7,275.7	87.2	87.8	126.78	904.7	-3,292.3	350.2	210.3	139.88	2.504	
9,900.0	7,065.3	10,122.5	7,275.7	90.0	90.5	126.88	904.7	-3,392.3	350.7	206.5	144.18	2.432	
10,000.0	7,064.6	10,222.5	7,275.8	92.7	93.2	126.98	904.7	-3,492.2	351.1	202.6	148.48	2.365	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W - Wiedeman 28E-404 - Wellbore #1 - Plan #1 (8

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	7,063.9	10,322.5	7,275.8	95.5	96.0	127.08	904.7	-3,592.2	351.6	198.8	152.77	2.301	
10,200.0	7,063.2	10,422.5	7,275.9	98.2	98.7	127.17	904.7	-3,692.2	352.0	195.0	157.06	2.241	
10,300.0	7,062.5	10,522.5	7,275.9	101.0	101.4	127.27	904.7	-3,792.2	352.5	191.1	161.34	2.185	
10,400.0	7,061.8	10,622.5	7,276.0	103.7	104.2	127.37	904.7	-3,892.2	352.9	187.3	165.61	2.131	
10,500.0	7,061.1	10,722.5	7,276.0	106.5	106.9	127.47	904.7	-3,992.2	353.4	183.5	169.88	2.080	
10,600.0	7,060.4	10,822.5	7,276.1	109.2	109.7	127.56	904.7	-4,092.2	353.8	179.7	174.14	2.032	
10,700.0	7,059.7	10,922.5	7,276.1	112.0	112.4	127.66	904.7	-4,192.2	354.3	175.9	178.40	1.986	
10,800.0	7,059.0	11,022.4	7,276.2	114.8	115.2	127.75	904.7	-4,292.2	354.8	172.1	182.65	1.942	
10,900.0	7,058.3	11,122.4	7,276.3	117.5	117.9	127.85	904.7	-4,392.2	355.2	168.3	186.89	1.901	
11,000.0	7,057.6	11,222.4	7,276.3	120.3	120.7	127.94	904.7	-4,492.2	355.7	164.6	191.12	1.861	
11,100.0	7,056.9	11,322.4	7,276.4	123.1	123.5	128.04	904.7	-4,592.2	356.2	160.8	195.35	1.823	
11,200.0	7,056.2	11,422.4	7,276.4	125.8	126.2	128.13	904.7	-4,692.2	356.6	157.0	199.57	1.787	
11,300.0	7,055.5	11,522.4	7,276.5	128.6	129.0	128.23	904.7	-4,792.2	357.1	153.3	203.78	1.752	
11,400.0	7,054.8	11,622.4	7,276.5	131.4	131.8	128.32	904.7	-4,892.2	357.5	149.6	207.98	1.719	
11,500.0	7,054.1	11,722.4	7,276.6	134.2	134.5	128.42	904.7	-4,992.2	358.0	145.8	212.17	1.687	
11,600.0	7,053.4	11,822.4	7,276.6	136.9	137.3	128.51	904.7	-5,092.2	358.5	142.1	216.36	1.657	
11,700.0	7,052.7	11,922.4	7,276.7	139.7	140.1	128.61	904.7	-5,192.2	358.9	138.4	220.53	1.628	
11,800.0	7,052.0	12,022.4	7,276.7	142.5	142.8	128.70	904.7	-5,292.2	359.4	134.7	224.70	1.600	
11,900.0	7,051.3	12,122.4	7,276.8	145.3	145.6	128.79	904.7	-5,392.2	359.9	131.0	228.86	1.573	
12,000.0	7,050.6	12,222.4	7,276.8	148.1	148.4	128.89	904.7	-5,492.2	360.4	127.3	233.01	1.547	
12,100.0	7,049.9	12,322.4	7,276.9	150.8	151.2	128.98	904.7	-5,592.2	360.8	123.7	237.15	1.521	
12,200.0	7,049.2	12,422.4	7,276.9	153.6	153.9	129.07	904.7	-5,692.2	361.3	120.0	241.29	1.497	Level 3
12,300.0	7,048.5	12,522.4	7,277.0	156.4	156.7	129.16	904.7	-5,792.2	361.8	116.4	245.41	1.474	Level 3
12,400.0	7,047.8	12,622.4	7,277.0	159.2	159.5	129.25	904.7	-5,892.2	362.3	112.7	249.53	1.452	Level 3
12,500.0	7,047.1	12,722.4	7,277.1	162.0	162.3	129.35	904.7	-5,992.2	362.7	109.1	253.63	1.430	Level 3
12,600.0	7,046.4	12,822.4	7,277.1	164.8	165.1	129.44	904.7	-6,092.2	363.2	105.5	257.73	1.409	Level 3
12,700.0	7,045.7	12,922.4	7,277.2	167.6	167.8	129.53	904.7	-6,192.2	363.7	101.9	261.82	1.389	Level 3
12,800.0	7,045.0	13,022.4	7,277.2	170.3	170.6	129.62	904.7	-6,292.2	364.2	98.3	265.90	1.370	Level 3
12,900.0	7,044.3	13,122.4	7,277.3	173.1	173.4	129.71	904.7	-6,392.2	364.6	94.7	269.96	1.351	Level 3
13,000.0	7,043.6	13,222.4	7,277.4	175.9	176.2	129.80	904.7	-6,492.2	365.1	91.1	274.02	1.332	Level 3
13,100.0	7,042.9	13,322.4	7,277.4	178.7	179.0	129.89	904.7	-6,592.2	365.6	87.5	278.08	1.315	Level 3
13,200.0	7,042.2	13,422.4	7,277.5	181.5	181.8	129.98	904.7	-6,692.2	366.1	84.0	282.12	1.298	Level 3
13,300.0	7,041.5	13,522.4	7,277.5	184.3	184.6	130.07	904.7	-6,792.2	366.6	80.4	286.15	1.281	Level 3
13,400.0	7,040.8	13,622.4	7,277.6	187.1	187.3	130.16	904.7	-6,892.2	367.1	76.9	290.17	1.265	Level 3
13,500.0	7,040.1	13,722.4	7,277.6	189.9	190.1	130.25	904.7	-6,992.1	367.5	73.3	294.19	1.249	Level 2
13,600.0	7,039.4	13,822.4	7,277.7	192.7	192.9	130.34	904.7	-7,092.1	368.0	69.8	298.19	1.234	Level 2
13,700.0	7,038.7	13,922.4	7,277.7	195.5	195.7	130.43	904.7	-7,192.1	368.5	66.3	302.19	1.219	Level 2
13,800.0	7,038.0	14,022.4	7,277.8	198.3	198.5	130.52	904.7	-7,292.1	369.0	62.8	306.17	1.205	Level 2
13,900.0	7,037.3	14,122.4	7,277.8	201.1	201.3	130.61	904.7	-7,392.1	369.5	59.3	310.15	1.191	Level 2
14,000.0	7,036.6	14,222.4	7,277.9	203.8	204.1	130.69	904.7	-7,492.1	370.0	55.9	314.12	1.178	Level 2
14,100.0	7,035.9	14,322.4	7,277.9	206.6	206.9	130.78	904.7	-7,592.1	370.5	52.4	318.08	1.165	Level 2
14,200.0	7,035.2	14,422.4	7,278.0	209.4	209.7	130.87	904.7	-7,692.1	371.0	48.9	322.02	1.152	Level 2
14,235.5	7,035.0	14,457.8	7,278.0	210.4	210.7	130.90	904.7	-7,727.6	371.1	47.7	323.42	1.148	Level 2, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-58.3	0.0	58.3				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-58.3	0.0	58.3	58.1	0.22	259.331	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-58.3	0.0	58.3	57.6	0.67	86.444	
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-58.3	0.0	58.3	57.2	1.12	51.866	
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-58.3	0.0	58.3	56.7	1.57	37.047	CC, ES
500.0	500.0	500.0	500.0	1.0	1.0	-155.82	-58.3	0.0	59.9	57.9	2.03	29.568	
600.0	599.8	599.8	599.8	1.2	1.2	-157.68	-58.3	0.0	64.7	62.2	2.48	26.090	
700.0	699.5	699.5	699.5	1.5	1.5	-160.23	-58.3	0.0	72.8	69.9	2.94	24.809	
800.0	798.7	798.7	798.7	1.7	1.7	-162.95	-58.3	0.0	84.2	80.8	3.39	24.837	
900.0	897.9	897.9	897.9	2.0	1.9	-165.18	-58.3	0.0	96.5	92.7	3.85	25.102	
1,000.0	997.1	997.1	997.1	2.3	2.1	-166.90	-58.3	0.0	109.0	104.7	4.30	25.326	
1,100.0	1,096.3	1,096.3	1,096.3	2.6	2.4	-168.26	-58.3	0.0	121.5	116.7	4.76	25.518	
1,200.0	1,195.4	1,195.4	1,195.4	2.9	2.6	-169.38	-58.3	0.0	134.0	128.8	5.22	25.683	
1,300.0	1,294.6	1,294.6	1,294.6	3.3	2.8	-170.30	-58.3	0.0	146.6	141.0	5.68	25.826	
1,400.0	1,393.8	1,393.8	1,393.8	3.6	3.0	-171.07	-58.3	0.0	159.3	153.1	6.14	25.950	
1,500.0	1,493.0	1,493.0	1,493.0	3.9	3.2	-171.74	-58.3	0.0	171.9	165.3	6.60	26.058	
1,600.0	1,592.1	1,592.1	1,592.1	4.2	3.5	-172.31	-58.3	0.0	184.6	177.5	7.06	26.154	
1,700.0	1,691.3	1,691.3	1,691.3	4.5	3.7	-172.80	-58.3	0.0	197.3	189.8	7.52	26.239	
1,800.0	1,790.5	1,790.5	1,790.5	4.8	3.9	-173.24	-58.3	0.0	210.0	202.0	7.98	26.315	
1,900.0	1,889.7	1,892.9	1,892.9	5.2	4.1	-173.29	-58.1	-1.5	222.1	213.6	8.44	26.314	
2,000.0	1,988.9	1,995.9	1,995.7	5.5	4.3	-172.52	-57.3	-6.6	232.6	223.7	8.90	26.145	
2,100.0	2,088.0	2,098.9	2,098.3	5.8	4.6	-171.02	-56.1	-15.4	241.6	232.3	9.37	25.794	
2,200.0	2,187.2	2,199.1	2,197.9	6.1	4.8	-169.13	-54.5	-26.5	249.8	240.0	9.85	25.357	
2,300.0	2,286.4	2,298.4	2,296.6	6.4	5.0	-167.35	-52.9	-37.6	258.3	247.9	10.35	24.954	
2,400.0	2,385.6	2,397.7	2,395.3	6.8	5.3	-165.69	-51.3	-48.7	267.0	256.1	10.86	24.584	
2,500.0	2,484.7	2,497.1	2,494.0	7.1	5.5	-164.13	-49.8	-59.7	275.9	264.5	11.38	24.243	
2,600.0	2,583.9	2,596.4	2,592.7	7.4	5.8	-162.67	-48.2	-70.8	284.9	273.0	11.91	23.931	
2,700.0	2,683.1	2,695.7	2,691.4	7.7	6.0	-161.30	-46.6	-81.9	294.2	281.7	12.44	23.644	
2,800.0	2,782.3	2,795.0	2,790.1	8.1	6.3	-160.01	-45.0	-93.0	303.6	290.6	12.99	23.380	
2,900.0	2,881.5	2,894.4	2,888.8	8.4	6.6	-158.80	-43.4	-104.1	313.1	299.6	13.53	23.137	
3,000.0	2,980.6	2,993.7	2,987.5	8.7	6.8	-157.67	-41.9	-115.2	322.8	308.7	14.09	22.913	
3,100.0	3,079.8	3,093.0	3,086.2	9.0	7.1	-156.60	-40.3	-126.3	332.6	318.0	14.65	22.707	
3,200.0	3,179.0	3,192.4	3,184.9	9.4	7.4	-155.59	-38.7	-137.3	342.5	327.3	15.21	22.517	
3,300.0	3,278.2	3,291.7	3,283.6	9.7	7.7	-154.63	-37.1	-148.4	352.5	336.8	15.78	22.341	
3,400.0	3,377.3	3,391.0	3,382.3	10.0	8.0	-153.73	-35.5	-159.5	362.6	346.3	16.35	22.179	
3,500.0	3,476.5	3,490.4	3,481.0	10.3	8.2	-152.88	-33.9	-170.6	372.8	355.9	16.92	22.029	
3,600.0	3,575.7	3,589.7	3,579.7	10.7	8.5	-152.08	-32.4	-181.7	383.1	365.6	17.50	21.889	
3,700.0	3,674.9	3,689.0	3,678.4	11.0	8.8	-151.31	-30.8	-192.8	393.4	375.3	18.08	21.760	
3,800.0	3,774.1	3,788.4	3,777.1	11.3	9.1	-150.59	-29.2	-203.8	403.8	385.2	18.66	21.640	
3,900.0	3,873.2	3,887.7	3,875.8	11.6	9.4	-149.90	-27.6	-214.9	414.3	395.0	19.24	21.528	
4,000.0	3,972.4	3,987.0	3,974.5	12.0	9.7	-149.25	-26.0	-226.0	424.8	405.0	19.83	21.424	
4,100.0	4,071.6	4,086.4	4,073.2	12.3	10.0	-148.62	-24.5	-237.1	435.4	414.9	20.41	21.327	
4,200.0	4,170.8	4,185.7	4,171.9	12.6	10.3	-148.03	-22.9	-248.2	446.0	425.0	21.00	21.236	
4,300.0	4,270.0	4,285.0	4,270.6	12.9	10.6	-147.47	-21.3	-259.3	456.6	435.1	21.59	21.151	
4,400.0	4,369.1	4,384.3	4,369.2	13.3	10.9	-146.93	-19.7	-270.3	467.3	445.2	22.18	21.072	
4,500.0	4,468.3	4,483.7	4,468.2	13.6	11.1	-146.59	-18.3	-280.0	478.1	455.4	22.69	21.068	
4,600.0	4,567.5	4,583.2	4,567.4	13.9	11.3	-146.67	-17.4	-286.3	488.8	465.7	23.16	21.106	
4,700.0	4,666.7	4,682.5	4,666.7	14.2	11.5	-147.14	-17.0	-289.1	499.6	476.0	23.58	21.181	
4,800.0	4,765.8	4,781.7	4,765.8	14.6	11.6	-147.90	-17.0	-289.3	510.4	486.4	23.99	21.276	
4,900.0	4,865.0	4,880.9	4,865.0	14.9	11.8	-148.64	-17.0	-289.3	521.3	496.9	24.41	21.359	
5,000.0	4,964.2	4,980.0	4,964.2	15.2	12.0	-149.36	-17.0	-289.3	532.3	507.4	24.83	21.439	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,063.4	5,079.2	5,063.4	15.5	12.2	-150.04	-17.0	-289.3	543.3	518.1	25.25	21.519	
5,200.0	5,162.6	5,178.4	5,162.6	15.9	12.4	-150.70	-17.0	-289.3	554.5	528.8	25.67	21.599	
5,300.0	5,261.7	5,277.6	5,261.7	16.2	12.6	-151.34	-17.0	-289.3	565.7	539.6	26.10	21.679	
5,400.0	5,360.9	5,376.7	5,360.9	16.5	12.8	-151.94	-17.0	-289.3	577.0	550.5	26.52	21.757	
5,500.0	5,460.1	5,475.9	5,460.1	16.8	13.0	-152.53	-17.0	-289.3	588.3	561.4	26.94	21.835	
5,600.0	5,559.3	5,575.1	5,559.3	17.2	13.2	-153.09	-17.0	-289.3	599.7	572.4	27.37	21.912	
5,700.0	5,658.4	5,674.3	5,658.4	17.5	13.4	-153.64	-17.0	-289.3	611.2	583.4	27.80	21.987	
5,800.0	5,757.6	5,773.5	5,757.6	17.8	13.6	-154.18	-17.0	-289.3	622.6	594.4	28.22	22.059	
5,900.0	5,857.1	5,872.9	5,857.1	18.0	13.8	-154.66	-17.0	-289.3	631.8	603.2	28.61	22.086	
6,000.0	5,956.9	5,972.7	5,956.9	18.2	14.0	-154.97	-17.0	-289.3	637.9	609.0	28.97	22.022	
6,100.0	6,056.8	6,072.6	6,056.8	18.4	14.2	-155.12	-17.0	-289.3	640.9	611.6	29.30	21.870	
6,200.0	6,156.8	6,172.6	6,156.8	18.5	14.4	-180.00	-17.0	-289.3	641.2	610.0	31.17	20.572	
6,300.0	6,256.8	6,272.6	6,256.8	18.7	14.6	-180.00	-17.0	-289.3	641.2	609.6	31.55	20.323	
6,345.2	6,302.0	6,317.8	6,302.0	18.8	14.7	-90.05	-17.0	-289.3	641.2	610.9	30.24	21.202	
6,400.0	6,356.8	6,372.6	6,356.8	18.8	14.8	-90.00	-17.0	-290.3	641.2	610.7	30.48	21.039	
6,500.0	6,456.0	6,472.6	6,456.0	19.1	15.1	-90.00	-17.0	-301.9	641.2	610.2	31.02	20.671	
6,600.0	6,552.9	6,572.6	6,552.9	19.4	15.5	-90.00	-17.0	-326.4	641.2	609.4	31.75	20.191	
6,700.0	6,645.8	6,672.6	6,645.8	19.7	16.0	-90.00	-17.0	-363.4	641.2	608.5	32.71	19.600	
6,800.0	6,733.0	6,772.6	6,733.0	20.2	16.6	-90.00	-17.0	-412.1	641.2	607.2	33.94	18.890	
6,900.0	6,813.1	6,872.6	6,813.1	20.8	17.4	-90.00	-17.0	-471.8	641.2	605.7	35.51	18.058	
7,000.0	6,884.8	6,972.6	6,884.8	21.5	18.5	-90.00	-17.0	-541.5	641.2	603.7	37.48	17.108	
7,100.0	6,946.8	7,072.6	6,946.7	22.5	19.7	-90.00	-17.0	-619.9	641.2	601.3	39.92	16.062	
7,200.0	6,997.9	7,172.6	6,997.9	23.7	21.2	-90.00	-17.0	-705.7	641.2	598.3	42.85	14.962	
7,300.0	7,037.5	7,272.6	7,037.5	25.1	23.0	-90.00	-17.0	-797.5	641.2	594.9	46.27	13.858	
7,400.0	7,064.7	7,372.6	7,064.7	26.8	24.9	-90.00	-17.0	-893.6	641.2	591.1	50.11	12.796	
7,500.0	7,079.2	7,472.6	7,079.1	28.7	27.0	-90.00	-17.0	-992.5	641.2	586.9	54.27	11.815	
7,600.0	7,081.3	7,572.6	7,081.3	30.7	29.2	-90.00	-17.0	-1,092.4	641.2	582.5	58.65	10.932	
7,700.0	7,080.6	7,672.6	7,080.6	32.9	31.5	-90.00	-17.0	-1,192.4	641.2	578.0	63.22	10.143	
7,800.0	7,079.9	7,772.6	7,079.9	35.1	33.9	-90.00	-17.0	-1,292.4	641.2	573.2	67.93	9.438	
7,900.0	7,079.2	7,872.6	7,079.2	37.4	36.3	-90.00	-17.0	-1,392.4	641.2	568.4	72.78	8.810	
8,000.0	7,078.5	7,972.6	7,078.5	39.8	38.8	-90.00	-17.0	-1,492.4	641.2	563.4	77.73	8.249	
8,100.0	7,077.8	8,072.6	7,077.8	42.3	41.3	-90.00	-17.0	-1,592.4	641.2	558.4	82.76	7.747	
8,200.0	7,077.1	8,172.6	7,077.1	44.7	43.9	-90.00	-17.0	-1,692.4	641.2	553.3	87.87	7.297	
8,300.0	7,076.4	8,272.6	7,076.4	47.3	46.5	-90.00	-17.0	-1,792.4	641.2	548.1	93.03	6.892	
8,400.0	7,075.7	8,372.6	7,075.7	49.8	49.1	-90.00	-17.0	-1,892.4	641.2	542.9	98.24	6.526	
8,500.0	7,075.0	8,472.6	7,075.0	52.4	51.7	-90.00	-17.0	-1,992.4	641.2	537.7	103.50	6.195	
8,600.0	7,074.3	8,572.6	7,074.3	55.0	54.4	-90.00	-17.0	-2,092.4	641.2	532.4	108.79	5.894	
8,700.0	7,073.6	8,672.6	7,073.6	57.6	57.1	-90.00	-17.0	-2,192.4	641.2	527.1	114.11	5.619	
8,800.0	7,072.9	8,772.6	7,072.9	60.3	59.7	-90.00	-17.0	-2,292.4	641.2	521.7	119.46	5.367	
8,900.0	7,072.2	8,872.6	7,072.2	62.9	62.4	-90.00	-17.0	-2,392.4	641.2	516.3	124.83	5.136	
9,000.0	7,071.6	8,972.6	7,071.5	65.6	65.1	-90.00	-17.0	-2,492.4	641.2	511.0	130.23	4.924	
9,100.0	7,070.9	9,072.6	7,070.8	68.3	67.8	-90.00	-17.0	-2,592.4	641.2	505.5	135.64	4.727	
9,200.0	7,070.2	9,172.6	7,070.1	71.0	70.6	-90.00	-17.0	-2,692.4	641.2	500.1	141.06	4.545	
9,300.0	7,069.5	9,272.6	7,069.4	73.7	73.3	-90.00	-17.0	-2,792.4	641.2	494.7	146.51	4.376	
9,400.0	7,068.8	9,372.6	7,068.7	76.4	76.0	-90.00	-17.0	-2,892.4	641.2	489.2	151.96	4.219	
9,500.0	7,068.1	9,472.6	7,068.0	79.1	78.8	-90.00	-17.0	-2,992.4	641.2	483.8	157.42	4.073	
9,600.0	7,067.4	9,572.6	7,067.3	81.8	81.5	-90.00	-17.0	-3,092.4	641.2	478.3	162.90	3.936	
9,700.0	7,066.7	9,672.6	7,066.6	84.5	84.2	-90.00	-17.0	-3,192.4	641.2	472.8	168.38	3.808	
9,800.0	7,066.0	9,772.6	7,065.9	87.2	87.0	-90.00	-17.0	-3,292.4	641.2	467.3	173.88	3.688	
9,900.0	7,065.3	9,872.6	7,065.2	90.0	89.7	-90.00	-17.0	-3,392.4	641.2	461.8	179.38	3.574	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,064.6	9,972.6	7,064.6	92.7	92.5	-90.00	-17.0	-3,492.4	641.2	456.3	184.88	3.468	
10,100.0	7,063.9	10,072.6	7,063.9	95.5	95.3	-90.00	-17.0	-3,592.4	641.2	450.8	190.40	3.368	
10,200.0	7,063.2	10,172.6	7,063.2	98.2	98.0	-90.00	-17.0	-3,692.4	641.2	445.3	195.92	3.273	
10,300.0	7,062.5	10,272.6	7,062.5	101.0	100.8	-90.00	-17.0	-3,792.4	641.2	439.7	201.44	3.183	
10,400.0	7,061.8	10,372.6	7,061.8	103.7	103.5	-90.00	-17.0	-3,892.4	641.2	434.2	206.97	3.098	
10,500.0	7,061.1	10,472.6	7,061.1	106.5	106.3	-90.00	-17.0	-3,992.3	641.2	428.7	212.50	3.017	
10,600.0	7,060.4	10,572.6	7,060.4	109.2	109.1	-90.00	-17.0	-4,092.3	641.2	423.1	218.04	2.941	
10,700.0	7,059.7	10,672.6	7,059.7	112.0	111.9	-90.00	-17.0	-4,192.3	641.2	417.6	223.58	2.868	
10,800.0	7,059.0	10,772.6	7,059.0	114.8	114.6	-90.00	-17.0	-4,292.3	641.2	412.0	229.13	2.798	
10,900.0	7,058.3	10,872.6	7,058.3	117.5	117.4	-90.00	-17.0	-4,392.3	641.2	406.5	234.68	2.732	
11,000.0	7,057.6	10,972.6	7,057.6	120.3	120.2	-90.00	-17.0	-4,492.3	641.2	400.9	240.23	2.669	
11,100.0	7,056.9	11,072.6	7,056.9	123.1	123.0	-90.00	-17.0	-4,592.3	641.2	395.4	245.78	2.609	
11,200.0	7,056.2	11,172.6	7,056.2	125.8	125.7	-90.00	-17.0	-4,692.3	641.2	389.8	251.34	2.551	
11,300.0	7,055.5	11,272.6	7,055.5	128.6	128.5	-90.00	-17.0	-4,792.3	641.2	384.3	256.90	2.496	
11,400.0	7,054.8	11,372.6	7,054.8	131.4	131.3	-90.00	-17.0	-4,892.3	641.2	378.7	262.46	2.443	
11,500.0	7,054.1	11,472.6	7,054.1	134.2	134.1	-90.00	-17.0	-4,992.3	641.2	373.2	268.03	2.392	
11,600.0	7,053.4	11,572.6	7,053.4	136.9	136.9	-90.00	-17.0	-5,092.3	641.2	367.6	273.59	2.344	
11,700.0	7,052.7	11,672.6	7,052.7	139.7	139.7	-90.00	-17.0	-5,192.3	641.2	362.0	279.16	2.297	
11,800.0	7,052.0	11,772.6	7,052.0	142.5	142.4	-90.00	-17.0	-5,292.3	641.2	356.4	284.73	2.252	
11,900.0	7,051.3	11,872.6	7,051.3	145.3	145.2	-90.00	-17.0	-5,392.3	641.2	350.9	290.30	2.209	
12,000.0	7,050.6	11,972.6	7,050.6	148.1	148.0	-90.00	-17.0	-5,492.3	641.2	345.3	295.88	2.167	
12,100.0	7,049.9	12,072.6	7,049.9	150.8	150.8	-90.00	-17.0	-5,592.3	641.2	339.7	301.45	2.127	
12,200.0	7,049.2	12,172.6	7,049.2	153.6	153.6	-90.00	-17.0	-5,692.3	641.2	334.2	307.03	2.088	
12,300.0	7,048.5	12,272.6	7,048.5	156.4	156.4	-90.00	-17.0	-5,792.3	641.2	328.6	312.61	2.051	
12,400.0	7,047.8	12,372.6	7,047.8	159.2	159.2	-90.00	-17.0	-5,892.3	641.2	323.0	318.18	2.015	
12,500.0	7,047.1	12,472.6	7,047.1	162.0	162.0	-90.00	-17.0	-5,992.3	641.2	317.4	323.76	1.980	
12,600.0	7,046.4	12,572.6	7,046.4	164.8	164.8	-90.00	-17.0	-6,092.3	641.2	311.8	329.35	1.947	
12,700.0	7,045.7	12,672.6	7,045.7	167.6	167.5	-90.00	-17.0	-6,192.3	641.2	306.2	334.93	1.914	
12,800.0	7,045.0	12,772.6	7,045.0	170.3	170.3	-90.00	-17.0	-6,292.3	641.2	300.7	340.51	1.883	
12,900.0	7,044.3	12,872.6	7,044.3	173.1	173.1	-90.00	-17.0	-6,392.3	641.2	295.1	346.10	1.853	
13,000.0	7,043.6	12,972.6	7,043.6	175.9	175.9	-90.00	-17.0	-6,492.3	641.2	289.5	351.68	1.823	
13,100.0	7,042.9	13,072.6	7,042.9	178.7	178.7	-90.00	-17.0	-6,592.3	641.2	283.9	357.27	1.795	
13,200.0	7,042.2	13,172.6	7,042.2	181.5	181.5	-90.00	-17.0	-6,692.3	641.2	278.3	362.86	1.767	
13,300.0	7,041.5	13,272.6	7,041.5	184.3	184.3	-90.00	-17.0	-6,792.3	641.2	272.7	368.44	1.740	
13,400.0	7,040.8	13,372.6	7,040.8	187.1	187.1	-90.00	-17.0	-6,892.3	641.2	267.1	374.03	1.714	
13,500.0	7,040.1	13,472.6	7,040.1	189.9	189.9	-90.00	-17.0	-6,992.3	641.2	261.6	379.62	1.689	
13,600.0	7,039.4	13,572.6	7,039.4	192.7	192.7	-90.00	-17.0	-7,092.3	641.2	256.0	385.21	1.664	
13,700.0	7,038.7	13,672.6	7,038.7	195.5	195.5	-90.00	-17.0	-7,192.3	641.2	250.4	390.81	1.641	
13,800.0	7,038.0	13,772.6	7,038.0	198.3	198.3	-90.00	-17.0	-7,292.3	641.2	244.8	396.40	1.618	
13,900.0	7,037.3	13,872.6	7,037.3	201.1	201.1	-90.00	-17.0	-7,392.3	641.2	239.2	401.99	1.595	
14,000.0	7,036.6	13,972.6	7,036.6	203.8	203.9	-90.00	-17.0	-7,492.3	641.2	233.6	407.58	1.573	
14,100.0	7,035.9	14,072.6	7,035.9	206.6	206.7	-90.00	-17.0	-7,592.3	641.2	228.0	413.18	1.552	
14,200.0	7,035.2	14,172.6	7,035.2	209.4	209.5	-90.00	-17.0	-7,692.3	641.2	222.4	418.77	1.531	
14,217.2	7,035.1	14,189.8	7,035.1	209.9	210.0	-90.00	-17.0	-7,709.4	641.2	221.4	419.73	1.528	
14,235.5	7,035.0	14,205.5	7,035.0	210.4	210.4	-90.00	-17.0	-7,725.1	641.2	220.5	420.68	1.524	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-120.2	0.0	120.2				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-120.2	0.0	120.2	120.0	0.22	534.870	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-120.2	0.0	120.2	119.5	0.67	178.290	
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-120.2	0.0	120.2	119.1	1.12	106.974	
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-120.2	0.0	120.2	118.6	1.57	76.410	CC, ES
500.0	500.0	500.0	500.0	1.0	1.0	-155.46	-120.2	0.0	121.8	119.8	2.03	60.151	
600.0	599.8	599.8	599.8	1.2	1.2	-156.41	-120.2	0.0	126.6	124.1	2.48	51.056	
700.0	699.5	695.4	695.4	1.5	1.4	-157.45	-121.7	-0.7	136.1	133.2	2.91	46.795	
800.0	798.7	790.0	789.9	1.7	1.6	-158.22	-125.9	-2.6	151.6	148.3	3.33	45.480	
900.0	897.9	883.5	883.1	2.0	1.8	-158.49	-132.9	-5.9	170.7	166.9	3.77	45.315	SF
1,000.0	997.1	976.0	974.9	2.3	2.0	-158.27	-142.6	-10.3	192.6	188.4	4.21	45.705	
1,100.0	1,096.3	1,072.7	1,070.7	2.6	2.3	-157.85	-154.3	-15.8	216.1	211.4	4.68	46.222	
1,200.0	1,195.4	1,169.9	1,167.1	2.9	2.5	-157.51	-166.1	-21.2	239.6	234.5	5.14	46.630	
1,300.0	1,294.6	1,267.1	1,263.4	3.3	2.8	-157.24	-177.8	-26.7	263.1	257.5	5.61	46.902	
1,400.0	1,393.8	1,364.2	1,359.7	3.6	3.1	-157.00	-189.6	-32.1	286.7	280.6	6.09	47.084	
1,500.0	1,493.0	1,461.4	1,456.0	3.9	3.4	-156.81	-201.4	-37.5	310.2	303.6	6.57	47.205	
1,600.0	1,592.1	1,558.6	1,552.3	4.2	3.7	-156.64	-213.2	-43.0	333.8	326.7	7.06	47.278	
1,700.0	1,691.3	1,655.8	1,648.6	4.5	4.0	-156.49	-224.9	-48.4	357.3	349.8	7.55	47.326	
1,800.0	1,790.5	1,753.0	1,745.0	4.8	4.4	-156.36	-236.7	-53.9	380.9	372.8	8.04	47.354	
1,900.0	1,889.7	1,850.2	1,841.3	5.2	4.7	-156.24	-248.5	-59.3	404.4	395.9	8.54	47.367	
2,000.0	1,988.9	1,947.4	1,937.6	5.5	5.0	-156.14	-260.3	-64.8	427.9	418.9	9.03	47.369	
2,100.0	2,088.0	2,044.5	2,033.9	5.8	5.3	-156.05	-272.0	-70.2	451.5	442.0	9.53	47.363	
2,200.0	2,187.2	2,141.7	2,130.2	6.1	5.6	-155.97	-283.8	-75.7	475.0	465.0	10.03	47.352	
2,300.0	2,286.4	2,238.9	2,226.5	6.4	6.0	-155.90	-295.6	-81.1	498.6	488.1	10.53	47.337	
2,400.0	2,385.6	2,336.1	2,322.9	6.8	6.3	-155.83	-307.4	-86.6	522.1	511.1	11.03	47.319	
2,500.0	2,484.7	2,433.3	2,419.2	7.1	6.6	-155.77	-319.1	-92.0	545.7	534.2	11.54	47.300	
2,600.0	2,583.9	2,530.5	2,515.5	7.4	6.9	-155.71	-330.9	-97.5	569.3	557.2	12.04	47.279	
2,700.0	2,683.1	2,627.7	2,611.8	7.7	7.3	-155.66	-342.7	-102.9	592.8	580.3	12.54	47.258	
2,800.0	2,782.3	2,724.8	2,708.1	8.1	7.6	-155.61	-354.4	-108.4	616.4	603.3	13.05	47.236	
2,900.0	2,881.5	2,822.0	2,804.4	8.4	7.9	-155.57	-366.2	-113.8	639.9	626.4	13.55	47.215	
3,000.0	2,980.6	2,919.2	2,900.7	8.7	8.3	-155.52	-378.0	-119.2	663.5	649.4	14.06	47.193	
3,100.0	3,079.8	3,016.4	2,997.1	9.0	8.6	-155.49	-389.8	-124.7	687.0	672.5	14.56	47.171	
3,200.0	3,179.0	3,113.6	3,093.4	9.4	8.9	-155.45	-401.5	-130.1	710.6	695.5	15.07	47.150	
3,300.0	3,278.2	3,210.8	3,189.7	9.7	9.3	-155.42	-413.3	-135.6	734.1	718.6	15.58	47.129	
3,400.0	3,377.3	3,308.0	3,286.0	10.0	9.6	-155.38	-425.1	-141.0	757.7	741.6	16.08	47.108	
3,500.0	3,476.5	3,405.1	3,382.3	10.3	9.9	-155.36	-436.9	-146.5	781.2	764.7	16.59	47.088	
3,600.0	3,575.7	3,502.3	3,478.6	10.7	10.2	-155.33	-448.6	-151.9	804.8	787.7	17.10	47.068	
3,700.0	3,674.9	3,599.5	3,575.0	11.0	10.6	-155.30	-460.4	-157.4	828.4	810.8	17.61	47.049	
3,800.0	3,774.1	3,696.7	3,671.3	11.3	10.9	-155.28	-472.2	-162.8	851.9	833.8	18.11	47.031	
3,900.0	3,873.2	3,793.9	3,767.6	11.6	11.2	-155.25	-484.0	-168.3	875.5	856.8	18.62	47.012	
4,000.0	3,972.4	3,891.1	3,863.9	12.0	11.6	-155.23	-495.7	-173.7	899.0	879.9	19.13	46.994	
4,100.0	4,071.6	3,988.2	3,960.2	12.3	11.9	-155.21	-507.5	-179.2	922.6	902.9	19.64	46.977	
4,200.0	4,170.8	4,085.4	4,056.5	12.6	12.2	-155.19	-519.3	-184.6	946.1	926.0	20.15	46.960	
4,300.0	4,270.0	4,182.6	4,152.8	12.9	12.6	-155.17	-531.1	-190.1	969.7	949.0	20.66	46.944	
4,400.0	4,369.1	4,279.8	4,249.2	13.3	12.9	-155.15	-542.8	-195.5	993.3	972.1	21.17	46.928	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-91.1	0.0	91.1				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-91.1	0.0	91.1	90.9	0.22	405.205	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-91.1	0.0	91.1	90.4	0.67	135.068	
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-91.1	0.0	91.1	90.0	1.12	81.041	
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-91.1	0.0	91.1	89.5	1.57	57.886	CC, ES
500.0	500.0	500.0	500.0	1.0	1.0	-155.57	-91.1	0.0	92.7	90.6	2.03	45.759	
600.0	599.8	599.8	599.8	1.2	1.2	-156.81	-91.1	0.0	97.5	95.0	2.48	39.305	
700.0	699.5	699.5	699.5	1.5	1.5	-158.61	-91.1	0.0	105.5	102.6	2.94	35.942	
800.0	798.7	798.7	798.7	1.7	1.7	-160.71	-91.1	0.0	116.8	113.4	3.39	34.424	
900.0	897.9	897.9	897.9	2.0	1.9	-162.59	-91.1	0.0	128.9	125.1	3.85	33.498	
1,000.0	997.1	997.1	997.1	2.3	2.1	-164.14	-91.1	0.0	141.2	136.9	4.31	32.782	
1,100.0	1,096.3	1,096.3	1,096.3	2.6	2.4	-165.44	-91.1	0.0	153.6	148.8	4.77	32.216	
1,200.0	1,195.4	1,195.4	1,195.4	2.9	2.6	-166.55	-91.1	0.0	166.0	160.8	5.23	31.759	
1,300.0	1,294.6	1,294.6	1,294.6	3.3	2.8	-167.51	-91.1	0.0	178.5	172.8	5.69	31.382	
1,400.0	1,393.8	1,393.8	1,393.8	3.6	3.0	-168.34	-91.1	0.0	191.0	184.8	6.15	31.067	SF
1,500.0	1,493.0	1,488.6	1,488.6	3.9	3.2	-168.76	-92.2	-0.7	204.5	198.0	6.58	31.088	
1,600.0	1,592.1	1,582.5	1,582.4	4.2	3.4	-168.53	-96.0	-3.1	220.3	213.3	7.00	31.491	
1,700.0	1,691.3	1,675.6	1,675.2	4.5	3.6	-167.80	-102.3	-7.1	238.4	231.0	7.42	32.122	
1,800.0	1,790.5	1,767.7	1,766.7	4.8	3.7	-166.70	-111.0	-12.6	258.8	250.9	7.86	32.928	
1,900.0	1,889.7	1,859.3	1,857.3	5.2	3.9	-165.34	-122.1	-19.7	281.5	273.2	8.31	33.874	
2,000.0	1,988.9	1,955.4	1,952.2	5.5	4.2	-163.93	-135.0	-27.9	305.6	296.8	8.78	34.793	
2,100.0	2,088.0	2,052.2	2,047.7	5.8	4.4	-162.71	-148.1	-36.2	329.8	320.5	9.26	35.608	
2,200.0	2,187.2	2,149.0	2,143.3	6.1	4.7	-161.66	-161.1	-44.5	354.1	344.4	9.75	36.327	
2,300.0	2,286.4	2,245.8	2,238.8	6.4	5.0	-160.74	-174.2	-52.7	378.6	368.3	10.24	36.963	
2,400.0	2,385.6	2,342.6	2,334.4	6.8	5.3	-159.93	-187.2	-61.0	403.1	392.3	10.74	37.536	
2,500.0	2,484.7	2,439.4	2,430.0	7.1	5.6	-159.22	-200.3	-69.3	427.7	416.4	11.24	38.049	
2,600.0	2,583.9	2,536.2	2,525.5	7.4	5.9	-158.58	-213.3	-77.6	452.3	440.6	11.74	38.512	
2,700.0	2,683.1	2,633.0	2,621.1	7.7	6.2	-158.01	-226.4	-85.8	477.0	464.7	12.25	38.931	
2,800.0	2,782.3	2,729.8	2,716.6	8.1	6.6	-157.49	-239.4	-94.1	501.7	488.9	12.76	39.312	
2,900.0	2,881.5	2,826.6	2,812.2	8.4	6.9	-157.03	-252.5	-102.4	526.5	513.2	13.27	39.660	
3,000.0	2,980.6	2,923.4	2,907.8	8.7	7.2	-156.60	-265.5	-110.7	551.3	537.5	13.79	39.980	
3,100.0	3,079.8	3,020.2	3,003.3	9.0	7.6	-156.21	-278.6	-119.0	576.1	561.8	14.30	40.273	
3,200.0	3,179.0	3,117.0	3,098.9	9.4	7.9	-155.86	-291.6	-127.2	600.9	586.1	14.82	40.544	
3,300.0	3,278.2	3,213.8	3,194.4	9.7	8.2	-155.53	-304.7	-135.5	625.8	610.4	15.34	40.794	
3,400.0	3,377.3	3,310.6	3,290.0	10.0	8.6	-155.23	-317.7	-143.8	650.6	634.8	15.86	41.026	
3,500.0	3,476.5	3,407.4	3,385.6	10.3	8.9	-154.95	-330.8	-152.1	675.5	659.2	16.38	41.242	
3,600.0	3,575.7	3,504.2	3,481.1	10.7	9.3	-154.69	-343.8	-160.3	700.4	683.5	16.90	41.443	
3,700.0	3,674.9	3,601.0	3,576.7	11.0	9.6	-154.44	-356.9	-168.6	725.4	707.9	17.42	41.630	
3,800.0	3,774.1	3,697.8	3,672.2	11.3	10.0	-154.22	-369.9	-176.9	750.3	732.3	17.95	41.806	
3,900.0	3,873.2	3,794.6	3,767.8	11.6	10.3	-154.00	-382.9	-185.2	775.2	756.8	18.47	41.971	
4,000.0	3,972.4	3,891.4	3,863.4	12.0	10.7	-153.81	-396.0	-193.4	800.2	781.2	19.00	42.125	
4,100.0	4,071.6	3,988.2	3,958.9	12.3	11.0	-153.62	-409.0	-201.7	825.1	805.6	19.52	42.271	
4,200.0	4,170.8	4,085.0	4,054.5	12.6	11.4	-153.44	-422.1	-210.0	850.1	830.1	20.05	42.408	
4,300.0	4,270.0	4,181.8	4,150.0	12.9	11.8	-153.28	-435.1	-218.3	875.1	854.5	20.57	42.537	
4,400.0	4,369.1	4,278.6	4,245.6	13.3	12.1	-153.12	-448.2	-226.6	900.1	879.0	21.10	42.660	
4,500.0	4,468.3	4,375.4	4,341.2	13.6	12.5	-152.97	-461.2	-234.8	925.0	903.4	21.63	42.776	
4,600.0	4,567.5	4,472.2	4,436.7	13.9	12.8	-152.83	-474.3	-243.1	950.0	927.9	22.15	42.885	
4,700.0	4,666.7	4,569.0	4,532.3	14.2	13.2	-152.70	-487.3	-251.4	975.0	952.3	22.68	42.990	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-29.1	0.0	29.1				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-29.1	0.0	29.1	28.9	0.22	129.665	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-29.1	0.0	29.1	28.5	0.67	43.222	
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-29.1	0.0	29.1	28.0	1.12	25.933	
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-29.1	0.0	29.1	27.6	1.57	18.524	CC, ES
500.0	500.0	500.0	500.0	1.0	1.0	-156.49	-29.1	0.0	30.7	28.7	2.03	15.178	
600.0	599.8	599.8	599.8	1.2	1.2	-159.82	-29.1	0.0	35.6	33.1	2.48	14.357	
700.0	699.5	699.5	699.5	1.5	1.5	-163.70	-29.1	0.0	43.9	40.9	2.93	14.952	
800.0	798.7	798.7	798.7	1.7	1.7	-167.14	-29.1	0.0	55.5	52.1	3.39	16.381	
900.0	897.9	897.9	897.9	2.0	1.9	-169.54	-29.1	0.0	68.1	64.2	3.84	17.715	
1,000.0	997.1	997.1	997.1	2.3	2.1	-171.19	-29.1	0.0	80.7	76.4	4.30	18.778	
1,100.0	1,096.3	1,096.3	1,096.3	2.6	2.4	-172.39	-29.1	0.0	93.3	88.6	4.75	19.642	
1,200.0	1,195.4	1,195.4	1,195.4	2.9	2.6	-173.31	-29.1	0.0	106.0	100.8	5.21	20.355	
1,300.0	1,294.6	1,294.6	1,294.6	3.3	2.8	-174.03	-29.1	0.0	118.8	113.1	5.67	20.953	
1,400.0	1,393.8	1,393.8	1,393.8	3.6	3.0	-174.61	-29.1	0.0	131.5	125.4	6.13	21.462	
1,500.0	1,493.0	1,493.0	1,493.0	3.9	3.2	-175.09	-29.1	0.0	144.2	137.7	6.59	21.899	
1,600.0	1,592.1	1,592.1	1,592.1	4.2	3.5	-175.49	-29.1	0.0	157.0	149.9	7.05	22.279	
1,700.0	1,691.3	1,695.4	1,695.4	4.5	3.7	-175.47	-28.5	-1.4	168.7	161.1	7.51	22.459	
1,800.0	1,790.5	1,799.5	1,799.3	4.8	3.9	-174.61	-26.1	-6.2	177.7	169.8	7.97	22.296	
1,900.0	1,889.7	1,903.8	1,903.2	5.2	4.1	-173.00	-22.1	-14.5	184.3	175.9	8.45	21.817	
2,000.0	1,988.9	2,006.0	2,004.7	5.5	4.4	-170.79	-16.7	-25.5	188.8	179.9	8.94	21.123	
2,100.0	2,088.0	2,105.6	2,103.5	5.8	4.6	-168.61	-11.3	-36.8	193.2	183.8	9.44	20.468	
2,200.0	2,187.2	2,205.3	2,202.4	6.1	4.9	-166.54	-5.8	-48.0	197.9	188.0	9.96	19.879	
2,300.0	2,286.4	2,304.9	2,301.2	6.4	5.2	-164.56	-0.3	-59.3	202.9	192.4	10.48	19.348	
2,400.0	2,385.6	2,404.5	2,400.1	6.8	5.4	-162.67	5.2	-70.6	208.0	197.0	11.02	18.869	
2,500.0	2,484.7	2,504.2	2,498.9	7.1	5.7	-160.88	10.6	-81.8	213.4	201.8	11.58	18.435	
2,600.0	2,583.9	2,603.8	2,597.8	7.4	6.0	-159.18	16.1	-93.1	219.0	206.9	12.14	18.043	
2,700.0	2,683.1	2,703.4	2,696.6	7.7	6.3	-157.57	21.6	-104.4	224.8	212.0	12.71	17.686	
2,800.0	2,782.3	2,803.1	2,795.5	8.1	6.6	-156.03	27.1	-115.6	230.7	217.4	13.29	17.362	
2,900.0	2,881.5	2,902.7	2,894.3	8.4	6.9	-154.58	32.5	-126.9	236.8	222.9	13.87	17.068	
3,000.0	2,980.6	3,002.4	2,993.1	8.7	7.2	-153.19	38.0	-138.2	243.0	228.5	14.47	16.799	
3,100.0	3,079.8	3,102.0	3,092.0	9.0	7.5	-151.88	43.5	-149.4	249.4	234.3	15.06	16.555	
3,200.0	3,179.0	3,201.6	3,190.8	9.4	7.8	-150.63	49.0	-160.7	255.9	240.2	15.67	16.331	
3,300.0	3,278.2	3,301.3	3,289.7	9.7	8.1	-149.45	54.4	-172.0	262.5	246.2	16.28	16.127	
3,400.0	3,377.3	3,400.9	3,388.5	10.0	8.4	-148.32	59.9	-183.2	269.2	252.3	16.89	15.940	
3,500.0	3,476.5	3,500.5	3,487.4	10.3	8.7	-147.25	65.4	-194.5	276.0	258.5	17.50	15.768	
3,600.0	3,575.7	3,600.2	3,586.2	10.7	9.0	-146.23	70.9	-205.8	282.9	264.8	18.12	15.611	
3,700.0	3,674.9	3,699.8	3,685.1	11.0	9.3	-145.26	76.3	-217.0	289.9	271.2	18.74	15.466	
3,800.0	3,774.1	3,799.5	3,783.9	11.3	9.6	-144.33	81.8	-228.3	297.0	277.6	19.37	15.333	
3,900.0	3,873.2	3,899.1	3,882.8	11.6	9.9	-143.45	87.3	-239.6	304.1	284.1	19.99	15.210	
4,000.0	3,972.4	3,998.7	3,981.6	12.0	10.2	-142.61	92.8	-250.8	311.3	290.7	20.62	15.097	
4,100.0	4,071.6	4,098.4	4,080.5	12.3	10.5	-141.80	98.2	-262.1	318.6	297.4	21.25	14.992	
4,200.0	4,170.8	4,197.1	4,178.4	12.6	10.8	-141.09	103.5	-273.0	326.0	304.1	21.86	14.913	
4,300.0	4,270.0	4,294.4	4,275.3	12.9	11.0	-140.87	107.6	-281.4	334.0	311.6	22.36	14.934	
4,400.0	4,369.1	4,391.7	4,372.4	13.3	11.2	-141.21	110.2	-286.7	342.7	319.9	22.81	15.021	
4,500.0	4,468.3	4,488.5	4,469.2	13.6	11.4	-142.05	111.4	-289.2	352.2	329.0	23.21	15.173	
4,600.0	4,567.5	4,586.8	4,567.5	13.9	11.6	-143.26	111.5	-289.3	362.3	338.7	23.58	15.367	
4,700.0	4,666.7	4,686.0	4,666.7	14.2	11.7	-144.43	111.5	-289.3	372.7	348.7	23.97	15.551	
4,800.0	4,765.8	4,785.2	4,765.8	14.6	11.9	-145.54	111.5	-289.3	383.2	358.8	24.36	15.732	
4,900.0	4,865.0	4,884.4	4,865.0	14.9	12.1	-146.59	111.5	-289.3	393.8	369.1	24.75	15.912	
5,000.0	4,964.2	4,983.5	4,964.2	15.2	12.3	-147.59	111.5	-289.3	404.6	379.5	25.15	16.091	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,063.4	5,082.7	5,063.4	15.5	12.5	-148.53	111.5	-289.3	415.5	390.0	25.54	16.266	
5,200.0	5,162.6	5,181.9	5,162.6	15.9	12.7	-149.43	111.5	-289.3	426.5	400.5	25.94	16.439	
5,300.0	5,261.7	5,281.1	5,261.7	16.2	12.9	-150.28	111.5	-289.3	437.6	411.2	26.34	16.610	
5,400.0	5,360.9	5,380.2	5,360.9	16.5	13.1	-151.09	111.5	-289.3	448.8	422.0	26.75	16.777	
5,500.0	5,460.1	5,479.4	5,460.1	16.8	13.3	-151.85	111.5	-289.3	460.0	432.9	27.15	16.941	
5,600.0	5,559.3	5,578.6	5,559.3	17.2	13.5	-152.59	111.5	-289.3	471.4	443.8	27.56	17.102	
5,700.0	5,658.4	5,677.8	5,658.4	17.5	13.7	-153.28	111.5	-289.3	482.8	454.8	27.97	17.259	
5,800.0	5,757.6	5,777.0	5,757.6	17.8	13.9	-153.97	111.5	-289.3	494.2	465.8	28.38	17.411	
5,900.0	5,857.1	5,876.4	5,857.1	18.0	14.1	-154.56	111.5	-289.3	503.4	474.6	28.75	17.511	
6,000.0	5,956.9	5,976.2	5,956.9	18.2	14.3	-154.94	111.5	-289.3	509.5	480.4	29.09	17.512	
6,100.0	6,056.8	6,076.2	6,056.8	18.4	14.5	-155.11	111.5	-289.3	512.4	483.0	29.42	17.417	
6,200.0	6,156.8	6,176.2	6,156.8	18.5	14.7	180.00	111.5	-289.3	512.7	481.3	31.46	16.296	
6,300.0	6,256.8	6,276.2	6,256.8	18.7	14.9	180.00	111.5	-289.3	512.7	480.9	31.84	16.101	
6,353.0	6,309.8	6,329.1	6,309.8	18.8	15.0	-90.08	111.5	-289.3	512.7	482.3	30.39	16.873	
6,400.0	6,356.8	6,376.1	6,356.8	18.8	15.1	-90.11	111.5	-289.3	512.7	482.1	30.58	16.768	
6,500.0	6,456.0	6,476.1	6,456.7	19.1	15.3	-91.26	111.5	-290.6	512.8	481.9	30.97	16.558	
6,600.0	6,552.9	6,577.6	6,557.4	19.4	15.6	-92.62	111.5	-303.2	513.3	481.7	31.52	16.282	
6,700.0	6,645.8	6,680.9	6,657.2	19.7	16.0	-93.95	111.5	-329.6	514.0	481.7	32.29	15.916	
6,800.0	6,733.0	6,786.0	6,754.1	20.2	16.5	-95.21	111.5	-370.0	514.9	481.6	33.32	15.452	
6,900.0	6,813.1	6,892.7	6,845.9	20.8	17.2	-96.39	111.5	-424.3	516.0	481.3	34.68	14.879	
7,000.0	6,884.8	7,001.2	6,930.5	21.5	18.1	-97.45	111.5	-492.0	517.1	480.7	36.46	14.184	
7,100.0	6,946.8	7,111.1	7,005.6	22.5	19.3	-98.39	111.5	-572.1	518.3	479.5	38.76	13.370	
7,200.0	6,997.9	7,222.4	7,069.2	23.7	20.8	-99.17	111.5	-663.4	519.4	477.7	41.66	12.468	
7,300.0	7,037.5	7,334.9	7,119.3	25.1	22.6	-99.77	111.5	-764.0	520.3	475.1	45.15	11.524	
7,400.0	7,064.7	7,448.3	7,154.3	26.8	24.7	-100.19	111.5	-871.7	521.0	471.8	49.19	10.590	
7,500.0	7,079.2	7,562.2	7,173.0	28.7	27.1	-100.42	111.5	-983.9	521.3	467.6	53.69	9.710	
7,600.0	7,081.3	7,671.6	7,175.9	30.7	29.5	-100.45	111.5	-1,093.2	521.4	463.1	58.31	8.942	
7,700.0	7,080.6	7,771.6	7,175.0	32.9	31.8	-100.43	111.5	-1,193.2	521.3	458.5	62.79	8.303	
7,800.0	7,079.9	7,871.6	7,174.1	35.1	34.1	-100.41	111.5	-1,293.2	521.3	453.9	67.43	7.731	
7,900.0	7,079.2	7,971.6	7,173.3	37.4	36.5	-100.39	111.5	-1,393.2	521.3	449.1	72.19	7.221	
8,000.0	7,078.5	8,071.6	7,172.4	39.8	39.0	-100.37	111.5	-1,493.2	521.2	444.2	77.06	6.764	
8,100.0	7,077.8	8,171.6	7,171.5	42.3	41.5	-100.35	111.5	-1,593.2	521.2	439.2	82.01	6.355	
8,200.0	7,077.1	8,271.6	7,170.6	44.7	44.1	-100.34	111.5	-1,693.2	521.2	434.1	87.04	5.988	
8,300.0	7,076.4	8,371.6	7,169.8	47.3	46.7	-100.32	111.5	-1,793.2	521.1	429.0	92.12	5.657	
8,400.0	7,075.7	8,471.6	7,168.9	49.8	49.3	-100.30	111.5	-1,893.2	521.1	423.9	97.25	5.358	
8,500.0	7,075.0	8,571.6	7,168.0	52.4	51.9	-100.28	111.5	-1,993.2	521.1	418.7	102.43	5.087	
8,600.0	7,074.3	8,671.6	7,167.1	55.0	54.5	-100.26	111.5	-2,093.2	521.1	413.4	107.64	4.841	
8,700.0	7,073.6	8,771.6	7,166.3	57.6	57.2	-100.24	111.5	-2,193.2	521.0	408.1	112.88	4.616	
8,800.0	7,072.9	8,871.6	7,165.4	60.3	59.9	-100.22	111.5	-2,293.2	521.0	402.8	118.16	4.409	
8,900.0	7,072.2	8,971.6	7,164.5	62.9	62.6	-100.20	111.5	-2,393.2	521.0	397.5	123.45	4.220	
9,000.0	7,071.6	9,071.6	7,163.7	65.6	65.3	-100.18	111.5	-2,493.2	520.9	392.2	128.77	4.046	
9,100.0	7,070.9	9,171.6	7,162.8	68.3	68.0	-100.17	111.5	-2,593.2	520.9	386.8	134.10	3.884	
9,200.0	7,070.2	9,271.6	7,161.9	71.0	70.7	-100.15	111.5	-2,693.2	520.9	381.4	139.45	3.735	
9,300.0	7,069.5	9,371.6	7,161.0	73.7	73.4	-100.13	111.5	-2,793.2	520.8	376.0	144.82	3.596	
9,400.0	7,068.8	9,471.6	7,160.2	76.4	76.1	-100.11	111.5	-2,893.2	520.8	370.6	150.20	3.467	
9,500.0	7,068.1	9,571.6	7,159.3	79.1	78.9	-100.09	111.5	-2,993.2	520.8	365.2	155.59	3.347	
9,600.0	7,067.4	9,671.6	7,158.4	81.8	81.6	-100.07	111.5	-3,093.2	520.7	359.7	161.00	3.235	
9,700.0	7,066.7	9,771.6	7,157.5	84.5	84.3	-100.05	111.5	-3,193.2	520.7	354.3	166.41	3.129	
9,800.0	7,066.0	9,871.6	7,156.7	87.2	87.1	-100.03	111.5	-3,293.2	520.7	348.9	171.83	3.030	
9,900.0	7,065.3	9,971.6	7,155.8	90.0	89.8	-100.01	111.5	-3,393.2	520.7	343.4	177.26	2.937	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,064.6	10,071.6	7,154.9	92.7	92.6	-100.00	111.5	-3,493.1	520.6	337.9	182.70	2.850	
10,100.0	7,063.9	10,171.6	7,154.1	95.5	95.3	-99.98	111.5	-3,593.1	520.6	332.5	188.14	2.767	
10,200.0	7,063.2	10,271.6	7,153.2	98.2	98.1	-99.96	111.5	-3,693.1	520.6	327.0	193.59	2.689	
10,300.0	7,062.5	10,371.6	7,152.3	101.0	100.9	-99.94	111.5	-3,793.1	520.5	321.5	199.05	2.615	
10,400.0	7,061.8	10,471.6	7,151.4	103.7	103.6	-99.92	111.5	-3,893.1	520.5	316.0	204.51	2.545	
10,500.0	7,061.1	10,571.6	7,150.6	106.5	106.4	-99.90	111.5	-3,993.1	520.5	310.5	209.98	2.479	
10,600.0	7,060.4	10,671.6	7,149.7	109.2	109.2	-99.88	111.5	-4,093.1	520.4	305.0	215.45	2.416	
10,700.0	7,059.7	10,771.6	7,148.8	112.0	111.9	-99.86	111.5	-4,193.1	520.4	299.5	220.92	2.356	
10,800.0	7,059.0	10,871.6	7,148.0	114.8	114.7	-99.84	111.5	-4,293.1	520.4	294.0	226.41	2.298	
10,900.0	7,058.3	10,971.6	7,147.1	117.5	117.5	-99.83	111.5	-4,393.1	520.4	288.5	231.89	2.244	
11,000.0	7,057.6	11,071.6	7,146.2	120.3	120.3	-99.81	111.5	-4,493.1	520.3	282.9	237.38	2.192	
11,100.0	7,056.9	11,171.6	7,145.3	123.1	123.0	-99.79	111.5	-4,593.1	520.3	277.4	242.87	2.142	
11,200.0	7,056.2	11,271.6	7,144.5	125.8	125.8	-99.77	111.5	-4,693.1	520.3	271.9	248.36	2.095	
11,300.0	7,055.5	11,371.6	7,143.6	128.6	128.6	-99.75	111.5	-4,793.1	520.2	266.4	253.86	2.049	
11,400.0	7,054.8	11,471.6	7,142.7	131.4	131.4	-99.73	111.5	-4,893.1	520.2	260.8	259.36	2.006	
11,500.0	7,054.1	11,571.6	7,141.8	134.2	134.2	-99.71	111.5	-4,993.1	520.2	255.3	264.87	1.964	
11,600.0	7,053.4	11,671.6	7,141.0	136.9	136.9	-99.69	111.5	-5,093.1	520.1	249.8	270.37	1.924	
11,700.0	7,052.7	11,771.6	7,140.1	139.7	139.7	-99.67	111.5	-5,193.1	520.1	244.2	275.88	1.885	
11,800.0	7,052.0	11,871.6	7,139.2	142.5	142.5	-99.65	111.5	-5,293.1	520.1	238.7	281.39	1.848	
11,900.0	7,051.3	11,971.6	7,138.4	145.3	145.3	-99.64	111.5	-5,393.1	520.1	233.2	286.90	1.813	
12,000.0	7,050.6	12,071.6	7,137.5	148.1	148.1	-99.62	111.5	-5,493.1	520.0	227.6	292.42	1.778	
12,100.0	7,049.9	12,171.6	7,136.6	150.8	150.9	-99.60	111.5	-5,593.1	520.0	222.1	297.94	1.745	
12,200.0	7,049.2	12,271.6	7,135.7	153.6	153.7	-99.58	111.5	-5,693.1	520.0	216.5	303.46	1.713	
12,300.0	7,048.5	12,371.6	7,134.9	156.4	156.4	-99.56	111.5	-5,793.1	519.9	211.0	308.98	1.683	
12,400.0	7,047.8	12,471.6	7,134.0	159.2	159.2	-99.54	111.5	-5,893.1	519.9	205.4	314.50	1.653	
12,500.0	7,047.1	12,571.6	7,133.1	162.0	162.0	-99.52	111.5	-5,993.1	519.9	199.9	320.03	1.625	
12,600.0	7,046.4	12,671.6	7,132.2	164.8	164.8	-99.50	111.5	-6,093.0	519.9	194.3	325.55	1.597	
12,700.0	7,045.7	12,771.6	7,131.4	167.6	167.6	-99.48	111.5	-6,193.0	519.8	188.7	331.08	1.570	
12,800.0	7,045.0	12,871.6	7,130.5	170.3	170.4	-99.47	111.5	-6,293.0	519.8	183.2	336.61	1.544	
12,900.0	7,044.3	12,971.6	7,129.6	173.1	173.2	-99.45	111.5	-6,393.0	519.8	177.6	342.14	1.519	
13,000.0	7,043.6	13,071.6	7,128.8	175.9	176.0	-99.43	111.5	-6,493.0	519.7	172.1	347.68	1.495	Level 3
13,100.0	7,042.9	13,171.6	7,127.9	178.7	178.8	-99.41	111.5	-6,593.0	519.7	166.5	353.21	1.471	Level 3
13,200.0	7,042.2	13,271.6	7,127.0	181.5	181.6	-99.39	111.5	-6,693.0	519.7	160.9	358.75	1.449	Level 3
13,300.0	7,041.5	13,371.6	7,126.1	184.3	184.4	-99.37	111.5	-6,793.0	519.7	155.4	364.28	1.427	Level 3
13,400.0	7,040.8	13,471.6	7,125.3	187.1	187.2	-99.35	111.5	-6,893.0	519.6	149.8	369.82	1.405	Level 3
13,500.0	7,040.1	13,571.6	7,124.4	189.9	190.0	-99.33	111.5	-6,993.0	519.6	144.2	375.36	1.384	Level 3
13,600.0	7,039.4	13,671.6	7,123.5	192.7	192.8	-99.31	111.5	-7,093.0	519.6	138.7	380.90	1.364	Level 3
13,700.0	7,038.7	13,771.6	7,122.6	195.5	195.5	-99.29	111.5	-7,193.0	519.5	133.1	386.45	1.344	Level 3
13,800.0	7,038.0	13,871.6	7,121.8	198.3	198.3	-99.28	111.5	-7,293.0	519.5	127.5	391.99	1.325	Level 3
13,900.0	7,037.3	13,971.6	7,120.9	201.1	201.1	-99.26	111.5	-7,393.0	519.5	122.0	397.54	1.307	Level 3
14,000.0	7,036.6	14,071.6	7,120.0	203.8	203.9	-99.24	111.5	-7,493.0	519.5	116.4	403.08	1.289	Level 3
14,100.0	7,035.9	14,171.6	7,119.2	206.6	206.7	-99.22	111.5	-7,593.0	519.4	110.8	408.63	1.271	Level 3
14,200.0	7,035.2	14,271.6	7,118.3	209.4	209.5	-99.20	111.5	-7,693.0	519.4	105.2	414.18	1.254	Level 3
14,228.7	7,035.0	14,300.3	7,118.0	210.2	210.3	-99.19	111.5	-7,721.7	519.4	103.6	415.77	1.249	Level 2
14,235.5	7,035.0	14,304.4	7,118.0	210.4	210.4	-99.19	111.5	-7,725.8	519.4	103.3	416.06	1.248	Level 2, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W - Wiedeman 28G-214 - Wellbore #1 - Plan #1 (8

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-178.5	0.0	178.5				
100.0	100.0	99.0	99.0	0.1	0.1	-180.00	-178.5	0.0	178.5	178.3	0.22	798.185	
200.0	200.0	199.0	199.0	0.3	0.3	-180.00	-178.5	0.0	178.5	177.8	0.67	265.619	CC, ES
300.0	300.0	293.3	293.3	0.6	0.5	-179.89	-180.0	-0.3	180.1	179.0	1.09	165.339	
400.0	400.0	387.4	387.2	0.8	0.7	-179.56	-184.5	-1.4	184.9	183.3	1.51	122.348	
500.0	500.0	480.9	480.4	1.0	0.9	-154.32	-191.9	-3.2	194.4	192.4	1.96	99.111	
600.0	599.8	573.2	572.2	1.2	1.2	-154.13	-202.1	-5.6	210.2	207.8	2.42	86.689	
700.0	699.5	664.0	661.9	1.5	1.5	-154.09	-215.0	-8.6	232.1	229.2	2.90	80.172	
800.0	798.7	752.6	749.2	1.7	1.8	-154.22	-230.2	-12.2	259.9	256.6	3.37	77.195	
900.0	897.9	839.4	834.1	2.0	2.2	-154.39	-247.7	-16.3	291.3	287.4	3.84	75.916	
1,000.0	997.1	929.5	921.8	2.3	2.6	-154.44	-268.0	-21.1	325.0	320.6	4.32	75.182	
1,100.0	1,096.3	1,023.6	1,013.2	2.6	3.0	-154.47	-289.5	-26.2	359.0	354.2	4.80	74.736	
1,200.0	1,195.4	1,117.6	1,104.6	2.9	3.5	-154.50	-311.0	-31.2	393.0	387.7	5.29	74.256	
1,300.0	1,294.6	1,211.7	1,196.0	3.3	3.9	-154.52	-332.5	-36.3	427.0	421.2	5.79	73.789	
1,400.0	1,393.8	1,305.7	1,287.5	3.6	4.4	-154.53	-354.0	-41.4	461.0	454.7	6.29	73.313	
1,500.0	1,493.0	1,399.8	1,378.9	3.9	4.9	-154.55	-375.4	-46.5	495.0	488.2	6.79	72.885	
1,600.0	1,592.1	1,493.8	1,470.3	4.2	5.3	-154.56	-396.9	-51.5	528.9	521.7	7.30	72.484	
1,700.0	1,691.3	1,587.8	1,561.7	4.5	5.8	-154.57	-418.4	-56.6	562.9	555.1	7.81	72.115	
1,800.0	1,790.5	1,681.9	1,653.1	4.8	6.3	-154.59	-439.9	-61.7	596.9	588.6	8.32	71.774	
1,900.0	1,889.7	1,775.9	1,744.5	5.2	6.7	-154.59	-461.4	-66.7	630.9	622.1	8.83	71.460	
2,000.0	1,988.9	1,870.0	1,835.9	5.5	7.2	-154.60	-482.9	-71.8	664.9	655.6	9.34	71.170	
2,100.0	2,088.0	1,964.0	1,927.4	5.8	7.7	-154.61	-504.4	-76.9	698.9	689.1	9.86	70.903	
2,200.0	2,187.2	2,058.1	2,018.8	6.1	8.1	-154.62	-525.9	-81.9	732.9	722.6	10.37	70.655	
2,300.0	2,286.4	2,152.1	2,110.2	6.4	8.6	-154.62	-547.3	-87.0	766.9	756.0	10.89	70.425	
2,400.0	2,385.6	2,246.2	2,201.6	6.8	9.1	-154.63	-568.8	-92.1	800.9	789.5	11.41	70.212	
2,500.0	2,484.7	2,340.2	2,293.0	7.1	9.5	-154.63	-590.3	-97.1	834.9	823.0	11.93	70.013	
2,600.0	2,583.9	2,434.2	2,384.4	7.4	10.0	-154.64	-611.8	-102.2	868.9	856.5	12.44	69.828	
2,700.0	2,683.1	2,528.3	2,475.9	7.7	10.5	-154.64	-633.3	-107.3	902.9	890.0	12.96	69.654	
2,800.0	2,782.3	2,622.3	2,567.3	8.1	11.0	-154.65	-654.8	-112.3	936.9	923.4	13.48	69.492	
2,900.0	2,881.5	2,716.4	2,658.7	8.4	11.4	-154.65	-676.3	-117.4	970.9	956.9	14.00	69.340	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W - Wiedeman 28G-314 - Wellbore #1 - Plan #1 (8

Offset Site Error: 0.0 ft

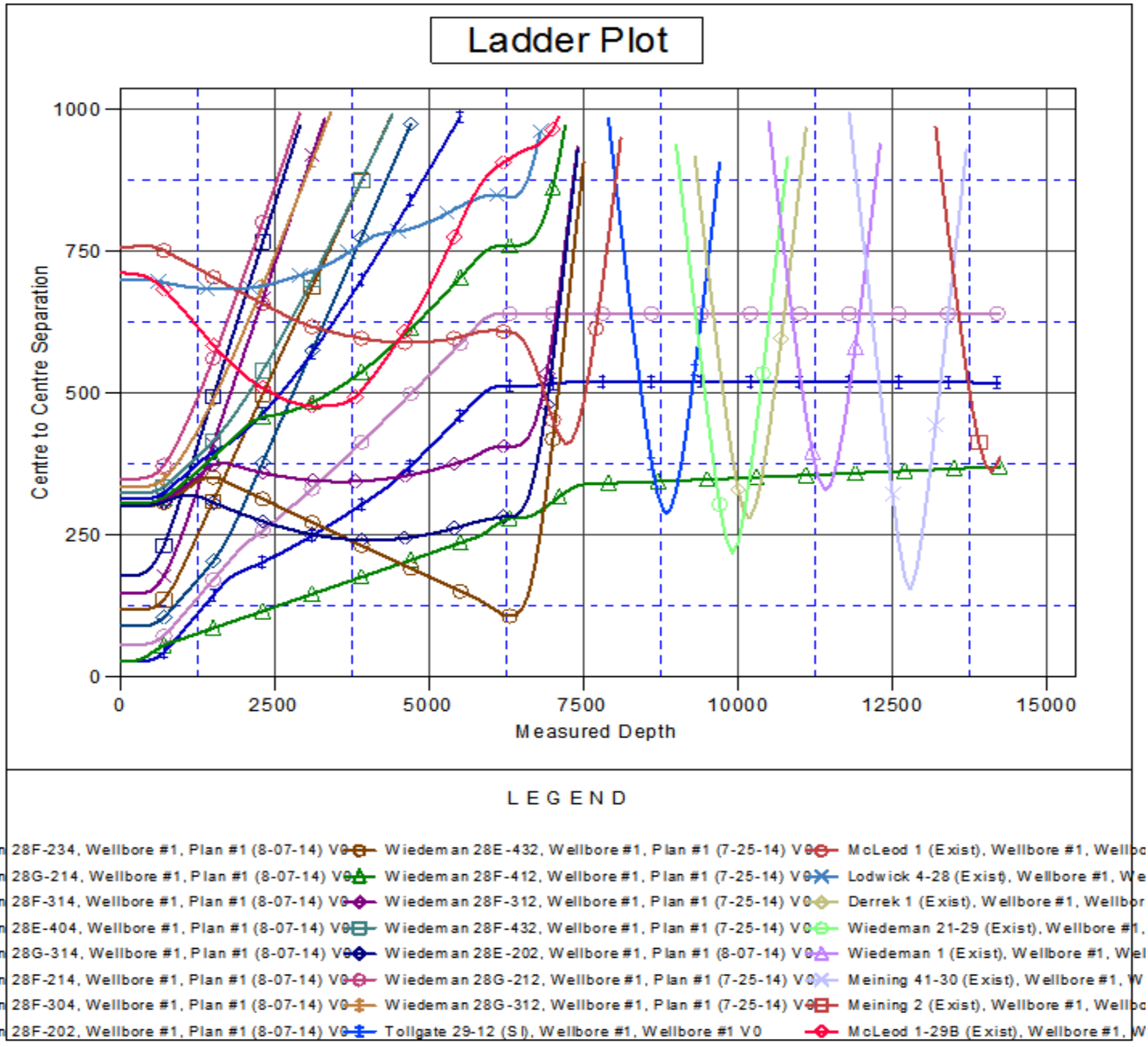
Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-149.4	0.0	149.4				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-149.4	0.0	149.4	149.1	0.22	664.536	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-149.4	0.0	149.4	148.7	0.67	221.512	
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-149.4	0.0	149.4	148.2	1.12	132.907	
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-149.4	0.0	149.4	147.8	1.57	94.934	CC, ES
500.0	500.0	495.1	495.1	1.0	1.0	-155.22	-150.9	-0.4	152.6	150.6	1.99	76.535	
600.0	599.8	589.6	589.5	1.2	1.2	-155.44	-155.4	-1.6	162.1	159.7	2.42	67.054	
700.0	699.5	683.0	682.6	1.5	1.4	-155.76	-162.9	-3.6	177.9	175.1	2.86	62.217	
800.0	798.7	774.8	773.7	1.7	1.6	-156.13	-173.0	-6.3	199.8	196.5	3.31	60.339	
900.0	897.9	865.0	863.0	2.0	1.9	-156.39	-185.8	-9.7	225.3	221.6	3.76	59.870	SF
1,000.0	997.1	953.8	950.4	2.3	2.2	-156.41	-200.9	-13.7	253.8	249.6	4.23	60.064	
1,100.0	1,096.3	1,043.6	1,038.2	2.6	2.5	-156.27	-218.8	-18.4	284.9	280.2	4.70	60.574	
1,200.0	1,195.4	1,138.4	1,130.9	2.9	2.9	-156.11	-238.3	-23.6	316.6	311.4	5.18	61.145	
1,300.0	1,294.6	1,233.2	1,223.5	3.3	3.3	-155.98	-257.7	-28.8	348.4	342.7	5.66	61.544	
1,400.0	1,393.8	1,328.1	1,316.2	3.6	3.7	-155.87	-277.2	-34.0	380.1	374.0	6.15	61.820	
1,500.0	1,493.0	1,422.9	1,408.9	3.9	4.1	-155.78	-296.7	-39.1	411.9	405.2	6.64	61.990	
1,600.0	1,592.1	1,517.7	1,501.5	4.2	4.5	-155.70	-316.1	-44.3	443.6	436.5	7.14	62.120	
1,700.0	1,691.3	1,612.5	1,594.2	4.5	5.0	-155.63	-335.6	-49.5	475.4	467.7	7.64	62.204	
1,800.0	1,790.5	1,707.4	1,686.8	4.8	5.4	-155.57	-355.1	-54.6	507.1	499.0	8.15	62.258	
1,900.0	1,889.7	1,802.2	1,779.5	5.2	5.8	-155.52	-374.5	-59.8	538.9	530.2	8.65	62.291	
2,000.0	1,988.9	1,897.0	1,872.2	5.5	6.3	-155.47	-394.0	-65.0	570.6	561.5	9.16	62.307	
2,100.0	2,088.0	1,991.8	1,964.8	5.8	6.7	-155.43	-413.5	-70.1	602.4	592.7	9.67	62.312	
2,200.0	2,187.2	2,086.7	2,057.5	6.1	7.1	-155.39	-432.9	-75.3	634.1	623.9	10.18	62.308	
2,300.0	2,286.4	2,181.5	2,150.1	6.4	7.6	-155.36	-452.4	-80.5	665.9	655.2	10.69	62.299	
2,400.0	2,385.6	2,276.3	2,242.8	6.8	8.0	-155.33	-471.9	-85.7	697.6	686.4	11.20	62.286	
2,500.0	2,484.7	2,371.1	2,335.5	7.1	8.4	-155.30	-491.3	-90.8	729.4	717.7	11.71	62.269	
2,600.0	2,583.9	2,466.0	2,428.1	7.4	8.9	-155.27	-510.8	-96.0	761.1	748.9	12.23	62.250	
2,700.0	2,683.1	2,560.8	2,520.8	7.7	9.3	-155.25	-530.3	-101.2	792.9	780.1	12.74	62.229	
2,800.0	2,782.3	2,655.6	2,613.4	8.1	9.7	-155.23	-549.7	-106.3	824.6	811.4	13.26	62.207	
2,900.0	2,881.5	2,750.4	2,706.1	8.4	10.2	-155.21	-569.2	-111.5	856.4	842.6	13.77	62.185	
3,000.0	2,980.6	2,845.2	2,798.8	8.7	10.6	-155.19	-588.7	-116.7	888.1	873.9	14.29	62.162	
3,100.0	3,079.8	2,940.1	2,891.4	9.0	11.1	-155.17	-608.1	-121.9	919.9	905.1	14.80	62.139	
3,200.0	3,179.0	3,034.9	2,984.1	9.4	11.5	-155.15	-627.6	-127.0	951.6	936.3	15.32	62.116	
3,300.0	3,278.2	3,129.7	3,076.8	9.7	11.9	-155.14	-647.1	-132.2	983.4	967.6	15.84	62.093	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4778.0ft (Original Well Elev) Coordinates are relative to: Wiedeman 28E-234
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.46°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Wiedeman 28E-234
Project:	SEC.28-T4N-R66W	**TVD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Reference Site:	Wiedeman 4N66W28F - West Pad Sec.28-T4N-R66W	**MD Reference:**	WELL @ 4778.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Wiedeman 28E-234	**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 (8-06-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4778.0ft (Original Well Elev) Coordinates are relative to: Wiedeman 28E-234
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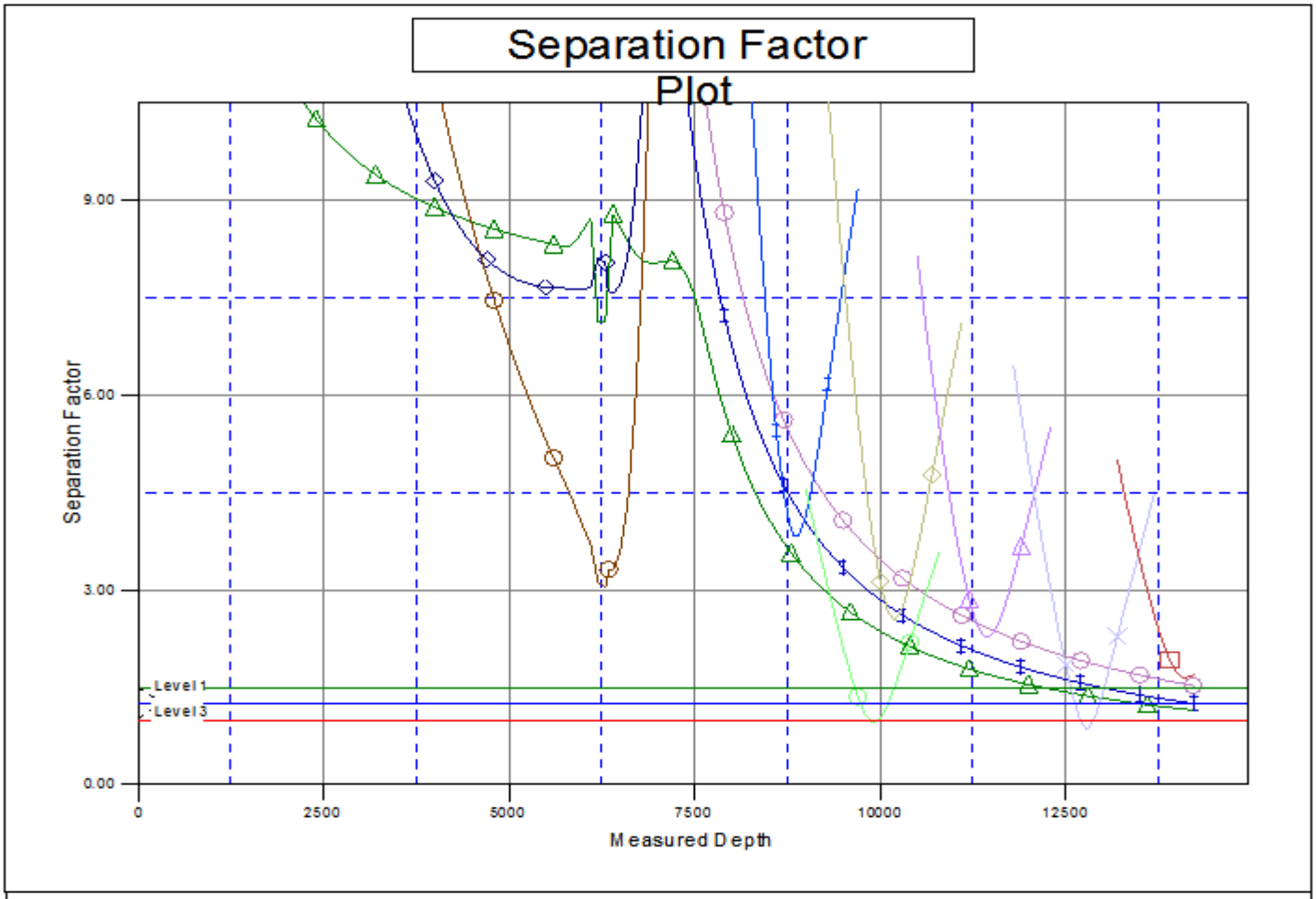

LEGEND

an 28F-234, Wellbore #1, Plan #1 (8-07-14) V0 — Wiedeman 28E-432, Wellbore #1, Plan #1 (7-25-14) V0 — McLeod 1 (Exist), Wellbore #1, Wellbo
an 28G-214, Wellbore #1, Plan #1 (8-07-14) V0 — Wiedeman 28F-412, Wellbore #1, Plan #1 (7-25-14) V0 — Lodwick 4-28 (Exist), Wellbore #1, We
an 28F-314, Wellbore #1, Plan #1 (8-07-14) V0 — Wiedeman 28F-312, Wellbore #1, Plan #1 (7-25-14) V0 — Derrek 1 (Exist), Wellbore #1, Wellbor
an 28E-404, Wellbore #1, Plan #1 (8-07-14) V0 — Wiedeman 28F-432, Wellbore #1, Plan #1 (7-25-14) V0 — Wiedeman 21-29 (Exist), Wellbore #1,
an 28G-314, Wellbore #1, Plan #1 (8-07-14) V0 — Wiedeman 28E-202, Wellbore #1, Plan #1 (8-07-14) V0 — Wiedeman 1 (Exist), Wellbore #1, Wel
an 28F-214, Wellbore #1, Plan #1 (8-07-14) V0 — Wiedeman 28G-212, Wellbore #1, Plan #1 (7-25-14) V0 — Meining 41-30 (Exist), Wellbore #1, W
an 28F-304, Wellbore #1, Plan #1 (8-07-14) V0 — Wiedeman 28G-312, Wellbore #1, Plan #1 (7-25-14) V0 — Meining 2 (Exist), Wellbore #1, Wellbo
an 28F-202, Wellbore #1, Plan #1 (8-07-14) V0 — Tollgate 29-12 (SI), Wellbore #1, Wellbore #1 V0 — McLeod 1-29B (Exist), Wellbore #1, W