

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Leffler 1I-204**

Surface Location: Leffler 1I-HZ Pad Sec.1-T6N-R66W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

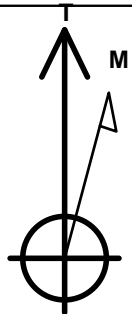
Ground Elevation: 4815.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1429853.10	3213090.42	40.510820	-104.733630	

Original Well Elev WELL @ 4830.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BHL 200'FSL, 500'FEL	7070.0	-47.0	4449.0	Point



Azimuths to True North
Magnetic North: 8.70°

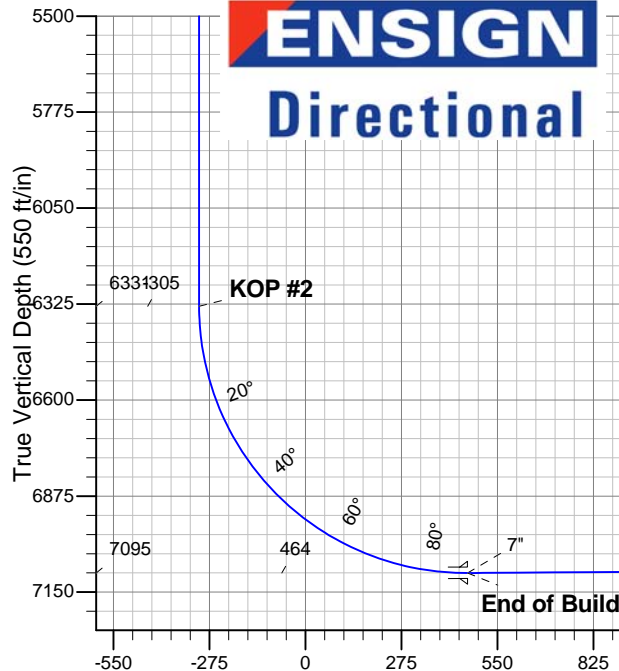
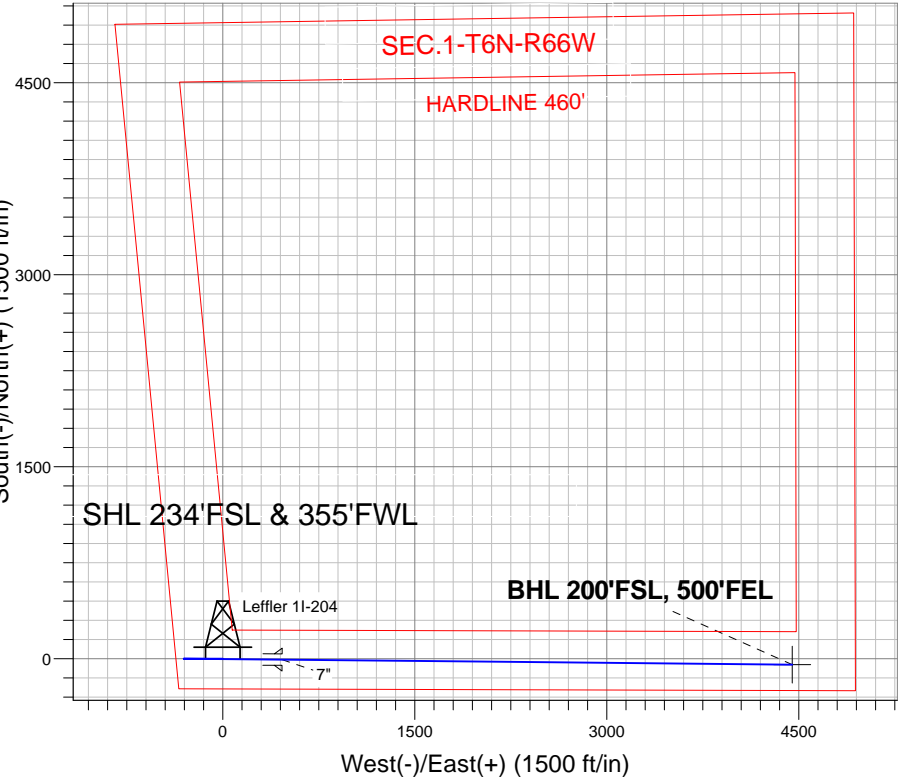
Magnetic Field
Strength: 53069.3nT
Dip Angle: 67.11°
Date: 8/16/2012
Model: IGRF2010

Leffler 1I-HZ Pad Sec.1-T6N-R66W
Leffler 1I-204
Plan #1 (8-16-12)
10:09, August 21 2012

ANNOTATIONS

TVD	MD	Annotation
500.0	500.0	KOP #1
6331.2	6349.2	KOP #2
7095.0	7554.0	End of Build

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



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0	
3	855.7	7.11	270.00	854.8	0.0	-22.1	2.00	270.00	-22.1	
4	2962.3	7.11	270.00	2945.2	0.0	-282.9	0.00	0.00	-282.9	
5	3318.0	0.00	0.00	3300.0	0.0	-305.0	2.00	180.00	-305.0	
6	6349.2	0.00	0.00	6331.1	0.0	-305.0	0.00	0.00	-305.0	
7	7554.0	90.36	90.57	7095.0	-7.6	463.7	7.50	90.57	463.8	
8	11539.6	90.36	90.57	7070.0	-47.0	4449.0	0.00	0.00	4449.3	BHL 200'FSL, 500'FEL

BHL 200'FSL, 500'FEL

Vertical Section at 90.60° (550 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.1-T6N-R66W

Leffler 1I-HZ Pad Sec.1-T6N-R66W

Leffler 1I-204

Wellbore #1

Plan: Plan #1 (8-16-12)

Standard Planning Report

21 August, 2012

Database:	Landmark	Local Co-ordinate Reference:	Well Leffler 11-204
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Project:	SEC.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	North Reference:	True
Well:	Leffler 11-204	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-16-12)		

Project	SEC.1-T6N-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	Leffler 11-HZ Pad Sec.1-T6N-R66W		
Site Position:		Northing:	1,429,853.35 ft
From:	Lat/Long	Easting:	3,213,118.22 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.510820
		Longitude:	-104.733530
		Grid Convergence:	0.50 °

Well	Leffler 11-204		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	-27.8 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/16/2012	8.70	67.11	53,069

Design	Plan #1 (8-16-12)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	90.60

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	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
855.7	7.11	270.00	854.8	0.0	-22.1	2.00	2.00	0.00	270.00	
2,962.3	7.11	270.00	2,945.2	0.0	-282.9	0.00	0.00	0.00	0.00	
3,318.0	0.00	0.00	3,300.0	0.0	-305.0	2.00	-2.00	0.00	180.00	
6,349.2	0.00	0.00	6,331.1	0.0	-305.0	0.00	0.00	0.00	0.00	
7,554.0	90.36	90.57	7,095.0	-7.6	463.7	7.50	7.50	0.00	90.57	
11,539.6	90.36	90.57	7,070.0	-47.0	4,449.0	0.00	0.00	0.00	0.00	BHL 200'FSL, 500'F

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Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	North Reference:	True
Well:	Leffler 11-204	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-16-12)		

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
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	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
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	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
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
520.0	0.40	270.00	520.0	0.0	-0.1	-0.1	2.00	2.00	0.00
560.0	1.20	270.00	560.0	0.0	-0.6	-0.6	2.00	2.00	0.00
600.0	2.00	270.00	600.0	0.0	-1.7	-1.7	2.00	2.00	0.00
640.0	2.80	270.00	639.9	0.0	-3.4	-3.4	2.00	2.00	0.00
680.0	3.60	270.00	679.9	0.0	-5.7	-5.7	2.00	2.00	0.00
720.0	4.40	270.00	719.8	0.0	-8.4	-8.4	2.00	2.00	0.00
760.0	5.20	270.00	759.6	0.0	-11.8	-11.8	2.00	2.00	0.00
800.0	6.00	270.00	799.5	0.0	-15.7	-15.7	2.00	2.00	0.00
840.0	6.80	270.00	839.2	0.0	-20.2	-20.2	2.00	2.00	0.00
855.7	7.11	270.00	854.8	0.0	-22.1	-22.1	2.00	2.00	0.00
880.0	7.11	270.00	878.9	0.0	-25.1	-25.1	0.00	0.00	0.00
920.0	7.11	270.00	918.6	0.0	-30.0	-30.0	0.00	0.00	0.00
960.0	7.11	270.00	958.3	0.0	-35.0	-35.0	0.00	0.00	0.00
1,000.0	7.11	270.00	998.0	0.0	-39.9	-39.9	0.00	0.00	0.00
1,040.0	7.11	270.00	1,037.7	0.0	-44.9	-44.9	0.00	0.00	0.00
1,080.0	7.11	270.00	1,077.4	0.0	-49.8	-49.8	0.00	0.00	0.00
1,120.0	7.11	270.00	1,117.1	0.0	-54.8	-54.8	0.00	0.00	0.00
1,160.0	7.11	270.00	1,156.7	0.0	-59.7	-59.7	0.00	0.00	0.00
1,200.0	7.11	270.00	1,196.4	0.0	-64.7	-64.7	0.00	0.00	0.00
1,240.0	7.11	270.00	1,236.1	0.0	-69.6	-69.6	0.00	0.00	0.00
1,280.0	7.11	270.00	1,275.8	0.0	-74.6	-74.6	0.00	0.00	0.00
1,320.0	7.11	270.00	1,315.5	0.0	-79.6	-79.5	0.00	0.00	0.00
1,360.0	7.11	270.00	1,355.2	0.0	-84.5	-84.5	0.00	0.00	0.00
1,400.0	7.11	270.00	1,394.9	0.0	-89.5	-89.5	0.00	0.00	0.00
1,440.0	7.11	270.00	1,434.6	0.0	-94.4	-94.4	0.00	0.00	0.00
1,480.0	7.11	270.00	1,474.3	0.0	-99.4	-99.4	0.00	0.00	0.00
1,520.0	7.11	270.00	1,514.0	0.0	-104.3	-104.3	0.00	0.00	0.00
1,560.0	7.11	270.00	1,553.7	0.0	-109.3	-109.3	0.00	0.00	0.00
1,600.0	7.11	270.00	1,593.4	0.0	-114.2	-114.2	0.00	0.00	0.00
1,640.0	7.11	270.00	1,633.0	0.0	-119.2	-119.2	0.00	0.00	0.00
1,680.0	7.11	270.00	1,672.7	0.0	-124.1	-124.1	0.00	0.00	0.00
1,720.0	7.11	270.00	1,712.4	0.0	-129.1	-129.1	0.00	0.00	0.00
1,760.0	7.11	270.00	1,752.1	0.0	-134.0	-134.0	0.00	0.00	0.00
1,800.0	7.11	270.00	1,791.8	0.0	-139.0	-139.0	0.00	0.00	0.00
1,840.0	7.11	270.00	1,831.5	0.0	-144.0	-143.9	0.00	0.00	0.00
1,880.0	7.11	270.00	1,871.2	0.0	-148.9	-148.9	0.00	0.00	0.00
1,920.0	7.11	270.00	1,910.9	0.0	-153.9	-153.9	0.00	0.00	0.00
1,960.0	7.11	270.00	1,950.6	0.0	-158.8	-158.8	0.00	0.00	0.00

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Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	North Reference:	True
Well:	Leffler 11-204	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-16-12)		

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)	
2,000.0	7.11	270.00	1,990.3	0.0	-163.8	-163.8	0.00	0.00	0.00	
2,040.0	7.11	270.00	2,030.0	0.0	-168.7	-168.7	0.00	0.00	0.00	
2,080.0	7.11	270.00	2,069.7	0.0	-173.7	-173.7	0.00	0.00	0.00	
2,120.0	7.11	270.00	2,109.4	0.0	-178.6	-178.6	0.00	0.00	0.00	
2,160.0	7.11	270.00	2,149.0	0.0	-183.6	-183.6	0.00	0.00	0.00	
2,200.0	7.11	270.00	2,188.7	0.0	-188.5	-188.5	0.00	0.00	0.00	
2,240.0	7.11	270.00	2,228.4	0.0	-193.5	-193.5	0.00	0.00	0.00	
2,280.0	7.11	270.00	2,268.1	0.0	-198.4	-198.4	0.00	0.00	0.00	
2,320.0	7.11	270.00	2,307.8	0.0	-203.4	-203.4	0.00	0.00	0.00	
2,360.0	7.11	270.00	2,347.5	0.0	-208.4	-208.3	0.00	0.00	0.00	
2,400.0	7.11	270.00	2,387.2	0.0	-213.3	-213.3	0.00	0.00	0.00	
2,440.0	7.11	270.00	2,426.9	0.0	-218.3	-218.2	0.00	0.00	0.00	
2,480.0	7.11	270.00	2,466.6	0.0	-223.2	-223.2	0.00	0.00	0.00	
2,520.0	7.11	270.00	2,506.3	0.0	-228.2	-228.2	0.00	0.00	0.00	
2,560.0	7.11	270.00	2,546.0	0.0	-233.1	-233.1	0.00	0.00	0.00	
2,600.0	7.11	270.00	2,585.7	0.0	-238.1	-238.1	0.00	0.00	0.00	
2,640.0	7.11	270.00	2,625.4	0.0	-243.0	-243.0	0.00	0.00	0.00	
2,680.0	7.11	270.00	2,665.0	0.0	-248.0	-248.0	0.00	0.00	0.00	
2,720.0	7.11	270.00	2,704.7	0.0	-252.9	-252.9	0.00	0.00	0.00	
2,760.0	7.11	270.00	2,744.4	0.0	-257.9	-257.9	0.00	0.00	0.00	
2,800.0	7.11	270.00	2,784.1	0.0	-262.8	-262.8	0.00	0.00	0.00	
2,840.0	7.11	270.00	2,823.8	0.0	-267.8	-267.8	0.00	0.00	0.00	
2,880.0	7.11	270.00	2,863.5	0.0	-272.7	-272.7	0.00	0.00	0.00	
2,920.0	7.11	270.00	2,903.2	0.0	-277.7	-277.7	0.00	0.00	0.00	
2,960.0	7.11	270.00	2,942.9	0.0	-282.7	-282.6	0.00	0.00	0.00	
2,962.3	7.11	270.00	2,945.2	0.0	-282.9	-282.9	0.00	0.00	0.00	
3,000.0	6.36	270.00	2,982.6	0.0	-287.4	-287.3	2.00	-2.00	0.00	
3,040.0	5.56	270.00	3,022.4	0.0	-291.5	-291.5	2.00	-2.00	0.00	
3,080.0	4.76	270.00	3,062.2	0.0	-295.1	-295.1	2.00	-2.00	0.00	
3,120.0	3.96	270.00	3,102.1	0.0	-298.2	-298.1	2.00	-2.00	0.00	
3,160.0	3.16	270.00	3,142.0	0.0	-300.6	-300.6	2.00	-2.00	0.00	
3,200.0	2.36	270.00	3,182.0	0.0	-302.6	-302.6	2.00	-2.00	0.00	
3,240.0	1.56	270.00	3,222.0	0.0	-303.9	-303.9	2.00	-2.00	0.00	
3,280.0	0.76	270.00	3,262.0	0.0	-304.7	-304.7	2.00	-2.00	0.00	
3,318.0	0.00	0.00	3,300.0	0.0	-305.0	-305.0	2.00	-2.00	0.00	
3,320.0	0.00	0.00	3,302.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,360.0	0.00	0.00	3,342.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,400.0	0.00	0.00	3,382.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,440.0	0.00	0.00	3,422.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,480.0	0.00	0.00	3,462.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,520.0	0.00	0.00	3,502.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,560.0	0.00	0.00	3,542.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,600.0	0.00	0.00	3,582.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,640.0	0.00	0.00	3,622.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,680.0	0.00	0.00	3,662.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,720.0	0.00	0.00	3,702.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,760.0	0.00	0.00	3,742.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,800.0	0.00	0.00	3,782.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,840.0	0.00	0.00	3,822.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,880.0	0.00	0.00	3,862.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,920.0	0.00	0.00	3,902.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
3,960.0	0.00	0.00	3,942.0	0.0	-305.0	-305.0	0.00	0.00	0.00	
4,000.0	0.00	0.00	3,982.0	0.0	-305.0	-305.0	0.00	0.00	0.00	

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Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	North Reference:	True
Well:	Leffler 11-204	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-16-12)		

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)
4,040.0	0.00	0.00	4,022.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,080.0	0.00	0.00	4,062.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,120.0	0.00	0.00	4,102.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,160.0	0.00	0.00	4,142.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,182.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,240.0	0.00	0.00	4,222.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,280.0	0.00	0.00	4,262.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,320.0	0.00	0.00	4,302.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,360.0	0.00	0.00	4,342.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,382.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,440.0	0.00	0.00	4,422.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,480.0	0.00	0.00	4,462.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,520.0	0.00	0.00	4,502.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,560.0	0.00	0.00	4,542.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,582.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,640.0	0.00	0.00	4,622.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,680.0	0.00	0.00	4,662.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,720.0	0.00	0.00	4,702.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,760.0	0.00	0.00	4,742.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,782.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,840.0	0.00	0.00	4,822.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,880.0	0.00	0.00	4,862.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,920.0	0.00	0.00	4,902.0	0.0	-305.0	-305.0	0.00	0.00	0.00
4,960.0	0.00	0.00	4,942.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,000.0	0.00	0.00	4,982.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,040.0	0.00	0.00	5,022.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,080.0	0.00	0.00	5,062.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,120.0	0.00	0.00	5,102.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,160.0	0.00	0.00	5,142.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,182.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,240.0	0.00	0.00	5,222.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,280.0	0.00	0.00	5,262.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,320.0	0.00	0.00	5,302.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,360.0	0.00	0.00	5,342.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,382.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,440.0	0.00	0.00	5,422.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,480.0	0.00	0.00	5,462.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,520.0	0.00	0.00	5,502.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,560.0	0.00	0.00	5,542.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,582.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,640.0	0.00	0.00	5,622.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,680.0	0.00	0.00	5,662.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,720.0	0.00	0.00	5,702.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,760.0	0.00	0.00	5,742.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,782.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,840.0	0.00	0.00	5,822.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,880.0	0.00	0.00	5,862.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,920.0	0.00	0.00	5,902.0	0.0	-305.0	-305.0	0.00	0.00	0.00
5,960.0	0.00	0.00	5,942.0	0.0	-305.0	-305.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,982.0	0.0	-305.0	-305.0	0.00	0.00	0.00
6,040.0	0.00	0.00	6,022.0	0.0	-305.0	-305.0	0.00	0.00	0.00
6,080.0	0.00	0.00	6,062.0	0.0	-305.0	-305.0	0.00	0.00	0.00
6,120.0	0.00	0.00	6,102.0	0.0	-305.0	-305.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Leffler 11-204
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Project:	SEC.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	North Reference:	True
Well:	Leffler 11-204	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-16-12)		

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)
6,160.0	0.00	0.00	6,142.0	0.0	-305.0	-305.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,182.0	0.0	-305.0	-305.0	0.00	0.00	0.00
6,240.0	0.00	0.00	6,222.0	0.0	-305.0	-305.0	0.00	0.00	0.00
6,280.0	0.00	0.00	6,262.0	0.0	-305.0	-305.0	0.00	0.00	0.00
6,320.0	0.00	0.00	6,302.0	0.0	-305.0	-305.0	0.00	0.00	0.00
6,349.2	0.00	0.00	6,331.2	0.0	-305.0	-305.0	0.00	0.00	0.00
KOP #2									
6,360.0	0.81	90.57	6,342.0	0.0	-304.9	-304.9	7.53	7.53	0.00
6,400.0	3.81	90.57	6,381.9	0.0	-303.3	-303.3	7.50	7.50	0.00
6,440.0	6.81	90.57	6,421.7	-0.1	-299.6	-299.6	7.50	7.50	0.00
6,480.0	9.81	90.57	6,461.3	-0.1	-293.8	-293.8	7.50	7.50	0.00
6,520.0	12.81	90.57	6,500.5	-0.2	-286.0	-286.0	7.50	7.50	0.00
6,560.0	15.81	90.57	6,539.3	-0.3	-276.1	-276.1	7.50	7.50	0.00
6,600.0	18.81	90.57	6,577.5	-0.4	-264.2	-264.2	7.50	7.50	0.00
6,640.0	21.81	90.57	6,615.0	-0.5	-250.3	-250.3	7.50	7.50	0.00
6,680.0	24.81	90.57	6,651.7	-0.7	-234.5	-234.5	7.50	7.50	0.00
6,720.0	27.81	90.57	6,687.6	-0.9	-216.7	-216.7	7.50	7.50	0.00
6,760.0	30.81	90.57	6,722.4	-1.1	-197.2	-197.1	7.50	7.50	0.00
6,800.0	33.81	90.57	6,756.2	-1.3	-175.8	-175.8	7.50	7.50	0.00
6,840.0	36.81	90.57	6,788.9	-1.5	-152.7	-152.6	7.50	7.50	0.00
6,880.0	39.81	90.57	6,820.3	-1.7	-127.9	-127.9	7.50	7.50	0.00
6,920.0	42.81	90.57	6,850.3	-2.0	-101.5	-101.4	7.50	7.50	0.00
6,960.0	45.81	90.57	6,878.9	-2.3	-73.5	-73.5	7.50	7.50	0.00
7,000.0	48.81	90.57	6,906.0	-2.6	-44.1	-44.1	7.50	7.50	0.00
7,040.0	51.81	90.57	6,931.6	-2.9	-13.4	-13.3	7.50	7.50	0.00
7,080.0	54.81	90.57	6,955.5	-3.2	18.7	18.7	7.50	7.50	0.00
7,120.0	57.81	90.57	6,977.7	-3.5	52.0	52.0	7.50	7.50	0.00
7,160.0	60.81	90.57	6,998.1	-3.9	86.4	86.4	7.50	7.50	0.00
7,200.0	63.81	90.57	7,016.6	-4.2	121.8	121.8	7.50	7.50	0.00
7,240.0	66.81	90.57	7,033.4	-4.6	158.1	158.2	7.50	7.50	0.00
7,280.0	69.81	90.57	7,048.1	-4.9	195.3	195.3	7.50	7.50	0.00
7,320.0	72.81	90.57	7,060.9	-5.3	233.2	233.2	7.50	7.50	0.00
7,360.0	75.81	90.57	7,071.8	-5.7	271.7	271.7	7.50	7.50	0.00
7,400.0	78.81	90.57	7,080.5	-6.1	310.7	310.7	7.50	7.50	0.00
7,440.0	81.81	90.57	7,087.3	-6.5	350.1	350.2	7.50	7.50	0.00
7,480.0	84.81	90.57	7,091.9	-6.9	389.8	389.9	7.50	7.50	0.00
7,520.0	87.81	90.57	7,094.5	-7.3	429.8	429.8	7.50	7.50	0.00
7,554.0	90.36	90.57	7,095.0	-7.6	463.7	463.8	7.49	7.49	0.00
End of Build - 7"									
7,560.0	90.36	90.57	7,095.0	-7.7	469.7	469.8	0.00	0.00	0.00
7,600.0	90.36	90.57	7,094.8	-8.0	509.7	509.8	0.00	0.00	0.00
7,640.0	90.36	90.57	7,094.5	-8.4	549.7	549.8	0.00	0.00	0.00
7,680.0	90.36	90.57	7,094.3	-8.8	589.7	589.8	0.00	0.00	0.00
7,720.0	90.36	90.57	7,094.0	-9.2	629.7	629.8	0.00	0.00	0.00
7,760.0	90.36	90.57	7,093.7	-9.6	669.7	669.8	0.00	0.00	0.00
7,800.0	90.36	90.57	7,093.5	-10.0	709.7	709.8	0.00	0.00	0.00
7,840.0	90.36	90.57	7,093.2	-10.4	749.7	749.8	0.00	0.00	0.00
7,880.0	90.36	90.57	7,093.0	-10.8	789.7	789.8	0.00	0.00	0.00
7,920.0	90.36	90.57	7,092.7	-11.2	829.7	829.8	0.00	0.00	0.00
7,960.0	90.36	90.57	7,092.5	-11.6	869.7	869.8	0.00	0.00	0.00
8,000.0	90.36	90.57	7,092.2	-12.0	909.7	909.8	0.00	0.00	0.00
8,040.0	90.36	90.57	7,092.0	-12.4	949.7	949.8	0.00	0.00	0.00
8,080.0	90.36	90.57	7,091.7	-12.8	989.7	989.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Leffler 11-204
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Project:	SEC.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	North Reference:	True
Well:	Leffler 11-204	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-16-12)		

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)
8,120.0	90.36	90.57	7,091.5	-13.2	1,029.7	1,029.8	0.00	0.00	0.00
8,160.0	90.36	90.57	7,091.2	-13.6	1,069.7	1,069.8	0.00	0.00	0.00
8,200.0	90.36	90.57	7,091.0	-14.0	1,109.7	1,109.8	0.00	0.00	0.00
8,240.0	90.36	90.57	7,090.7	-14.4	1,149.7	1,149.8	0.00	0.00	0.00
8,280.0	90.36	90.57	7,090.5	-14.8	1,189.7	1,189.8	0.00	0.00	0.00
8,320.0	90.36	90.57	7,090.2	-15.2	1,229.7	1,229.8	0.00	0.00	0.00
8,360.0	90.36	90.57	7,090.0	-15.6	1,269.7	1,269.8	0.00	0.00	0.00
8,400.0	90.36	90.57	7,089.7	-15.9	1,309.7	1,309.8	0.00	0.00	0.00
8,440.0	90.36	90.57	7,089.5	-16.3	1,349.7	1,349.8	0.00	0.00	0.00
8,480.0	90.36	90.57	7,089.2	-16.7	1,389.7	1,389.8	0.00	0.00	0.00
8,520.0	90.36	90.57	7,089.0	-17.1	1,429.7	1,429.8	0.00	0.00	0.00
8,560.0	90.36	90.57	7,088.7	-17.5	1,469.7	1,469.8	0.00	0.00	0.00
8,600.0	90.36	90.57	7,088.5	-17.9	1,509.7	1,509.8	0.00	0.00	0.00
8,640.0	90.36	90.57	7,088.2	-18.3	1,549.7	1,549.8	0.00	0.00	0.00
8,680.0	90.36	90.57	7,088.0	-18.7	1,589.7	1,589.8	0.00	0.00	0.00
8,720.0	90.36	90.57	7,087.7	-19.1	1,629.7	1,629.8	0.00	0.00	0.00
8,760.0	90.36	90.57	7,087.5	-19.5	1,669.7	1,669.8	0.00	0.00	0.00
8,800.0	90.36	90.57	7,087.2	-19.9	1,709.7	1,709.8	0.00	0.00	0.00
8,840.0	90.36	90.57	7,087.0	-20.3	1,749.7	1,749.8	0.00	0.00	0.00
8,880.0	90.36	90.57	7,086.7	-20.7	1,789.7	1,789.8	0.00	0.00	0.00
8,920.0	90.36	90.57	7,086.5	-21.1	1,829.7	1,829.8	0.00	0.00	0.00
8,960.0	90.36	90.57	7,086.2	-21.5	1,869.7	1,869.8	0.00	0.00	0.00
9,000.0	90.36	90.57	7,086.0	-21.9	1,909.7	1,909.8	0.00	0.00	0.00
9,040.0	90.36	90.57	7,085.7	-22.3	1,949.6	1,949.8	0.00	0.00	0.00
9,080.0	90.36	90.57	7,085.5	-22.7	1,989.6	1,989.8	0.00	0.00	0.00
9,120.0	90.36	90.57	7,085.2	-23.1	2,029.6	2,029.8	0.00	0.00	0.00
9,160.0	90.36	90.57	7,085.0	-23.5	2,069.6	2,069.8	0.00	0.00	0.00
9,200.0	90.36	90.57	7,084.7	-23.8	2,109.6	2,109.8	0.00	0.00	0.00
9,240.0	90.36	90.57	7,084.4	-24.2	2,149.6	2,149.8	0.00	0.00	0.00
9,280.0	90.36	90.57	7,084.2	-24.6	2,189.6	2,189.8	0.00	0.00	0.00
9,320.0	90.36	90.57	7,083.9	-25.0	2,229.6	2,229.8	0.00	0.00	0.00
9,360.0	90.36	90.57	7,083.7	-25.4	2,269.6	2,269.8	0.00	0.00	0.00
9,400.0	90.36	90.57	7,083.4	-25.8	2,309.6	2,309.8	0.00	0.00	0.00
9,440.0	90.36	90.57	7,083.2	-26.2	2,349.6	2,349.8	0.00	0.00	0.00
9,480.0	90.36	90.57	7,082.9	-26.6	2,389.6	2,389.8	0.00	0.00	0.00
9,520.0	90.36	90.57	7,082.7	-27.0	2,429.6	2,429.8	0.00	0.00	0.00
9,560.0	90.36	90.57	7,082.4	-27.4	2,469.6	2,469.8	0.00	0.00	0.00
9,600.0	90.36	90.57	7,082.2	-27.8	2,509.6	2,509.8	0.00	0.00	0.00
9,640.0	90.36	90.57	7,081.9	-28.2	2,549.6	2,549.8	0.00	0.00	0.00
9,680.0	90.36	90.57	7,081.7	-28.6	2,589.6	2,589.8	0.00	0.00	0.00
9,720.0	90.36	90.57	7,081.4	-29.0	2,629.6	2,629.8	0.00	0.00	0.00
9,760.0	90.36	90.57	7,081.2	-29.4	2,669.6	2,669.8	0.00	0.00	0.00
9,800.0	90.36	90.57	7,080.9	-29.8	2,709.6	2,709.8	0.00	0.00	0.00
9,840.0	90.36	90.57	7,080.7	-30.2	2,749.6	2,749.8	0.00	0.00	0.00
9,880.0	90.36	90.57	7,080.4	-30.6	2,789.6	2,789.8	0.00	0.00	0.00
9,920.0	90.36	90.57	7,080.2	-31.0	2,829.6	2,829.8	0.00	0.00	0.00
9,960.0	90.36	90.57	7,079.9	-31.4	2,869.6	2,869.8	0.00	0.00	0.00
10,000.0	90.36	90.57	7,079.7	-31.7	2,909.6	2,909.8	0.00	0.00	0.00
10,040.0	90.36	90.57	7,079.4	-32.1	2,949.6	2,949.8	0.00	0.00	0.00
10,080.0	90.36	90.57	7,079.2	-32.5	2,989.6	2,989.8	0.00	0.00	0.00
10,120.0	90.36	90.57	7,078.9	-32.9	3,029.6	3,029.8	0.00	0.00	0.00
10,160.0	90.36	90.57	7,078.7	-33.3	3,069.6	3,069.8	0.00	0.00	0.00
10,200.0	90.36	90.57	7,078.4	-33.7	3,109.6	3,109.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Leffler 11-204
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Project:	SEC.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	North Reference:	True
Well:	Leffler 11-204	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-16-12)		

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)
10,240.0	90.36	90.57	7,078.2	-34.1	3,149.6	3,149.8	0.00	0.00	0.00
10,280.0	90.36	90.57	7,077.9	-34.5	3,189.6	3,189.7	0.00	0.00	0.00
10,320.0	90.36	90.57	7,077.7	-34.9	3,229.6	3,229.7	0.00	0.00	0.00
10,360.0	90.36	90.57	7,077.4	-35.3	3,269.6	3,269.7	0.00	0.00	0.00
10,400.0	90.36	90.57	7,077.2	-35.7	3,309.6	3,309.7	0.00	0.00	0.00
10,440.0	90.36	90.57	7,076.9	-36.1	3,349.6	3,349.7	0.00	0.00	0.00
10,480.0	90.36	90.57	7,076.7	-36.5	3,389.5	3,389.7	0.00	0.00	0.00
10,520.0	90.36	90.57	7,076.4	-36.9	3,429.5	3,429.7	0.00	0.00	0.00
10,560.0	90.36	90.57	7,076.2	-37.3	3,469.5	3,469.7	0.00	0.00	0.00
10,600.0	90.36	90.57	7,075.9	-37.7	3,509.5	3,509.7	0.00	0.00	0.00
10,640.0	90.36	90.57	7,075.7	-38.1	3,549.5	3,549.7	0.00	0.00	0.00
10,680.0	90.36	90.57	7,075.4	-38.5	3,589.5	3,589.7	0.00	0.00	0.00
10,720.0	90.36	90.57	7,075.1	-38.9	3,629.5	3,629.7	0.00	0.00	0.00
10,760.0	90.36	90.57	7,074.9	-39.3	3,669.5	3,669.7	0.00	0.00	0.00
10,800.0	90.36	90.57	7,074.6	-39.6	3,709.5	3,709.7	0.00	0.00	0.00
10,840.0	90.36	90.57	7,074.4	-40.0	3,749.5	3,749.7	0.00	0.00	0.00
10,880.0	90.36	90.57	7,074.1	-40.4	3,789.5	3,789.7	0.00	0.00	0.00
10,920.0	90.36	90.57	7,073.9	-40.8	3,829.5	3,829.7	0.00	0.00	0.00
10,960.0	90.36	90.57	7,073.6	-41.2	3,869.5	3,869.7	0.00	0.00	0.00
11,000.0	90.36	90.57	7,073.4	-41.6	3,909.5	3,909.7	0.00	0.00	0.00
11,040.0	90.36	90.57	7,073.1	-42.0	3,949.5	3,949.7	0.00	0.00	0.00
11,080.0	90.36	90.57	7,072.9	-42.4	3,989.5	3,989.7	0.00	0.00	0.00
11,120.0	90.36	90.57	7,072.6	-42.8	4,029.5	4,029.7	0.00	0.00	0.00
11,160.0	90.36	90.57	7,072.4	-43.2	4,069.5	4,069.7	0.00	0.00	0.00
11,200.0	90.36	90.57	7,072.1	-43.6	4,109.5	4,109.7	0.00	0.00	0.00
11,240.0	90.36	90.57	7,071.9	-44.0	4,149.5	4,149.7	0.00	0.00	0.00
11,280.0	90.36	90.57	7,071.6	-44.4	4,189.5	4,189.7	0.00	0.00	0.00
11,320.0	90.36	90.57	7,071.4	-44.8	4,229.5	4,229.7	0.00	0.00	0.00
11,360.0	90.36	90.57	7,071.1	-45.2	4,269.5	4,269.7	0.00	0.00	0.00
11,400.0	90.36	90.57	7,070.9	-45.6	4,309.5	4,309.7	0.00	0.00	0.00
11,440.0	90.36	90.57	7,070.6	-46.0	4,349.5	4,349.7	0.00	0.00	0.00
11,480.0	90.36	90.57	7,070.4	-46.4	4,389.5	4,389.7	0.00	0.00	0.00
11,520.0	90.36	90.57	7,070.1	-46.8	4,429.5	4,429.7	0.00	0.00	0.00
11,539.6	90.36	90.57	7,070.0	-47.0	4,449.0	4,449.3	0.00	0.00	0.00
BHL 200'FSL, 500'FEL									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL 200'FSL, 500'FE	0.00	0.00	7,070.0	-47.0	4,449.0	1,429,844.60	3,217,539.55	40.510690	-104.717630
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,554.0	7,095.0	7"	7	7-1/2	

Database:	Landmark	Local Co-ordinate Reference:	Well Leffler 11-204
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Project:	SEC.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	North Reference:	True
Well:	Leffler 11-204	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-16-12)		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
500.0	500.0	0.0	0.0	KOP #1
6,349.2	6,331.2	0.0	-305.0	KOP #2
7,554.0	7,095.0	-7.6	463.7	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.1-T6N-R66W

Leffler 1I-HZ Pad Sec.1-T6N-R66W

Leffler 1I-204

Wellbore #1

Plan #1 (8-16-12)

Anticollision Report

21 August, 2012



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Leffler 11-204
Project:	SEC.1-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Reference Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Leffler 11-204	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 (8-16-12)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (8-16-12)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 8/21/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,539.6	Plan #1 (8-16-12) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Leffler 14-1H Pad Sec.1-T6N-R66W						
Leffler 14-1H - Wellbore #1 - Wellbore #1	1,322.9	1,320.5	58.8	53.8	11.786	CC, ES
Leffler 14-1H - Wellbore #1 - Wellbore #1	6,769.7	6,719.3	112.0	86.1	4.327	SF
Leffler 11-HZ Pad Sec.1-R6N-R66W						
Leffler 34-1CH - Wellbore #1 - Plan #1 (8-16-12)	200.0	200.0	27.8	27.1	41.238	CC, ES
Leffler 34-1CH - Wellbore #1 - Plan #1 (8-16-12)	7,600.0	7,124.3	226.5	185.9	5.579	SF
Nix #14-1 (P&A) - Wellbore #1 - Wellbore #1	7,330.6	7,064.0	417.1	256.7	2.601	CC, ES
Nix #14-1 (P&A) - Wellbore #1 - Wellbore #1	7,350.0	7,069.2	417.5	256.8	2.597	SF
Leffler 24-1H Pad Sec.1-T6N-R66W						
Leffler 24-1H - Wellbore #1 - Wellbore #1	923.0	923.0	39.3	36.2	12.936	CC, ES
Leffler 24-1H - Wellbore #1 - Wellbore #1	7,100.0	6,872.0	243.7	218.9	9.832	SF

Offset Design Leffler 14-1H Pad Sec.1-T6N-R66W - Leffler 14-1H - Wellbore #1 - Wellbore #1											
Survey Program: 943-MWD											
Reference											
Offset											
Semi Major Axis											
Distance											
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)
0.0	0.0	2.0	2.0	0.0	0.0	-118.46	-43.7	-80.6	91.7	91.7	0.00
100.0	100.0	101.8	101.8	0.1	0.1	-118.52	-43.8	-80.7	91.8	91.6	0.23
200.0	200.0	201.7	201.7	0.3	0.2	-118.67	-44.2	-80.8	92.1	91.5	0.57
300.0	300.0	301.5	301.5	0.6	0.3	-118.93	-44.8	-81.0	92.5	91.6	0.91
400.0	400.0	401.4	401.3	0.8	0.5	-119.29	-45.6	-81.2	93.1	91.9	1.24
500.0	500.0	501.2	501.2	1.0	0.6	-119.75	-46.6	-81.5	93.9	92.3	1.58
600.0	600.0	601.0	601.0	1.2	0.7	-30.84	-47.9	-81.9	93.4	91.5	1.91
700.0	699.8	700.7	700.7	1.4	0.8	-33.24	-49.4	-82.4	90.1	87.9	2.23
800.0	799.5	800.2	800.1	1.7	0.9	-37.31	-51.1	-82.9	84.4	81.9	2.57
855.7	854.8	855.4	855.4	1.8	1.0	-40.55	-52.1	-83.3	80.4	77.6	2.76
900.0	898.7	899.4	899.3	1.9	1.0	-43.56	-53.0	-83.5	77.1	74.2	2.92
1,000.0	998.0	998.8	998.7	2.2	1.2	-51.53	-55.2	-84.0	70.6	67.3	3.35
1,100.0	1,097.2	1,098.7	1,098.6	2.5	1.4	-61.95	-57.5	-83.1	65.3	61.4	3.84
1,200.0	1,196.4	1,198.7	1,198.6	2.8	1.6	-74.38	-58.8	-81.3	61.1	56.7	4.35
1,300.0	1,295.7	1,297.8	1,297.6	3.1	1.8	-86.87	-58.8	-80.3	58.9	54.0	4.87
1,322.9	1,318.4	1,320.5	1,320.3	3.2	1.8	-89.51	-58.8	-80.4	58.8	53.8	4.99
											11.786 CC, ES

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Leffler 11-204
Project:	SEC.1-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Reference Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Leffler 11-204	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 (8-16-12)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 943-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
1,400.0	1,394.9	1,397.2	1,397.0	3.4	2.0	-98.28	-58.8	-80.9	59.4	54.0	5.38	11.039		
1,500.0	1,494.1	1,496.6	1,496.4	3.7	2.2	-108.87	-58.6	-81.7	62.0	56.1	5.87	10.562		
1,600.0	1,593.4	1,595.8	1,595.6	4.0	2.4	-118.12	-58.6	-82.7	66.5	60.2	6.33	10.502		
1,700.0	1,692.6	1,695.4	1,695.3	4.4	2.6	-125.93	-58.5	-84.0	72.4	65.6	6.77	10.691		
1,800.0	1,791.8	1,794.7	1,794.5	4.7	2.8	-132.58	-58.3	-85.1	79.4	72.2	7.19	11.042		
1,900.0	1,891.0	1,894.0	1,893.8	5.0	3.0	-138.07	-58.1	-86.2	87.3	79.7	7.61	11.478		
2,000.0	1,990.3	1,993.1	1,992.9	5.3	3.2	-142.56	-58.2	-87.2	96.2	88.2	8.02	11.991		
2,100.0	2,089.5	2,092.6	2,092.4	5.6	3.4	-146.35	-58.3	-88.1	105.6	97.2	8.44	12.517		
2,200.0	2,188.7	2,192.1	2,191.9	6.0	3.6	-149.50	-58.2	-89.2	115.1	106.3	8.85	13.002		
2,300.0	2,288.0	2,291.2	2,291.0	6.3	3.8	-152.20	-58.0	-90.2	125.0	115.7	9.27	13.484		
2,400.0	2,387.2	2,390.2	2,390.0	6.6	4.0	-154.62	-57.7	-90.8	135.4	125.7	9.69	13.980		
2,500.0	2,486.4	2,489.1	2,488.9	6.9	4.2	-156.79	-57.3	-91.1	146.2	136.1	10.10	14.477		
2,600.0	2,585.7	2,588.3	2,588.1	7.3	4.4	-158.79	-56.6	-91.1	157.5	146.9	10.52	14.964		
2,700.0	2,684.9	2,687.8	2,687.5	7.6	4.7	-160.50	-56.0	-91.2	168.8	157.8	10.95	15.414		
2,800.0	2,784.1	2,787.6	2,787.4	7.9	4.9	-161.96	-55.4	-91.6	180.0	168.6	11.38	15.815		
2,900.0	2,883.3	2,887.1	2,886.8	8.2	5.1	-163.29	-54.6	-92.2	191.0	179.2	11.81	16.175		
2,962.3	2,945.2	2,949.1	2,948.9	8.4	5.2	-164.01	-54.2	-92.6	197.9	185.9	12.08	16.385		
3,000.0	2,982.6	2,986.6	2,986.4	8.5	5.3	-164.43	-53.9	-92.8	201.9	189.6	12.24	16.493		
3,100.0	3,082.2	3,085.2	3,085.0	8.8	5.5	-165.30	-53.2	-93.3	210.3	197.7	12.62	16.660		
3,200.0	3,182.0	3,186.4	3,186.2	8.9	5.7	-165.77	-52.9	-94.0	215.2	202.2	13.01	16.548		
3,300.0	3,282.0	3,285.6	3,285.3	9.1	5.9	-165.85	-53.0	-95.0	216.6	203.2	13.38	16.192		
3,318.0	3,300.0	3,303.0	3,302.8	9.1	5.9	104.17	-53.0	-95.0	216.5	201.6	14.95	14.481		
3,340.9	3,322.9	3,325.1	3,324.9	9.2	6.0	104.18	-53.0	-95.1	216.5	201.5	15.04	14.399		
3,400.0	3,382.0	3,383.0	3,382.7	9.3	6.1	104.19	-53.1	-94.9	216.7	201.5	15.25	14.211		
3,500.0	3,482.0	3,483.0	3,482.7	9.4	6.3	104.30	-53.7	-94.4	217.3	201.7	15.63	13.907		
3,600.0	3,582.0	3,583.8	3,583.5	9.6	6.5	104.56	-54.8	-94.3	217.7	201.7	16.01	13.600		
3,700.0	3,682.0	3,684.4	3,684.1	9.8	6.8	104.74	-55.4	-94.4	217.7	201.3	16.39	13.283		
3,800.0	3,782.0	3,785.7	3,785.4	9.9	7.0	105.19	-57.0	-95.1	217.5	200.7	16.77	12.965		
3,900.0	3,882.0	3,884.8	3,884.5	10.1	7.2	105.66	-58.5	-96.3	216.7	199.6	17.15	12.635		
3,917.7	3,899.7	3,901.9	3,901.7	10.1	7.2	105.74	-58.8	-96.4	216.7	199.5	17.22	12.585		
4,000.0	3,982.0	3,982.2	3,981.9	10.3	7.4	106.14	-60.3	-96.4	217.1	199.6	17.53	12.386		
4,100.0	4,082.0	4,085.2	4,084.8	10.5	7.6	106.76	-62.8	-96.5	217.8	199.8	17.92	12.153		
4,200.0	4,182.0	4,186.9	4,186.6	10.6	7.8	107.33	-64.6	-98.0	216.8	198.5	18.31	11.843		
4,300.0	4,282.0	4,284.4	4,284.0	10.8	8.0	107.68	-65.6	-99.1	216.1	197.4	18.69	11.564		
4,300.6	4,282.6	4,284.9	4,284.6	10.8	8.0	107.68	-65.6	-99.1	216.1	197.4	18.69	11.563		
4,400.0	4,382.0	4,384.4	4,384.1	11.0	8.2	107.91	-66.5	-99.3	216.1	197.1	19.08	11.329		
4,406.7	4,388.6	4,391.0	4,390.6	11.0	8.2	107.92	-66.5	-99.4	216.1	197.0	19.10	11.313		
4,500.0	4,482.0	4,483.2	4,482.8	11.2	8.4	108.03	-67.0	-99.2	216.4	197.0	19.47	11.116		
4,600.0	4,582.0	4,586.0	4,585.6	11.4	8.6	108.28	-67.9	-99.6	216.3	196.5	19.87	10.888		
4,700.0	4,682.0	4,688.9	4,688.5	11.6	8.9	108.58	-68.4	-101.5	214.8	194.5	20.27	10.594		
4,800.0	4,782.0	4,789.7	4,789.3	11.8	9.1	108.74	-68.2	-103.9	212.5	191.8	20.68	10.276		
4,900.0	4,882.0	4,890.5	4,890.0	12.0	9.3	108.96	-68.1	-106.7	209.8	188.7	21.08	9.953		
5,000.0	4,982.0	4,990.2	4,989.6	12.2	9.5	109.20	-68.0	-109.8	206.8	185.3	21.48	9.627		
5,100.0	5,082.0	5,088.1	5,087.5	12.3	9.7	109.40	-67.9	-112.1	204.5	182.7	21.88	9.348		
5,200.0	5,182.0	5,187.5	5,186.9	12.5	9.9	109.67	-68.4	-113.8	203.1	180.8	22.28	9.116		
5,300.0	5,282.0	5,286.7	5,286.1	12.7	10.1	109.98	-68.9	-115.4	201.7	179.1	22.68	8.894		
5,400.0	5,382.0	5,386.2	5,385.6	12.9	10.3	110.28	-69.6	-116.6	200.9	177.8	23.09	8.701		
5,500.0	5,482.0	5,485.1	5,484.5	13.1	10.5	110.37	-69.7	-117.3	200.3	176.8	23.49	8.526		
5,531.9	5,513.8	5,516.4	5,515.8	13.2	10.6	110.31	-69.5	-117.2	200.2	176.6	23.62	8.477		
5,600.0	5,582.0	5,583.0	5,582.4	13.3	10.7	110.28	-69.5	-117.0	200.5	176.6	23.89	8.390		
5,700.0	5,682.0	5,681.3	5,680.7	13.5	10.9	110.61	-71.0	-116.2	201.7	177.4	24.30	8.301		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Leffler 11-204
Project:	SEC.1-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Reference Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Leffler 11-204	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 (8-16-12)	Offset TVD Reference:	Offset Datum

Offset Design											Leffler 14-1H Pad Sec.1-T6N-R66W - Leffler 14-1H - Wellbore #1 - Wellbore #1			Offset Site Error:		0.0 ft
Survey Program: 943-MWD											Offset Well Error:		0.0 ft			
Reference		Offset		Semi Major Axis			Distance				Warning					
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation			Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
5,800.0	5,782.0	5,780.8	5,780.1	13.7	11.2	111.02	-73.0	-115.1	203.5	178.8	24.70	8.238				
5,900.0	5,882.0	5,881.2	5,880.6	13.9	11.4	111.28	-74.5	-113.8	205.2	180.1	25.11	8.175				
6,000.0	5,982.0	5,981.8	5,981.1	14.1	11.6	111.56	-76.0	-112.8	206.7	181.2	25.52	8.102				
6,100.0	6,082.0	6,082.0	6,081.3	14.3	11.8	111.85	-77.4	-112.0	208.0	182.1	25.93	8.023				
6,200.0	6,182.0	6,182.0	6,181.3	14.5	12.0	112.19	-79.1	-111.2	209.3	183.0	26.34	7.948				
6,300.0	6,282.0	6,288.1	6,287.4	14.7	12.2	112.41	-80.0	-110.9	210.0	183.2	26.76	7.845				
6,349.2	6,331.1	6,343.6	6,342.6	14.8	12.3	111.17	-75.1	-111.0	208.3	181.3	27.00	7.716				
6,400.0	6,381.9	6,399.0	6,397.1	14.9	12.4	18.31	-65.5	-110.6	203.9	177.6	26.30	7.752				
6,450.0	6,431.7	6,450.2	6,446.9	15.0	12.5	15.49	-53.2	-110.3	195.9	169.6	26.30	7.448				
6,500.0	6,481.0	6,502.3	6,496.4	15.0	12.6	11.45	-37.3	-110.0	184.5	158.3	26.19	7.042				
6,550.0	6,529.7	6,553.9	6,544.3	15.1	12.8	5.71	-17.8	-110.6	169.5	143.5	26.00	6.521				
6,600.0	6,577.5	6,598.2	6,584.1	15.1	12.9	-1.35	1.5	-112.0	152.3	126.6	25.74	5.918				
6,650.0	6,624.2	6,637.3	6,618.1	15.1	13.0	-10.13	20.6	-113.2	135.2	109.7	25.49	5.305				
6,700.0	6,669.8	6,673.6	6,648.8	15.2	13.1	-20.86	40.0	-114.2	121.0	95.6	25.42	4.760				
6,750.0	6,713.8	6,707.0	6,676.3	15.2	13.2	-32.74	58.9	-115.3	112.8	87.1	25.68	4.390				
6,769.7	6,730.7	6,719.3	6,686.2	15.2	13.2	-37.43	66.2	-115.7	112.0	86.1	25.88	4.327 SF				
6,800.0	6,756.2	6,737.9	6,701.0	15.3	13.3	-44.58	77.4	-116.5	113.9	87.7	26.26	4.339				
6,850.0	6,796.8	6,766.0	6,723.0	15.3	13.4	-54.79	94.8	-118.0	125.9	99.0	26.93	4.676				
6,900.0	6,835.4	6,791.1	6,742.4	15.5	13.5	-62.49	110.8	-119.2	147.4	119.9	27.53	5.355				
6,950.0	6,871.9	6,813.5	6,759.3	15.6	13.6	-67.72	125.3	-120.5	176.0	148.0	28.01	6.283				
7,000.0	6,906.0	6,835.8	6,776.0	15.8	13.7	-71.54	140.0	-121.7	209.2	180.8	28.45	7.353				
7,050.0	6,937.7	6,853.9	6,789.5	16.1	13.8	-72.96	152.1	-122.6	245.6	216.8	28.80	8.529				
7,100.0	6,966.8	6,871.0	6,802.0	16.4	13.9	-73.24	163.8	-123.5	284.5	255.4	29.14	9.763				
7,150.0	6,993.1	6,882.1	6,810.0	16.9	14.0	-71.23	171.5	-124.1	325.1	295.8	29.34	11.081				
7,200.0	7,016.6	6,893.1	6,817.9	17.4	14.0	-68.68	179.1	-124.7	367.0	337.5	29.50	12.441				
7,250.0	7,037.2	6,902.0	6,824.2	18.0	14.1	-65.22	185.4	-125.2	409.9	380.3	29.53	13.882				
7,300.0	7,054.8	6,908.1	6,828.5	18.6	14.1	-60.85	189.8	-125.6	453.4	424.0	29.32	15.462				
7,350.0	7,069.2	6,912.5	6,831.5	19.4	14.1	-56.03	192.9	-125.9	497.3	468.4	28.88	17.217				
7,400.0	7,080.5	6,915.3	6,833.4	20.2	14.1	-51.00	194.9	-126.0	541.5	513.2	28.22	19.185				
7,450.0	7,088.6	6,916.6	6,834.3	21.1	14.2	-45.97	195.8	-126.1	585.7	558.3	27.38	21.389				
7,500.0	7,093.5	6,916.5	6,834.3	22.0	14.2	-41.14	195.7	-126.1	629.7	603.3	26.44	23.820				
7,554.0	7,095.0	6,914.8	6,833.1	23.0	14.1	-36.26	194.5	-126.0	677.0	651.6	25.41	26.646				
7,600.0	7,094.8	6,912.8	6,831.7	24.0	14.1	-35.91	193.1	-125.9	717.4	691.6	25.83	27.778				
7,700.0	7,094.1	6,902.0	6,824.2	26.1	14.1	-34.08	185.4	-125.2	807.4	781.1	26.35	30.647				
7,800.0	7,093.5	6,902.0	6,824.2	28.3	14.1	-34.08	185.4	-125.2	899.4	871.8	27.63	32.549				
7,900.0	7,092.9	6,902.0	6,824.2	30.6	14.1	-34.08	185.4	-125.2	993.0	964.0	28.98	34.261				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Leffler 11-204
Project:	SEC.1-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Reference Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Leffler 11-204	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 (8-16-12)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	90.00	0.0	27.8	27.8				
100.0	100.0	100.0	100.0	0.1	0.1	90.00	90.00	0.0	27.8	27.8	27.6	0.22	123.713	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	90.00	0.0	27.8	27.8	27.1	0.67	41.238 CC, ES	
300.0	300.0	299.1	299.1	0.6	0.6	88.56	88.56	0.7	29.4	29.4	28.3	1.12	26.301	
400.0	400.0	397.9	397.8	0.8	0.8	85.06	85.06	2.9	34.0	34.2	32.6	1.57	21.808	
500.0	500.0	496.3	495.8	1.0	1.0	81.01	81.01	6.6	41.6	42.4	40.3	2.04	20.779	
600.0	600.0	593.9	592.7	1.2	1.3	167.78	167.78	11.6	52.2	55.7	53.2	2.50	22.312	
700.0	699.8	692.2	690.1	1.4	1.6	166.16	166.16	17.3	64.2	73.9	70.9	2.94	25.113	
800.0	799.5	789.9	786.9	1.7	1.9	165.67	165.67	23.0	76.0	95.4	92.0	3.38	28.186	
855.7	854.8	843.9	840.4	1.8	2.1	165.66	165.66	26.1	82.6	108.8	105.2	3.63	29.961	
900.0	898.7	886.8	882.9	1.9	2.2	165.75	165.75	28.6	87.8	119.9	116.0	3.83	31.337	
1,000.0	998.0	983.7	978.9	2.2	2.5	165.90	165.90	34.2	99.6	144.9	140.6	4.27	33.931	
1,100.0	1,097.2	1,080.5	1,074.8	2.5	2.9	166.01	166.01	39.8	111.3	169.9	165.2	4.72	35.987	
1,200.0	1,196.4	1,177.3	1,170.8	2.8	3.2	166.09	166.09	45.4	123.1	194.9	189.7	5.18	37.650	
1,300.0	1,295.7	1,274.1	1,266.7	3.1	3.5	166.15	166.15	51.0	134.9	219.9	214.3	5.64	39.008	
1,400.0	1,394.9	1,371.0	1,362.6	3.4	3.8	166.19	166.19	56.6	146.6	244.9	238.8	6.10	40.155	
1,500.0	1,494.1	1,467.8	1,458.6	3.7	4.2	166.23	166.23	62.2	158.4	269.9	263.3	6.56	41.124	
1,600.0	1,593.4	1,564.6	1,554.5	4.0	4.5	166.27	166.27	67.8	170.1	294.9	287.9	7.03	41.954	
1,700.0	1,692.6	1,661.4	1,650.5	4.4	4.8	166.29	166.29	73.4	181.9	319.9	312.4	7.50	42.671	
1,800.0	1,791.8	1,758.2	1,746.4	4.7	5.1	166.32	166.32	79.0	193.7	344.9	337.0	7.97	43.298	
1,900.0	1,891.0	1,855.1	1,842.4	5.0	5.5	166.34	166.34	84.6	205.4	369.9	361.5	8.44	43.850	
2,000.0	1,990.3	1,955.6	1,942.0	5.3	5.8	166.36	166.36	90.4	217.5	394.8	385.9	8.91	44.325	
2,100.0	2,089.5	2,068.8	2,054.6	5.6	6.1	166.48	166.48	95.5	228.3	417.0	407.7	9.36	44.538	
2,200.0	2,188.7	2,183.8	2,169.3	6.0	6.3	166.71	166.71	98.7	235.1	435.4	425.6	9.81	44.401	
2,300.0	2,288.0	2,300.3	2,285.8	6.3	6.5	167.06	167.06	100.0	237.8	450.0	439.7	10.25	43.909	
2,400.0	2,387.2	2,401.7	2,387.2	6.6	6.6	167.41	167.41	100.0	237.8	462.1	451.4	10.68	43.278	
2,500.0	2,486.4	2,501.0	2,486.4	6.9	6.8	167.73	167.73	100.0	237.8	474.2	463.0	11.12	42.656	
2,600.0	2,585.7	2,600.2	2,585.7	7.3	7.0	168.04	168.04	100.0	237.8	486.3	474.7	11.56	42.076	
2,700.0	2,684.9	2,699.4	2,684.9	7.6	7.1	168.34	168.34	100.0	237.8	498.4	486.4	12.00	41.535	
2,800.0	2,784.1	2,798.7	2,784.1	7.9	7.3	168.62	168.62	100.0	237.8	510.5	498.1	12.44	41.030	
2,900.0	2,883.3	2,897.9	2,883.3	8.2	7.5	168.89	168.89	100.0	237.8	522.7	509.8	12.89	40.556	
2,962.3	2,945.2	2,959.8	2,945.2	8.4	7.6	169.05	169.05	100.0	237.8	530.3	517.1	13.17	40.276	
3,000.0	2,982.6	2,997.2	2,982.6	8.5	7.7	169.15	169.15	100.0	237.8	534.6	521.3	13.34	40.074	
3,100.0	3,082.2	3,096.7	3,082.2	8.8	7.8	169.37	169.37	100.0	237.8	543.8	530.0	13.77	39.489	
3,200.0	3,182.0	3,196.5	3,182.0	8.9	8.0	169.51	169.51	100.0	237.8	549.6	535.4	14.18	38.747	
3,300.0	3,282.0	3,296.5	3,282.0	9.1	8.2	169.56	169.56	100.0	237.8	551.9	537.3	14.58	37.862	
3,318.0	3,300.0	3,314.5	3,300.0	9.1	8.3	79.56	79.56	100.0	237.8	551.9	534.6	17.29	31.916	
3,400.0	3,382.0	3,396.5	3,382.0	9.3	8.4	79.56	79.56	100.0	237.8	551.9	534.4	17.58	31.398	
3,500.0	3,482.0	3,496.5	3,482.0	9.4	8.6	79.56	79.56	100.0	237.8	551.9	534.0	17.94	30.769	
3,600.0	3,582.0	3,596.5	3,582.0	9.6	8.8	79.56	79.56	100.0	237.8	551.9	533.6	18.30	30.158	
3,700.0	3,682.0	3,696.5	3,682.0	9.8	9.0	79.56	79.56	100.0	237.8	551.9	533.3	18.67	29.565	
3,800.0	3,782.0	3,796.5	3,782.0	9.9	9.2	79.56	79.56	100.0	237.8	551.9	532.9	19.04	28.989	
3,900.0	3,882.0	3,896.5	3,882.0	10.1	9.4	79.56	79.56	100.0	237.8	551.9	532.5	19.41	28.431	
4,000.0	3,982.0	3,996.5	3,982.0	10.3	9.6	79.56	79.56	100.0	237.8	551.9	532.2	19.79	27.890	
4,100.0	4,082.0	4,096.5	4,082.0	10.5	9.8	79.56	79.56	100.0	237.8	551.9	531.8	20.17	27.364	
4,200.0	4,182.0	4,196.5	4,182.0	10.6	10.0	79.56	79.56	100.0	237.8	551.9	531.4	20.55	26.855	
4,300.0	4,282.0	4,296.5	4,282.0	10.8	10.2	79.56	79.56	100.0	237.8	551.9	531.0	20.94	26.361	
4,400.0	4,382.0	4,396.5	4,382.0	11.0	10.4	79.56	79.56	100.0	237.8	551.9	530.6	21.33	25.881	
4,500.0	4,482.0	4,496.5	4,482.0	11.2	10.6	79.56	79.56	100.0	237.8	551.9	530.2	21.72	25.416	
4,600.0	4,582.0	4,596.5	4,582.0	11.4	10.8	79.56	79.56	100.0	237.8	551.9	529.8	22.11	24.965	
4,700.0	4,682.0	4,696.5	4,682.0	11.6	11.0	79.56	79.56	100.0	237.8	551.9	529.4	22.50	24.528	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Leffler 11-204
Project:	SEC.1-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Reference Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Leffler 11-204	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 (8-16-12)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
				(ft)	(ft)			+N/-S (ft)	+E/-W (ft)					
4,800.0	4,782.0	4,796.5	4,782.0	11.8	11.2	79.56		100.0	237.8	551.9	529.0	22.90	24.103	
4,900.0	4,882.0	4,896.5	4,882.0	12.0	11.4	79.56		100.0	237.8	551.9	528.6	23.30	23.691	
5,000.0	4,982.0	4,996.5	4,982.0	12.2	11.6	79.56		100.0	237.8	551.9	528.2	23.70	23.291	
5,100.0	5,082.0	5,096.5	5,082.0	12.3	11.8	79.56		100.0	237.8	551.9	527.8	24.10	22.903	
5,200.0	5,182.0	5,196.5	5,182.0	12.5	12.0	79.56		100.0	237.8	551.9	527.4	24.50	22.525	
5,300.0	5,282.0	5,296.5	5,282.0	12.7	12.2	79.56		100.0	237.8	551.9	527.0	24.91	22.159	
5,400.0	5,382.0	5,396.5	5,382.0	12.9	12.4	79.56		100.0	237.8	551.9	526.6	25.31	21.803	
5,500.0	5,482.0	5,496.5	5,482.0	13.1	12.7	79.56		100.0	237.8	551.9	526.2	25.72	21.457	
5,600.0	5,582.0	5,596.5	5,582.0	13.3	12.9	79.56		100.0	237.8	551.9	525.8	26.13	21.121	
5,700.0	5,682.0	5,696.5	5,682.0	13.5	13.1	79.56		100.0	237.8	551.9	525.4	26.54	20.795	
5,800.0	5,782.0	5,796.5	5,782.0	13.7	13.3	79.56		100.0	237.8	551.9	525.0	26.95	20.477	
5,900.0	5,882.0	5,896.5	5,882.0	13.9	13.5	79.56		100.0	237.8	551.9	524.6	27.37	20.168	
6,000.0	5,982.0	5,996.5	5,982.0	14.1	13.7	79.56		100.0	237.8	551.9	524.2	27.78	19.867	
6,100.0	6,082.0	6,096.5	6,082.0	14.3	13.9	79.56		100.0	237.8	551.9	523.7	28.20	19.575	
6,200.0	6,182.0	6,196.5	6,182.0	14.5	14.1	79.56		100.0	237.8	551.9	523.3	28.61	19.290	
6,300.0	6,282.0	6,296.5	6,282.0	14.7	14.3	79.56		100.0	237.8	551.9	522.9	29.03	19.013	
6,349.2	6,331.1	6,345.7	6,331.1	14.8	14.4	79.56		100.0	237.8	551.9	522.7	29.24	18.879	
6,400.0	6,381.9	6,396.5	6,381.9	14.9	14.6	-11.06		100.0	237.8	550.3	522.5	27.74	19.837	
6,450.0	6,431.7	6,446.2	6,431.7	15.0	14.7	-11.23		100.0	237.8	545.4	517.6	27.80	19.622	
6,500.0	6,481.0	6,491.6	6,477.0	15.0	14.8	-11.51		100.0	237.8	537.4	509.7	27.75	19.367	
6,550.0	6,529.7	6,520.8	6,506.2	15.1	14.8	-11.83		100.3	238.5	527.5	499.9	27.58	19.129	
6,600.0	6,577.5	6,550.0	6,535.4	15.1	14.9	-12.26		101.2	240.2	516.3	489.0	27.32	18.900	
6,650.0	6,624.2	6,579.2	6,564.4	15.1	15.0	-12.82		102.4	243.0	503.8	476.8	26.98	18.673	
6,700.0	6,669.8	6,600.0	6,585.0	15.2	15.0	-13.36		103.6	245.5	490.2	463.6	26.55	18.463	
6,750.0	6,713.8	6,637.5	6,622.0	15.2	15.1	-14.34		106.4	251.4	475.1	449.0	26.10	18.202	
6,800.0	6,756.2	6,666.6	6,650.4	15.3	15.2	-15.34		109.0	257.1	459.1	433.5	25.59	17.937	
6,850.0	6,796.8	6,700.0	6,682.7	15.3	15.4	-16.68		112.7	264.8	442.0	416.9	25.08	17.625	
6,900.0	6,835.4	6,724.7	6,706.3	15.5	15.5	-17.96		115.7	271.3	423.9	399.4	24.54	17.277	
6,950.0	6,871.9	6,750.0	6,730.2	15.6	15.6	-19.48		119.2	278.8	405.0	380.9	24.03	16.855	
7,000.0	6,906.0	6,782.5	6,760.5	15.8	15.7	-21.61		124.1	289.3	385.3	361.6	23.65	16.288	
7,050.0	6,937.7	6,811.2	6,786.9	16.1	15.8	-23.91		129.0	299.6	365.0	341.6	23.40	15.595	
7,100.0	6,966.8	6,839.9	6,812.8	16.4	16.0	-26.60		134.2	310.8	344.4	321.0	23.38	14.731	
7,150.0	6,993.1	6,868.6	6,838.2	16.9	16.1	-29.72		139.9	322.8	323.6	300.0	23.65	13.682	
7,200.0	7,016.6	6,900.0	6,865.5	17.4	16.3	-33.61		146.5	337.0	303.1	278.7	24.39	12.428	
7,250.0	7,037.2	6,925.5	6,887.1	18.0	16.5	-37.40		152.2	349.3	283.3	257.9	25.40	11.152	
7,300.0	7,054.8	6,950.0	6,907.4	18.6	16.6	-41.46		158.0	361.6	264.7	238.0	26.78	9.887	
7,350.0	7,069.2	6,982.3	6,933.5	19.4	16.9	-47.06		166.1	378.8	248.1	219.2	28.92	8.579	
7,400.0	7,080.5	7,010.5	6,955.7	20.2	17.1	-52.50		173.5	394.7	234.3	203.1	31.20	7.510	
7,450.0	7,088.6	7,038.8	6,977.2	21.1	17.3	-58.18		181.3	411.2	224.4	190.7	33.65	6.668	
7,500.0	7,093.5	7,067.0	6,998.0	22.0	17.5	-63.89		189.4	428.5	219.2	183.1	36.11	6.072	
7,521.0	7,094.5	7,078.8	7,006.5	22.4	17.6	-66.25		192.9	436.0	218.7	181.6	37.11	5.894	
7,554.0	7,095.0	7,100.0	7,021.4	23.0	17.8	-70.36		199.3	449.6	220.0	181.3	38.72	5.682	
7,600.0	7,094.8	7,124.3	7,038.0	24.0	18.1	-75.10		206.8	465.7	226.5	185.9	40.61	5.579 SF	
7,700.0	7,094.1	7,189.3	7,079.5	26.1	18.7	-86.29		228.0	511.0	257.2	212.9	44.32	5.804	
7,800.0	7,093.5	7,264.0	7,121.7	28.3	19.7	-95.93		254.2	566.7	301.7	254.6	47.11	6.405	
7,900.0	7,092.9	7,349.1	7,162.2	30.6	20.8	-103.01		285.9	634.5	351.7	302.2	49.47	7.109	
8,000.0	7,092.2	7,444.4	7,197.4	33.0	22.4	-107.30		323.4	714.6	402.1	350.0	52.10	7.717	
8,100.0	7,091.6	7,548.2	7,222.8	35.5	24.2	-109.01		366.1	805.7	450.1	394.6	55.46	8.116	
8,200.0	7,091.0	7,647.9	7,235.4	38.0	26.1	-108.81		408.1	895.2	495.0	435.5	59.47	8.324	
8,300.0	7,090.4	7,762.2	7,244.3	40.6	28.5	-108.05		455.4	998.8	537.9	473.9	64.08	8.395	
8,400.0	7,089.7	7,867.5	7,244.8	43.1	30.7	-106.77		496.4	1,095.8	576.4	507.5	68.88	8.368	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Leffler 11-204
Project:	SEC.1-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Reference Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Leffler 11-204	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 (8-16-12)	Offset TVD Reference:	Offset Datum

Offset Design Leffler 11-HZ Pad Sec.1-R6N-R66W - Leffler 34-1CH - Wellbore #1 - Plan #1 (8-16-12)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,500.0	7,089.1	7,959.4	7,244.4	45.8	32.7	-105.72	531.8	1,180.5	614.7	541.2	73.48	8.366	
8,600.0	7,088.5	8,051.2	7,244.1	48.4	34.8	-104.80	567.3	1,265.2	653.1	574.9	78.12	8.360	
8,700.0	7,087.8	8,143.1	7,243.7	51.0	36.9	-103.98	602.8	1,349.9	691.6	608.8	82.80	8.352	
8,800.0	7,087.2	8,234.9	7,243.3	53.7	39.1	-103.25	638.3	1,434.6	730.2	642.7	87.52	8.344	
8,900.0	7,086.6	8,326.7	7,242.9	56.4	41.2	-102.59	673.8	1,519.4	768.9	676.7	92.27	8.334	
9,000.0	7,086.0	8,418.6	7,242.6	59.1	43.4	-101.99	709.3	1,604.1	807.8	710.7	97.05	8.323	
9,100.0	7,085.3	8,510.4	7,242.2	61.8	45.6	-101.45	744.8	1,688.8	846.6	744.8	101.85	8.313	
9,200.0	7,084.7	8,602.3	7,241.8	64.5	47.9	-100.95	780.2	1,773.5	885.6	778.9	106.67	8.302	
9,300.0	7,084.1	8,694.1	7,241.4	67.2	50.1	-100.50	815.7	1,858.2	924.6	813.0	111.51	8.291	
9,400.0	7,083.4	8,786.0	7,241.1	69.9	52.4	-100.08	851.2	1,942.9	963.6	847.2	116.36	8.281	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Leffler 11-204
Project:	SEC.1-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Reference Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Leffler 11-204	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 (8-16-12)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Leffler 11-HZ Pad Sec.1-R6N-R66W - Nix #14-1 (P&A) - Wellbore #1 - Wellbore #1												Offset Well Error:	0.0 ft
Survey Program: 7500-UNKNOWN													
Reference				Offset			Semi Major Axis		Distance				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	31.01	411.7	247.5	480.3				
100.0	100.0	100.0	100.0	0.1	2.0	31.01	411.7	247.5	480.3	478.2	2.11	227.371	
200.0	200.0	200.0	200.0	0.3	4.0	31.01	411.7	247.5	480.3	476.0	4.34	110.745	
300.0	300.0	300.0	300.0	0.6	6.0	31.01	411.7	247.5	480.3	473.8	6.56	73.199	
400.0	400.0	400.0	400.0	0.8	8.0	31.01	411.7	247.5	480.3	471.6	8.79	54.665	
500.0	500.0	500.0	500.0	1.0	10.0	31.01	411.7	247.5	480.3	469.3	11.01	43.621	
600.0	600.0	600.0	600.0	1.2	12.0	121.17	411.7	247.5	481.2	468.0	13.22	36.397	
700.0	699.8	699.8	699.8	1.4	14.0	121.66	411.7	247.5	484.0	468.5	15.42	31.384	
800.0	799.5	799.5	799.5	1.7	16.0	122.45	411.7	247.5	488.6	471.0	17.62	27.726	
855.7	854.8	854.8	854.8	1.8	17.1	123.01	411.7	247.5	492.1	473.2	18.85	26.104	
900.0	898.7	898.7	898.7	1.9	18.0	123.54	411.7	247.5	495.1	475.3	19.84	24.957	
1,000.0	998.0	998.0	998.0	2.2	20.0	124.71	411.7	247.5	502.1	480.0	22.07	22.745	
1,100.0	1,097.2	1,097.2	1,097.2	2.5	21.9	125.85	411.7	247.5	509.3	484.9	24.32	20.944	
1,200.0	1,196.4	1,196.4	1,196.4	2.8	23.9	126.96	411.7	247.5	516.7	490.1	26.56	19.451	
1,300.0	1,295.7	1,295.7	1,295.7	3.1	25.9	128.04	411.7	247.5	524.2	495.4	28.81	18.197	
1,400.0	1,394.9	1,394.9	1,394.9	3.4	27.9	129.08	411.7	247.5	532.0	500.9	31.05	17.131	
1,500.0	1,494.1	1,494.1	1,494.1	3.7	29.9	130.10	411.7	247.5	539.9	506.6	33.30	16.213	
1,600.0	1,593.4	1,593.4	1,593.4	4.0	31.9	131.08	411.7	247.5	548.0	512.5	35.55	15.417	
1,700.0	1,692.6	1,692.6	1,692.6	4.4	33.9	132.04	411.7	247.5	556.3	518.5	37.79	14.720	
1,800.0	1,791.8	1,791.8	1,791.8	4.7	35.8	132.97	411.7	247.5	564.7	524.6	40.03	14.106	
1,900.0	1,891.0	1,891.0	1,891.0	5.0	37.8	133.87	411.7	247.5	573.2	530.9	42.27	13.560	
2,000.0	1,990.3	1,990.3	1,990.3	5.3	39.8	134.75	411.7	247.5	581.9	537.4	44.51	13.073	
2,100.0	2,089.5	2,089.5	2,089.5	5.6	41.8	135.60	411.7	247.5	590.7	544.0	46.75	12.637	
2,200.0	2,188.7	2,188.7	2,188.7	6.0	43.8	136.42	411.7	247.5	599.7	550.7	48.98	12.243	
2,300.0	2,288.0	2,288.0	2,288.0	6.3	45.8	137.22	411.7	247.5	608.7	557.5	51.21	11.886	
2,400.0	2,387.2	2,387.2	2,387.2	6.6	47.7	138.00	411.7	247.5	617.9	564.5	53.45	11.561	
2,500.0	2,486.4	2,486.4	2,486.4	6.9	49.7	138.76	411.7	247.5	627.2	571.5	55.68	11.265	
2,600.0	2,585.7	2,585.7	2,585.7	7.3	51.7	139.49	411.7	247.5	636.6	578.7	57.90	10.994	
2,700.0	2,684.9	2,684.9	2,684.9	7.6	53.7	140.20	411.7	247.5	646.1	585.9	60.13	10.745	
2,800.0	2,784.1	2,784.1	2,784.1	7.9	55.7	140.89	411.7	247.5	655.7	593.3	62.36	10.515	
2,900.0	2,883.3	2,883.3	2,883.3	8.2	57.7	141.56	411.7	247.5	665.4	600.8	64.58	10.303	
2,962.3	2,945.2	2,945.2	2,945.2	8.4	58.9	141.97	411.7	247.5	671.4	605.5	65.97	10.179	
3,000.0	2,982.6	2,982.6	2,982.6	8.5	59.7	142.24	411.7	247.5	674.9	608.1	66.85	10.096	
3,100.0	3,082.2	3,082.2	3,082.2	8.8	61.6	142.81	411.7	247.5	682.4	613.2	69.14	9.869	
3,200.0	3,182.0	3,182.0	3,182.0	8.9	63.6	143.16	411.7	247.5	687.0	615.6	71.39	9.623	
3,300.0	3,282.0	3,282.0	3,282.0	9.1	65.6	143.30	411.7	247.5	688.9	615.4	73.59	9.362	
3,318.0	3,300.0	3,300.0	3,300.0	9.1	66.0	53.31	411.7	247.5	689.0	614.4	74.57	9.240	
3,400.0	3,382.0	3,382.0	3,382.0	9.3	67.6	53.31	411.7	247.5	689.0	612.6	76.34	9.025	
3,500.0	3,482.0	3,482.0	3,482.0	9.4	69.6	53.31	411.7	247.5	689.0	610.5	78.52	8.775	
3,600.0	3,582.0	3,582.0	3,582.0	9.6	71.6	53.31	411.7	247.5	689.0	608.3	80.69	8.538	
3,700.0	3,682.0	3,682.0	3,682.0	9.8	73.6	53.31	411.7	247.5	689.0	606.1	82.87	8.314	
3,800.0	3,782.0	3,782.0	3,782.0	9.9	75.6	53.31	411.7	247.5	689.0	603.9	85.06	8.101	
3,900.0	3,882.0	3,882.0	3,882.0	10.1	77.6	53.31	411.7	247.5	689.0	601.8	87.24	7.898	
4,000.0	3,982.0	3,982.0	3,982.0	10.3	79.6	53.31	411.7	247.5	689.0	599.6	89.42	7.705	
4,100.0	4,082.0	4,082.0	4,082.0	10.5	81.6	53.31	411.7	247.5	689.0	597.4	91.61	7.521	
4,200.0	4,182.0	4,182.0	4,182.0	10.6	83.6	53.31	411.7	247.5	689.0	595.2	93.80	7.346	
4,300.0	4,282.0	4,282.0	4,282.0	10.8	85.6	53.31	411.7	247.5	689.0	593.0	95.99	7.178	
4,400.0	4,382.0	4,382.0	4,382.0	11.0	87.6	53.31	411.7	247.5	689.0	590.8	98.18	7.018	
4,500.0	4,482.0	4,482.0	4,482.0	11.2	89.6	53.31	411.7	247.5	689.0	588.6	100.37	6.864	
4,600.0	4,582.0	4,582.0	4,582.0	11.4	91.6	53.31	411.7	247.5	689.0	586.4	102.56	6.718	
4,700.0	4,682.0	4,682.0	4,682.0	11.6	93.6	53.31	411.7	247.5	689.0	584.2	104.76	6.577	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Leffler 11-204
Project:	SEC.1-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Reference Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Leffler 11-204	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 (8-16-12)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 7500-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
4,800.0	4,782.0	4,782.0	4,782.0	11.8	95.6	53.31	411.7	247.5	689.0	582.0	106.95	6.442		
4,900.0	4,882.0	4,882.0	4,882.0	12.0	97.6	53.31	411.7	247.5	689.0	579.8	109.15	6.312		
5,000.0	4,982.0	4,982.0	4,982.0	12.2	99.6	53.31	411.7	247.5	689.0	577.6	111.35	6.188		
5,100.0	5,082.0	5,082.0	5,082.0	12.3	101.6	53.31	411.7	247.5	689.0	575.4	113.55	6.068		
5,200.0	5,182.0	5,182.0	5,182.0	12.5	103.6	53.31	411.7	247.5	689.0	573.2	115.75	5.953		
5,300.0	5,282.0	5,282.0	5,282.0	12.7	105.6	53.31	411.7	247.5	689.0	571.0	117.95	5.841		
5,400.0	5,382.0	5,382.0	5,382.0	12.9	107.6	53.31	411.7	247.5	689.0	568.8	120.15	5.734		
5,500.0	5,482.0	5,482.0	5,482.0	13.1	109.6	53.31	411.7	247.5	689.0	566.6	122.35	5.631		
5,600.0	5,582.0	5,582.0	5,582.0	13.3	111.6	53.31	411.7	247.5	689.0	564.4	124.55	5.532		
5,700.0	5,682.0	5,682.0	5,682.0	13.5	113.6	53.31	411.7	247.5	689.0	562.2	126.76	5.435		
5,800.0	5,782.0	5,782.0	5,782.0	13.7	115.6	53.31	411.7	247.5	689.0	560.0	128.96	5.343		
5,900.0	5,882.0	5,882.0	5,882.0	13.9	117.6	53.31	411.7	247.5	689.0	557.8	131.17	5.253		
6,000.0	5,982.0	5,982.0	5,982.0	14.1	119.6	53.31	411.7	247.5	689.0	555.6	133.37	5.166		
6,100.0	6,082.0	6,082.0	6,082.0	14.3	121.6	53.31	411.7	247.5	689.0	553.4	135.58	5.082		
6,200.0	6,182.0	6,182.0	6,182.0	14.5	123.6	53.31	411.7	247.5	689.0	551.2	137.79	5.000		
6,300.0	6,282.0	6,282.0	6,282.0	14.7	125.6	53.31	411.7	247.5	689.0	549.0	139.99	4.922		
6,349.2	6,331.1	6,331.1	6,331.1	14.8	126.6	53.31	411.7	247.5	689.0	547.9	141.08	4.884		
6,400.0	6,381.9	6,381.9	6,381.9	14.9	127.6	-37.40	411.7	247.5	687.6	546.0	141.62	4.855		
6,450.0	6,431.7	6,431.7	6,431.7	15.0	128.6	-37.84	411.7	247.5	683.7	541.6	142.12	4.811		
6,500.0	6,481.0	6,481.0	6,481.0	15.0	129.6	-38.57	411.7	247.5	677.2	535.0	142.27	4.760		
6,550.0	6,529.7	6,529.7	6,529.7	15.1	130.6	-39.60	411.7	247.5	668.3	526.2	142.11	4.703		
6,600.0	6,577.5	6,577.5	6,577.5	15.1	131.5	-40.96	411.7	247.5	657.0	515.3	141.72	4.636		
6,650.0	6,624.2	6,624.2	6,624.2	15.1	132.5	-42.68	411.7	247.5	643.4	502.2	141.19	4.557		
6,700.0	6,669.8	6,669.8	6,669.8	15.2	133.4	-44.76	411.7	247.5	627.8	487.1	140.68	4.463		
6,750.0	6,713.8	6,713.8	6,713.8	15.2	134.3	-47.24	411.7	247.5	610.4	470.0	140.34	4.349		
6,800.0	6,756.2	6,756.2	6,756.2	15.3	135.1	-50.14	411.7	247.5	591.3	451.0	140.35	4.213		
6,850.0	6,796.8	6,796.8	6,796.8	15.3	135.9	-53.46	411.7	247.5	571.0	430.2	140.89	4.053		
6,900.0	6,835.4	6,835.4	6,835.4	15.5	136.7	-57.17	411.7	247.5	549.8	407.8	142.08	3.870		
6,950.0	6,871.9	6,871.9	6,871.9	15.6	137.4	-61.25	411.7	247.5	528.2	384.3	143.93	3.670		
7,000.0	6,906.0	6,906.0	6,906.0	15.8	138.1	-65.59	411.7	247.5	506.6	360.2	146.36	3.461		
7,050.0	6,937.7	6,937.7	6,937.7	16.1	138.8	-70.07	411.7	247.5	485.7	336.6	149.13	3.257		
7,100.0	6,966.8	6,966.8	6,966.8	16.4	139.3	-74.53	411.7	247.5	466.2	314.2	151.95	3.068		
7,150.0	6,993.1	6,993.1	6,993.1	16.9	139.9	-78.79	411.7	247.5	448.8	294.3	154.54	2.904		
7,200.0	7,016.6	7,016.6	7,016.6	17.4	140.3	-82.67	411.7	247.5	434.5	277.8	156.70	2.773		
7,250.0	7,037.2	7,037.2	7,037.2	18.0	140.7	-86.02	411.7	247.5	424.0	265.6	158.40	2.677		
7,300.0	7,054.8	7,054.8	7,054.8	18.6	141.1	-88.72	411.7	247.5	418.1	258.4	159.70	2.618		
7,330.6	7,064.0	7,064.0	7,064.0	19.1	141.3	-90.00	411.7	247.5	417.1	256.7	160.38	2.601 CC, ES		
7,350.0	7,069.2	7,069.2	7,069.2	19.4	141.4	-90.66	411.7	247.5	417.5	256.8	160.76	2.597 SF		
7,400.0	7,080.5	7,080.5	7,080.5	20.2	141.6	-91.79	411.7	247.5	422.5	260.8	161.73	2.613		
7,450.0	7,088.6	7,088.6	7,088.6	21.1	141.8	-92.07	411.7	247.5	433.1	270.4	162.74	2.662		
7,500.0	7,093.5	7,093.5	7,093.5	22.0	141.9	-91.47	411.7	247.5	449.1	285.3	163.81	2.742		
7,554.0	7,095.0	7,095.0	7,095.0	23.0	141.9	-89.81	411.7	247.5	471.7	306.8	164.93	2.860		
7,600.0	7,094.8	7,094.8	7,094.8	24.0	141.9	-89.77	411.7	247.5	494.9	329.1	165.85	2.984		
7,700.0	7,094.1	7,094.1	7,094.1	26.1	141.9	-89.68	411.7	247.5	555.2	387.2	167.95	3.306		
7,800.0	7,093.5	7,093.5	7,093.5	28.3	141.9	-89.60	411.7	247.5	625.7	455.5	170.17	3.677		
7,900.0	7,092.9	7,092.9	7,092.9	30.6	141.9	-89.51	411.7	247.5	703.4	530.9	172.48	4.078		
8,000.0	7,092.2	7,092.2	7,092.2	33.0	141.8	-89.42	411.7	247.5	786.2	611.3	174.87	4.496		
8,100.0	7,091.6	7,091.6	7,091.6	35.5	141.8	-89.34	411.7	247.5	872.6	695.2	177.32	4.921		
8,200.0	7,091.0	7,091.0	7,091.0	38.0	141.8	-89.25	411.7	247.5	961.6	781.8	179.82	5.347		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Leffler 11-204
Project:	SEC.1-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Reference Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Leffler 11-204	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 (8-16-12)	Offset TVD Reference:	Offset Datum

Offset Design												Leffler 24-1H Pad Sec.1-T6N-R66W - Leffler 24-1H - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft
Survey Program: 941-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
0.0	0.0	1.0	1.0	0.0	0.0	-145.02	-43.7	-30.6	53.4	53.4	0.00	N/A				
100.0	100.0	101.1	101.1	0.1	0.1	-145.02	-43.7	-30.5	53.3	53.1	0.23	235.422				
200.0	200.0	201.1	201.1	0.3	0.2	-145.02	-43.5	-30.4	53.1	52.5	0.56	94.176				
300.0	300.0	301.2	301.2	0.6	0.3	-145.02	-43.2	-30.3	52.8	51.9	0.90	58.553				
400.0	400.0	401.3	401.3	0.8	0.5	-145.01	-42.9	-30.0	52.3	51.1	1.24	42.234				
500.0	500.0	501.3	501.3	1.0	0.6	-145.01	-42.4	-29.7	51.7	50.1	1.58	32.821				
600.0	600.0	601.4	601.4	1.2	0.7	-56.67	-41.8	-29.3	50.0	48.1	1.90	26.315				
700.0	699.8	701.3	701.3	1.4	0.8	-62.14	-41.1	-28.8	46.5	44.3	2.23	20.905				
800.0	799.5	800.9	800.9	1.7	0.9	-72.86	-40.3	-28.2	42.2	39.6	2.57	16.422				
855.7	854.8	856.2	856.2	1.8	1.0	-81.79	-39.8	-27.9	40.2	37.4	2.77	14.495				
900.0	898.7	900.1	900.1	1.9	1.0	-89.97	-39.4	-27.6	39.4	36.4	2.95	13.373				
923.0	921.6	923.0	923.0	2.0	1.0	-94.33	-39.2	-27.5	39.3	36.2	3.04	12.936 CC, ES				
1,000.0	998.0	999.4	999.3	2.2	1.2	-108.64	-38.4	-26.9	40.5	37.1	3.39	11.931				
1,100.0	1,097.2	1,098.5	1,098.4	2.5	1.4	-124.87	-37.2	-26.2	45.4	41.6	3.86	11.777				
1,200.0	1,196.4	1,197.6	1,197.5	2.8	1.6	-137.07	-36.2	-25.5	53.3	49.0	4.28	12.463				
1,300.0	1,295.7	1,296.8	1,296.8	3.1	1.8	-145.42	-35.5	-25.2	62.9	58.2	4.68	13.433				
1,400.0	1,394.9	1,396.0	1,395.9	3.4	2.0	-151.52	-34.8	-24.9	73.3	68.2	5.11	14.339				
1,500.0	1,494.1	1,495.5	1,495.5	3.7	2.2	-156.22	-33.8	-24.6	84.3	78.7	5.54	15.215				
1,600.0	1,593.4	1,594.5	1,594.4	4.0	2.4	-159.69	-32.9	-24.5	95.5	89.6	5.96	16.026				
1,700.0	1,692.6	1,694.1	1,694.1	4.4	2.6	-162.33	-32.2	-24.7	106.9	100.5	6.39	16.734				
1,800.0	1,791.8	1,792.4	1,792.3	4.7	2.8	-164.54	-31.4	-24.3	118.9	112.1	6.82	17.433				
1,900.0	1,891.0	1,891.7	1,891.7	5.0	3.0	-166.44	-30.5	-23.7	131.2	124.0	7.25	18.097				
2,000.0	1,990.3	1,991.4	1,991.3	5.3	3.2	-167.90	-29.9	-23.4	143.6	135.9	7.68	18.689				
2,100.0	2,089.5	2,090.6	2,090.5	5.6	3.4	-169.18	-29.0	-23.5	155.4	147.3	8.12	19.147				
2,200.0	2,188.7	2,187.5	2,187.4	6.0	3.6	-170.45	-27.7	-22.5	168.4	159.8	8.55	19.686				
2,300.0	2,288.0	2,285.9	2,285.7	6.3	3.8	-171.51	-26.6	-20.6	182.3	173.3	8.99	20.273				
2,400.0	2,387.2	2,385.0	2,384.8	6.6	4.0	-172.44	-25.6	-18.7	196.3	186.8	9.43	20.803				
2,500.0	2,486.4	2,483.5	2,483.4	6.9	4.3	-173.32	-24.2	-16.8	210.4	200.5	9.88	21.299				
2,600.0	2,585.7	2,582.5	2,582.3	7.3	4.5	-174.04	-23.1	-14.7	224.6	214.3	10.32	21.775				
2,700.0	2,684.9	2,682.1	2,681.8	7.6	4.7	-174.65	-22.1	-12.8	238.7	228.0	10.75	22.202				
2,800.0	2,784.1	2,782.4	2,782.1	7.9	4.9	-175.17	-21.0	-11.2	252.5	241.3	11.20	22.556				
2,900.0	2,883.3	2,881.7	2,881.5	8.2	5.1	-175.68	-19.9	-10.0	266.0	254.3	11.64	22.852				
2,962.3	2,945.2	2,943.2	2,942.9	8.4	5.2	-175.93	-19.3	-9.3	274.4	262.4	11.91	23.031				
3,000.0	2,982.6	2,980.3	2,980.1	8.5	5.3	-176.05	-19.1	-8.8	279.2	267.2	12.08	23.123				
3,100.0	3,082.2	3,081.0	3,080.7	8.8	5.5	-176.34	-18.4	-7.7	289.6	277.1	12.48	23.202				
3,200.0	3,182.0	3,180.8	3,180.5	8.9	5.7	-176.52	-18.0	-6.8	296.3	283.4	12.87	23.020				
3,300.0	3,282.0	3,281.1	3,280.8	9.1	5.9	-176.61	-17.7	-6.0	299.5	286.2	13.25	22.611				
3,318.0	3,300.0	3,299.6	3,299.3	9.1	6.0	93.36	-17.6	-5.9	299.7	284.6	15.06	19.898				
3,400.0	3,382.0	3,383.0	3,382.7	9.3	6.1	93.10	-16.2	-5.6	299.9	284.5	15.37	19.516				
3,500.0	3,482.0	3,484.0	3,483.7	9.4	6.4	92.78	-14.6	-5.5	299.8	284.1	15.75	19.043				
3,600.0	3,582.0	3,585.5	3,585.2	9.6	6.6	92.69	-14.0	-6.0	299.3	283.2	16.13	18.561				
3,700.0	3,682.0	3,685.4	3,685.0	9.8	6.8	92.83	-14.7	-6.9	298.5	282.0	16.50	18.086				
3,800.0	3,782.0	3,785.1	3,784.7	9.9	7.0	93.13	-16.3	-7.5	297.9	281.0	16.88	17.646				
3,888.0	3,870.0	3,871.3	3,871.0	10.1	7.1	93.42	-17.7	-8.0	297.5	280.3	17.22	17.279				
3,900.0	3,882.0	3,882.8	3,882.4	10.1	7.2	93.45	-17.9	-8.0	297.5	280.2	17.26	17.235				
4,000.0	3,982.0	3,981.0	3,980.6	10.3	7.4	93.68	-19.1	-7.5	298.1	280.5	17.64	16.898				
4,100.0	4,082.0	4,082.0	4,081.6	10.5	7.6	93.76	-19.6	-6.8	298.8	280.8	18.04	16.569				
4,200.0	4,182.0	4,181.1	4,180.8	10.6	7.8	93.88	-20.3	-6.4	299.3	280.9	18.42	16.246				
4,300.0	4,282.0	4,276.3	4,275.9	10.8	8.0	94.03	-21.1	-5.1	300.8	282.0	18.81	15.993				
4,400.0	4,382.0	4,374.3	4,373.9	11.0	8.2	94.20	-22.2	-2.4	303.5	284.3	19.20	15.811				
4,500.0	4,482.0	4,475.6	4,475.2	11.2	8.4	94.35	-23.2	0.3	306.3	286.7	19.60	15.630				

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Leffler 11-204
Project:	SEC.1-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Reference Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Leffler 11-204	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 (8-16-12)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 941-MWD													Offset Well Error:	0.0 ft
Reference														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,600.0	4,582.0	4,580.5	4,580.1	11.4	8.6	94.61	94.61	-24.8	2.1	308.1	288.1	20.00	15.401	
4,700.0	4,682.0	4,686.7	4,686.2	11.6	8.9	94.97	94.97	-26.7	1.8	307.9	287.5	20.41	15.086	
4,800.0	4,782.0	4,791.1	4,790.5	11.8	9.1	95.29	95.29	-28.2	-0.2	306.2	285.4	20.82	14.710	
4,900.0	4,882.0	4,892.3	4,891.7	12.0	9.3	95.60	95.60	-29.6	-3.4	303.2	282.0	21.22	14.289	
5,000.0	4,982.0	4,988.8	4,988.2	12.2	9.5	95.81	95.81	-30.5	-5.7	300.9	279.3	21.61	13.925	
5,100.0	5,082.0	5,087.6	5,087.0	12.3	9.7	96.09	96.09	-31.8	-7.2	299.5	277.5	22.01	13.612	
5,200.0	5,182.0	5,187.4	5,186.7	12.5	9.9	96.43	96.43	-33.4	-8.7	298.2	275.8	22.41	13.308	
5,300.0	5,282.0	5,286.5	5,285.9	12.7	10.1	96.64	96.64	-34.3	-9.9	297.1	274.3	22.81	13.025	
5,400.0	5,382.0	5,386.6	5,385.9	12.9	10.3	96.76	96.76	-34.8	-11.0	296.1	272.9	23.21	12.757	
5,500.0	5,482.0	5,488.0	5,487.3	13.1	10.5	96.78	96.78	-34.8	-12.2	294.9	271.3	23.62	12.484	
5,600.0	5,582.0	5,586.0	5,585.3	13.3	10.7	96.86	96.86	-35.1	-13.4	293.7	269.7	24.02	12.224	
5,700.0	5,682.0	5,685.1	5,684.3	13.5	10.9	97.04	97.04	-35.9	-14.1	293.1	268.6	24.43	11.997	
5,800.0	5,782.0	5,784.7	5,784.0	13.7	11.1	97.21	97.21	-36.7	-14.6	292.7	267.8	24.84	11.784	
5,900.0	5,882.0	5,886.0	5,885.3	13.9	11.3	97.36	97.36	-37.4	-15.4	292.1	266.8	25.25	11.567	
6,000.0	5,982.0	5,985.4	5,984.7	14.1	11.6	97.56	97.56	-38.4	-16.1	291.4	265.7	25.66	11.358	
6,100.0	6,082.0	6,085.7	6,084.9	14.3	11.8	97.82	97.82	-39.6	-17.0	290.7	264.7	26.07	11.153	
6,200.0	6,182.0	6,185.4	6,184.6	14.5	12.0	98.07	98.07	-40.7	-17.8	290.1	263.6	26.48	10.958	
6,263.9	6,245.8	6,248.0	6,247.2	14.7	12.1	98.21	98.21	-41.4	-18.1	289.9	263.1	26.74	10.842	
6,300.0	6,282.0	6,277.4	6,276.7	14.7	12.2	98.19	98.19	-41.3	-17.8	290.2	263.3	26.87	10.799	
6,349.2	6,331.1	6,321.1	6,320.3	14.8	12.3	97.72	97.72	-39.2	-16.1	291.8	264.7	27.07	10.780	
6,400.0	6,381.9	6,367.4	6,366.1	14.9	12.4	6.01	6.01	-33.5	-13.2	292.5	266.4	26.10	11.207	
6,450.0	6,431.7	6,407.0	6,404.9	15.0	12.4	4.64	4.64	-26.4	-9.7	291.2	265.1	26.11	11.153	
6,500.0	6,481.0	6,446.2	6,442.9	15.0	12.5	3.03	3.03	-18.2	-4.9	288.5	262.4	26.02	11.086	
6,550.0	6,529.7	6,482.0	6,477.1	15.1	12.6	1.31	1.31	-9.5	1.1	285.1	259.3	25.84	11.032	
6,600.0	6,577.5	6,518.5	6,511.4	15.1	12.7	-0.68	-0.68	0.2	8.8	281.1	255.5	25.59	10.985	
6,650.0	6,624.2	6,554.4	6,544.6	15.1	12.8	-2.88	-2.88	10.7	17.6	276.4	251.2	25.26	10.945	
6,700.0	6,669.8	6,593.0	6,579.6	15.2	12.9	-5.61	-5.61	23.0	28.3	271.1	246.2	24.88	10.897	
6,750.0	6,713.8	6,632.7	6,614.7	15.2	13.0	-8.99	-8.99	37.6	39.9	264.8	240.4	24.47	10.822	
6,800.0	6,756.2	6,671.2	6,647.6	15.3	13.2	-12.91	-12.91	53.6	51.4	258.2	234.1	24.07	10.725	
6,850.0	6,796.8	6,706.5	6,677.0	15.3	13.3	-17.16	-17.16	70.0	62.1	251.6	227.8	23.72	10.604	
6,900.0	6,835.4	6,739.4	6,703.6	15.5	13.4	-21.60	-21.60	86.5	72.4	246.1	222.6	23.47	10.482	
6,950.0	6,871.9	6,771.9	6,729.1	15.6	13.6	-26.32	-26.32	103.4	83.2	242.3	218.9	23.40	10.353	
7,000.0	6,906.0	6,806.5	6,755.9	15.8	13.8	-31.52	-31.52	121.7	95.5	240.4	216.8	23.60	10.185	
7,022.0	6,920.3	6,821.6	6,767.4	15.9	13.8	-33.84	-33.84	129.7	100.9	240.2	216.4	23.78	10.100	
7,050.0	6,937.7	6,841.0	6,782.2	16.1	13.9	-36.87	-36.87	140.2	107.9	240.6	216.5	24.09	9.985	
7,100.0	6,966.8	6,872.0	6,805.2	16.4	14.1	-41.80	-41.80	157.6	119.2	243.7	218.9	24.79	9.832 SF	
7,150.0	6,993.1	6,895.0	6,821.9	16.9	14.3	-45.36	-45.36	171.2	127.5	250.5	225.0	25.46	9.839	
7,200.0	7,016.6	6,920.3	6,839.7	17.4	14.4	-49.13	-49.13	186.7	136.4	261.4	235.0	26.39	9.904	
7,250.0	7,037.2	6,944.9	6,856.6	18.0	14.6	-52.48	-52.48	202.2	145.3	276.1	248.7	27.43	10.067	
7,300.0	7,054.8	6,969.0	6,872.8	18.6	14.8	-55.37	-55.37	217.6	154.3	294.4	265.9	28.53	10.319	
7,350.0	7,069.2	6,995.9	6,890.4	19.4	15.0	-58.28	-58.28	235.0	164.8	315.7	285.9	29.79	10.597	
7,400.0	7,080.5	7,025.0	6,908.9	20.2	15.2	-61.06	-61.06	253.8	177.1	339.3	308.2	31.16	10.891	
7,450.0	7,088.6	7,048.3	6,923.3	21.1	15.4	-62.53	-62.53	268.9	187.6	365.0	332.7	32.33	11.292	
7,500.0	7,093.5	7,071.9	6,937.2	22.0	15.6	-63.66	-63.66	284.4	198.8	392.7	359.2	33.51	11.717	
7,554.0	7,095.0	7,097.6	6,951.8	23.0	15.9	-64.55	-64.55	301.4	211.3	424.2	389.4	34.80	12.189	
7,600.0	7,094.8	7,119.1	6,963.7	24.0	16.1	-67.35	-67.35	315.7	222.0	452.8	416.5	36.32	12.466	
7,700.0	7,094.1	7,155.9	6,983.6	26.1	16.5	-71.79	-71.79	340.7	240.2	520.8	481.5	39.30	13.251	
7,800.0	7,093.5	7,193.8	7,003.0	28.3	16.9	-75.80	-75.80	367.3	259.0	594.9	552.6	42.27	14.072	
7,900.0	7,092.9	7,229.0	7,019.2	30.6	17.3	-78.93	-78.93	393.0	276.8	672.9	627.8	45.14	14.908	
8,000.0	7,092.2	7,273.4	7,037.0	33.0	17.8	-82.10	-82.10	426.8	299.3	753.8	705.8	48.07	15.682	
8,100.0	7,091.6	7,325.5	7,053.8	35.5	18.5	-84.80	-84.80	467.5	327.2	835.6	784.6	51.00	16.383	

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

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 941-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,200.0	7,091.0	7,379.0	7,067.5	38.0	19.3	-86.76	510.2	356.4	918.0	864.1	53.90	17.031		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Leffler 11-204
Project:	SEC.1-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (Original Well Elev)
Reference Site:	Leffler 11-HZ Pad Sec.1-T6N-R66W	MD Reference:	WELL @ 4830.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Leffler 11-204	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 (8-16-12)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4830.0ft (Original Well Elev) Coordinates are relative to: Leffler 11-204
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.50°



Reference Depths are relative to WELL @ 4830.0ft (Original Well Elev) Coordinates are relative to: Leffler 11-204
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: 0.50°

