

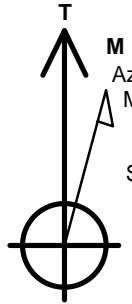
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Klein 190-302**

Surface Location: Klein 190-HZ Pad Sec.19-T5N-R64W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 4626.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1384514.46 3253260.83 40.385330 -104.590840
 RKB - 13' WELL @ 4639.0ft (RKB - 13')

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' N/S Hardline (190-302)	1.0	-147.2	5295.1	Rectangle (Sides: L10025.0 W100.0)
SHL 2388'FNL & 2101'FEL, Sec.19	1.0	0.0	0.0	Point
BHL 2612'FNL & 2353'FEL, Sec.21	6709.0	-147.2	10307.6	Point



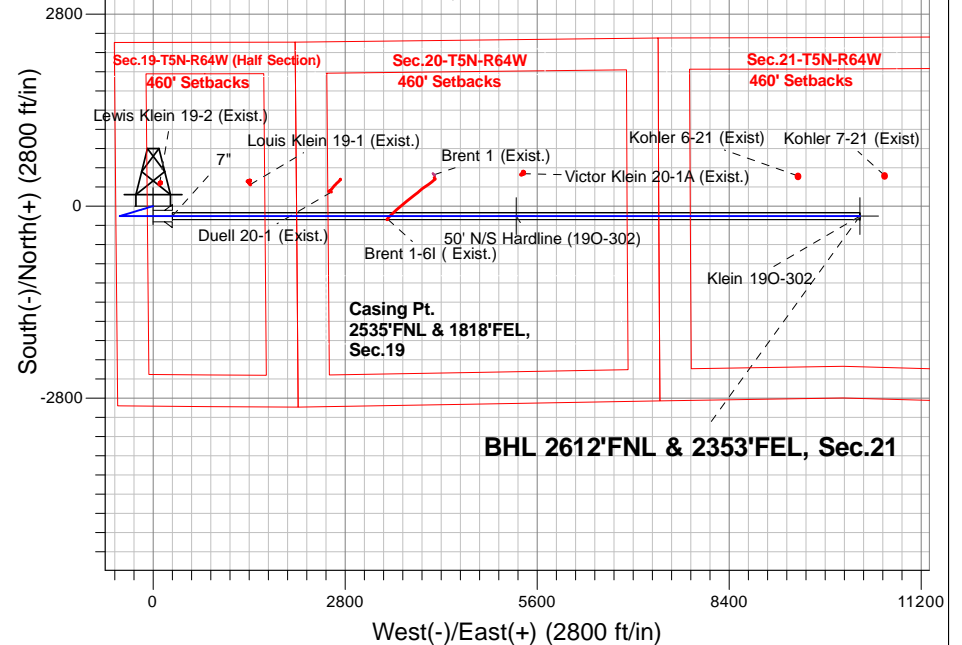
Azimuths to True North
 Magnetic North: 8.22°
 Magnetic Field
 Strength: 52713.1snT
 Dip Angle: 66.92°
 Date: 7/15/2015
 Model: IGRF2010

ANNOTATIONS

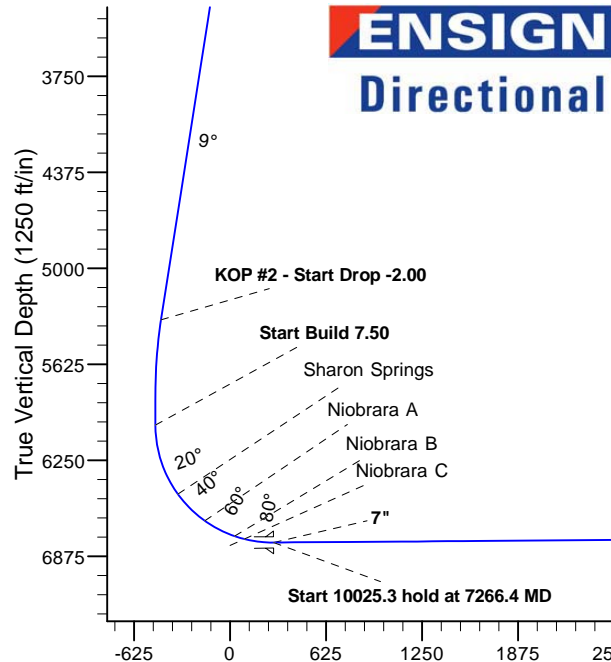
TVD	MD	Annotation
2000.0	2000.0	KOP #1 - Start Build 1.00
5335.7	5372.1	KOP #2 - Start Drop -2.00
6022.1	6060.5	Start Build 7.50
6786.0	7266.4	Start 10025.3 hold at 7266.4 MD
6709.0	17291.6	TD at 17291.6

Klein 190-HZ Pad Sec.19-T5N-R64W
 Klein 190-302
 Plan #4 (7-15-15)

SHL 2388'FNL & 2101'FEL, Sec.19



BHL 2612'FNL & 2353'FEL, Sec.21



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2932.7	9.33	253.19	2928.5	-21.9	-72.5	1.00	253.19	-72.2	
4	5372.1	9.33	253.19	5335.7	-136.2	-450.9	0.00	0.00	-449.0	
5	5838.4	0.00	0.00	5800.0	-147.2	-487.2	2.00	180.00	-485.0	
6	6060.5	0.00	0.00	6022.1	-147.2	-487.2	0.00	0.00	-485.0	
7	7266.4	90.44	90.00	6786.0	-147.2	282.6	7.50	90.00	284.7	
8	17291.6	90.44	90.00	6709.0	-147.2	10307.6	0.00	0.00	10308.7	BHL 2612'FNL & 2353'FEL, Sec.21

BHL 2612'FNL & 2353'FEL, Sec.21

TD at 17291.6

Vertical Section at 90.82° (1250 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

Klein 19O-HZ Pad Sec.19-T5N-R64W

Klein 19O-302

Wellbore #1

Plan: Plan #4 (7-15-15)

Standard Planning Report

29 July, 2015

Database:	US_EDM	Local Co-ordinate Reference:	Well Klein 190-302
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (7-15-15)		

Project	SEC.19-T5N-R64W		
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	Klein 190-HZ Pad Sec.19-T5N-R64W		
Site Position:		Northing:	1,384,542.09 usft
From:	Lat/Long	Easting:	3,253,110.12 usft
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "
		Latitude:	40.385410
		Longitude:	-104.591380
		Grid Convergence:	0.59 °

Well	Klein 190-302		
Well Position	+N/-S	-29.2 ft	Northing:
	+E/-W	150.4 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	7/15/2015	8.22	66.92	52,713

Design	Plan #4 (7-15-15)			
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	90.82

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,932.7	9.33	253.19	2,928.5	-21.9	-72.5	1.00	1.00	0.00	253.19	
5,372.1	9.33	253.19	5,335.7	-136.2	-450.9	0.00	0.00	0.00	0.00	
5,838.4	0.00	0.00	5,800.0	-147.2	-487.2	2.00	-2.00	0.00	180.00	
6,060.5	0.00	0.00	6,022.1	-147.2	-487.2	0.00	0.00	0.00	0.00	
7,266.4	90.44	90.00	6,786.0	-147.2	282.6	7.50	7.50	0.00	90.00	
17,291.6	90.44	90.00	6,709.0	-147.2	10,307.6	0.00	0.00	0.00	0.00	BHL 2612'FNL & 2352'

Database:	US_EDM	Local Co-ordinate Reference:	Well Klein 190-302
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (7-15-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1 - Start Build 1.00									
2,100.0	1.00	253.19	2,100.0	-0.3	-0.8	-0.8	1.00	1.00	0.00
2,200.0	2.00	253.19	2,200.0	-1.0	-3.3	-3.3	1.00	1.00	0.00
2,300.0	3.00	253.19	2,299.9	-2.3	-7.5	-7.5	1.00	1.00	0.00
2,400.0	4.00	253.19	2,399.7	-4.0	-13.4	-13.3	1.00	1.00	0.00
2,500.0	5.00	253.19	2,499.4	-6.3	-20.9	-20.8	1.00	1.00	0.00
2,600.0	6.00	253.19	2,598.9	-9.1	-30.0	-29.9	1.00	1.00	0.00
2,700.0	7.00	253.19	2,698.3	-12.4	-40.9	-40.7	1.00	1.00	0.00
2,800.0	8.00	253.19	2,797.4	-16.1	-53.4	-53.1	1.00	1.00	0.00
2,900.0	9.00	253.19	2,896.3	-20.4	-67.5	-67.2	1.00	1.00	0.00
2,932.7	9.33	253.19	2,928.5	-21.9	-72.5	-72.2	1.00	1.00	0.00
3,000.0	9.33	253.19	2,995.0	-25.1	-83.0	-82.6	0.00	0.00	0.00
3,100.0	9.33	253.19	3,093.7	-29.7	-98.5	-98.0	0.00	0.00	0.00
3,200.0	9.33	253.19	3,192.4	-34.4	-114.0	-113.5	0.00	0.00	0.00
3,300.0	9.33	253.19	3,291.0	-39.1	-129.5	-128.9	0.00	0.00	0.00
3,400.0	9.33	253.19	3,389.7	-43.8	-145.0	-144.4	0.00	0.00	0.00
3,500.0	9.33	253.19	3,488.4	-48.5	-160.5	-159.8	0.00	0.00	0.00
3,600.0	9.33	253.19	3,587.1	-53.2	-176.0	-175.3	0.00	0.00	0.00
3,700.0	9.33	253.19	3,685.7	-57.9	-191.5	-190.7	0.00	0.00	0.00
3,800.0	9.33	253.19	3,784.4	-62.6	-207.1	-206.1	0.00	0.00	0.00
3,900.0	9.33	253.19	3,883.1	-67.2	-222.6	-221.6	0.00	0.00	0.00
4,000.0	9.33	253.19	3,981.8	-71.9	-238.1	-237.0	0.00	0.00	0.00
4,100.0	9.33	253.19	4,080.5	-76.6	-253.6	-252.5	0.00	0.00	0.00
4,200.0	9.33	253.19	4,179.1	-81.3	-269.1	-267.9	0.00	0.00	0.00
4,300.0	9.33	253.19	4,277.8	-86.0	-284.6	-283.4	0.00	0.00	0.00
4,400.0	9.33	253.19	4,376.5	-90.7	-300.1	-298.8	0.00	0.00	0.00
4,500.0	9.33	253.19	4,475.2	-95.4	-315.7	-314.3	0.00	0.00	0.00
4,600.0	9.33	253.19	4,573.8	-100.0	-331.2	-329.7	0.00	0.00	0.00
4,700.0	9.33	253.19	4,672.5	-104.7	-346.7	-345.2	0.00	0.00	0.00
4,800.0	9.33	253.19	4,771.2	-109.4	-362.2	-360.6	0.00	0.00	0.00
4,900.0	9.33	253.19	4,869.9	-114.1	-377.7	-376.0	0.00	0.00	0.00
5,000.0	9.33	253.19	4,968.6	-118.8	-393.2	-391.5	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Klein 190-302
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (7-15-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.0	9.33	253.19	5,067.2	-123.5	-408.7	-406.9	0.00	0.00	0.00
5,200.0	9.33	253.19	5,165.9	-128.2	-424.3	-422.4	0.00	0.00	0.00
5,300.0	9.33	253.19	5,264.6	-132.9	-439.8	-437.8	0.00	0.00	0.00
5,372.1	9.33	253.19	5,335.7	-136.2	-450.9	-449.0	0.00	0.00	0.00
KOP #2 - Start Drop -2.00									
5,400.0	8.77	253.19	5,363.3	-137.5	-455.1	-453.1	2.00	-2.00	0.00
5,500.0	6.77	253.19	5,462.4	-141.4	-468.1	-466.0	2.00	-2.00	0.00
5,600.0	4.77	253.19	5,561.9	-144.3	-477.7	-475.6	2.00	-2.00	0.00
5,700.0	2.77	253.19	5,661.6	-146.2	-484.0	-481.9	2.00	-2.00	0.00
5,800.0	0.77	253.19	5,761.6	-147.1	-487.0	-484.8	2.00	-2.00	0.00
5,838.4	0.00	0.00	5,800.0	-147.2	-487.2	-485.0	2.00	-2.00	0.00
5,900.0	0.00	0.00	5,861.6	-147.2	-487.2	-485.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,961.6	-147.2	-487.2	-485.0	0.00	0.00	0.00
6,060.5	0.00	0.00	6,022.1	-147.2	-487.2	-485.0	0.00	0.00	0.00
Start Build 7.50									
6,100.0	2.96	90.00	6,061.6	-147.2	-486.2	-484.0	7.50	7.50	0.00
6,200.0	10.46	90.00	6,160.8	-147.2	-474.5	-472.3	7.50	7.50	0.00
6,300.0	17.96	90.00	6,257.7	-147.2	-450.0	-447.8	7.50	7.50	0.00
6,400.0	25.46	90.00	6,350.5	-147.2	-413.0	-410.8	7.50	7.50	0.00
6,500.0	32.96	90.00	6,437.7	-147.2	-364.2	-362.1	7.50	7.50	0.00
6,600.0	40.46	90.00	6,517.8	-147.2	-304.5	-302.3	7.50	7.50	0.00
6,700.0	47.96	90.00	6,589.5	-147.2	-234.8	-232.7	7.50	7.50	0.00
6,800.0	55.46	90.00	6,651.4	-147.2	-156.4	-154.2	7.50	7.50	0.00
6,900.0	62.96	90.00	6,702.5	-147.2	-70.5	-68.4	7.50	7.50	0.00
7,000.0	70.46	90.00	6,742.0	-147.2	21.3	23.4	7.50	7.50	0.00
7,100.0	77.96	90.00	6,769.2	-147.2	117.4	119.5	7.50	7.50	0.00
7,200.0	85.46	90.00	6,783.6	-147.2	216.3	218.4	7.50	7.50	0.00
7,266.4	90.44	90.00	6,786.0	-147.2	282.7	284.7	7.49	7.49	0.00
Start 10025.3 hold at 7266.4 MD - 7"									
7,300.0	90.44	90.00	6,785.7	-147.2	316.3	318.3	0.00	0.00	0.00
7,400.0	90.44	90.00	6,785.0	-147.2	416.3	418.3	0.00	0.00	0.00
7,500.0	90.44	90.00	6,784.2	-147.2	516.3	518.3	0.00	0.00	0.00
7,600.0	90.44	90.00	6,783.4	-147.2	616.3	618.3	0.00	0.00	0.00
7,700.0	90.44	90.00	6,782.7	-147.2	716.2	718.3	0.00	0.00	0.00
7,800.0	90.44	90.00	6,781.9	-147.2	816.2	818.3	0.00	0.00	0.00
7,900.0	90.44	90.00	6,781.1	-147.2	916.2	918.2	0.00	0.00	0.00
8,000.0	90.44	90.00	6,780.4	-147.2	1,016.2	1,018.2	0.00	0.00	0.00
8,100.0	90.44	90.00	6,779.6	-147.2	1,116.2	1,118.2	0.00	0.00	0.00
8,200.0	90.44	90.00	6,778.8	-147.2	1,216.2	1,218.2	0.00	0.00	0.00
8,300.0	90.44	90.00	6,778.1	-147.2	1,316.2	1,318.2	0.00	0.00	0.00
8,400.0	90.44	90.00	6,777.3	-147.2	1,416.2	1,418.2	0.00	0.00	0.00
8,500.0	90.44	90.00	6,776.5	-147.2	1,516.2	1,518.2	0.00	0.00	0.00
8,600.0	90.44	90.00	6,775.7	-147.2	1,616.2	1,618.2	0.00	0.00	0.00
8,700.0	90.44	90.00	6,775.0	-147.2	1,716.2	1,718.1	0.00	0.00	0.00
8,800.0	90.44	90.00	6,774.2	-147.2	1,816.2	1,818.1	0.00	0.00	0.00
8,900.0	90.44	90.00	6,773.4	-147.2	1,916.2	1,918.1	0.00	0.00	0.00
9,000.0	90.44	90.00	6,772.7	-147.2	2,016.2	2,018.1	0.00	0.00	0.00
9,100.0	90.44	90.00	6,771.9	-147.2	2,116.2	2,118.1	0.00	0.00	0.00
9,200.0	90.44	90.00	6,771.1	-147.2	2,216.2	2,218.1	0.00	0.00	0.00
9,300.0	90.44	90.00	6,770.4	-147.2	2,316.2	2,318.1	0.00	0.00	0.00
9,400.0	90.44	90.00	6,769.6	-147.2	2,416.2	2,418.1	0.00	0.00	0.00
9,500.0	90.44	90.00	6,768.8	-147.2	2,516.2	2,518.0	0.00	0.00	0.00
9,600.0	90.44	90.00	6,768.1	-147.2	2,616.2	2,618.0	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Klein 190-302
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (7-15-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,700.0	90.44	90.00	6,767.3	-147.2	2,716.2	2,718.0	0.00	0.00	0.00
9,800.0	90.44	90.00	6,766.5	-147.2	2,816.2	2,818.0	0.00	0.00	0.00
9,900.0	90.44	90.00	6,765.8	-147.2	2,916.2	2,918.0	0.00	0.00	0.00
10,000.0	90.44	90.00	6,765.0	-147.2	3,016.2	3,018.0	0.00	0.00	0.00
10,100.0	90.44	90.00	6,764.2	-147.2	3,116.2	3,118.0	0.00	0.00	0.00
10,200.0	90.44	90.00	6,763.5	-147.2	3,216.2	3,217.9	0.00	0.00	0.00
10,300.0	90.44	90.00	6,762.7	-147.2	3,316.2	3,317.9	0.00	0.00	0.00
10,400.0	90.44	90.00	6,761.9	-147.2	3,416.2	3,417.9	0.00	0.00	0.00
10,500.0	90.44	90.00	6,761.2	-147.2	3,516.2	3,517.9	0.00	0.00	0.00
10,600.0	90.44	90.00	6,760.4	-147.2	3,616.2	3,617.9	0.00	0.00	0.00
10,700.0	90.44	90.00	6,759.6	-147.2	3,716.2	3,717.9	0.00	0.00	0.00
10,800.0	90.44	90.00	6,758.9	-147.2	3,816.2	3,817.9	0.00	0.00	0.00
10,900.0	90.44	90.00	6,758.1	-147.2	3,916.2	3,917.9	0.00	0.00	0.00
11,000.0	90.44	90.00	6,757.3	-147.2	4,016.1	4,017.8	0.00	0.00	0.00
11,100.0	90.44	90.00	6,756.5	-147.2	4,116.1	4,117.8	0.00	0.00	0.00
11,200.0	90.44	90.00	6,755.8	-147.2	4,216.1	4,217.8	0.00	0.00	0.00
11,300.0	90.44	90.00	6,755.0	-147.2	4,316.1	4,317.8	0.00	0.00	0.00
11,400.0	90.44	90.00	6,754.2	-147.2	4,416.1	4,417.8	0.00	0.00	0.00
11,500.0	90.44	90.00	6,753.5	-147.2	4,516.1	4,517.8	0.00	0.00	0.00
11,600.0	90.44	90.00	6,752.7	-147.2	4,616.1	4,617.8	0.00	0.00	0.00
11,700.0	90.44	90.00	6,751.9	-147.2	4,716.1	4,717.8	0.00	0.00	0.00
11,800.0	90.44	90.00	6,751.2	-147.2	4,816.1	4,817.7	0.00	0.00	0.00
11,900.0	90.44	90.00	6,750.4	-147.2	4,916.1	4,917.7	0.00	0.00	0.00
12,000.0	90.44	90.00	6,749.6	-147.2	5,016.1	5,017.7	0.00	0.00	0.00
12,100.0	90.44	90.00	6,748.9	-147.2	5,116.1	5,117.7	0.00	0.00	0.00
12,200.0	90.44	90.00	6,748.1	-147.2	5,216.1	5,217.7	0.00	0.00	0.00
12,300.0	90.44	90.00	6,747.3	-147.2	5,316.1	5,317.7	0.00	0.00	0.00
12,400.0	90.44	90.00	6,746.6	-147.2	5,416.1	5,417.7	0.00	0.00	0.00
12,500.0	90.44	90.00	6,745.8	-147.2	5,516.1	5,517.6	0.00	0.00	0.00
12,600.0	90.44	90.00	6,745.0	-147.2	5,616.1	5,617.6	0.00	0.00	0.00
12,700.0	90.44	90.00	6,744.3	-147.2	5,716.1	5,717.6	0.00	0.00	0.00
12,800.0	90.44	90.00	6,743.5	-147.2	5,816.1	5,817.6	0.00	0.00	0.00
12,900.0	90.44	90.00	6,742.7	-147.2	5,916.1	5,917.6	0.00	0.00	0.00
13,000.0	90.44	90.00	6,742.0	-147.2	6,016.1	6,017.6	0.00	0.00	0.00
13,100.0	90.44	90.00	6,741.2	-147.2	6,116.1	6,117.6	0.00	0.00	0.00
13,200.0	90.44	90.00	6,740.4	-147.2	6,216.1	6,217.6	0.00	0.00	0.00
13,300.0	90.44	90.00	6,739.7	-147.2	6,316.1	6,317.5	0.00	0.00	0.00
13,400.0	90.44	90.00	6,738.9	-147.2	6,416.1	6,417.5	0.00	0.00	0.00
13,500.0	90.44	90.00	6,738.1	-147.2	6,516.1	6,517.5	0.00	0.00	0.00
13,600.0	90.44	90.00	6,737.3	-147.2	6,616.1	6,617.5	0.00	0.00	0.00
13,700.0	90.44	90.00	6,736.6	-147.2	6,716.1	6,717.5	0.00	0.00	0.00
13,800.0	90.44	90.00	6,735.8	-147.2	6,816.1	6,817.5	0.00	0.00	0.00
13,900.0	90.44	90.00	6,735.0	-147.2	6,916.1	6,917.5	0.00	0.00	0.00
14,000.0	90.44	90.00	6,734.3	-147.2	7,016.1	7,017.4	0.00	0.00	0.00
14,100.0	90.44	90.00	6,733.5	-147.2	7,116.1	7,117.4	0.00	0.00	0.00
14,200.0	90.44	90.00	6,732.7	-147.2	7,216.1	7,217.4	0.00	0.00	0.00
14,300.0	90.44	90.00	6,732.0	-147.2	7,316.1	7,317.4	0.00	0.00	0.00
14,400.0	90.44	90.00	6,731.2	-147.2	7,416.0	7,417.4	0.00	0.00	0.00
14,500.0	90.44	90.00	6,730.4	-147.2	7,516.0	7,517.4	0.00	0.00	0.00
14,600.0	90.44	90.00	6,729.7	-147.2	7,616.0	7,617.4	0.00	0.00	0.00
14,700.0	90.44	90.00	6,728.9	-147.2	7,716.0	7,717.4	0.00	0.00	0.00
14,800.0	90.44	90.00	6,728.1	-147.2	7,816.0	7,817.3	0.00	0.00	0.00
14,900.0	90.44	90.00	6,727.4	-147.2	7,916.0	7,917.3	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Klein 190-302
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (7-15-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,000.0	90.44	90.00	6,726.6	-147.2	8,016.0	8,017.3	0.00	0.00	0.00
15,100.0	90.44	90.00	6,725.8	-147.2	8,116.0	8,117.3	0.00	0.00	0.00
15,200.0	90.44	90.00	6,725.1	-147.2	8,216.0	8,217.3	0.00	0.00	0.00
15,300.0	90.44	90.00	6,724.3	-147.2	8,316.0	8,317.3	0.00	0.00	0.00
15,400.0	90.44	90.00	6,723.5	-147.2	8,416.0	8,417.3	0.00	0.00	0.00
15,500.0	90.44	90.00	6,722.8	-147.2	8,516.0	8,517.3	0.00	0.00	0.00
15,600.0	90.44	90.00	6,722.0	-147.2	8,616.0	8,617.2	0.00	0.00	0.00
15,700.0	90.44	90.00	6,721.2	-147.2	8,716.0	8,717.2	0.00	0.00	0.00
15,800.0	90.44	90.00	6,720.5	-147.2	8,816.0	8,817.2	0.00	0.00	0.00
15,900.0	90.44	90.00	6,719.7	-147.2	8,916.0	8,917.2	0.00	0.00	0.00
16,000.0	90.44	90.00	6,718.9	-147.2	9,016.0	9,017.2	0.00	0.00	0.00
16,100.0	90.44	90.00	6,718.2	-147.2	9,116.0	9,117.2	0.00	0.00	0.00
16,200.0	90.44	90.00	6,717.4	-147.2	9,216.0	9,217.2	0.00	0.00	0.00
16,300.0	90.44	90.00	6,716.6	-147.2	9,316.0	9,317.1	0.00	0.00	0.00
16,400.0	90.44	90.00	6,715.8	-147.2	9,416.0	9,417.1	0.00	0.00	0.00
16,500.0	90.44	90.00	6,715.1	-147.2	9,516.0	9,517.1	0.00	0.00	0.00
16,600.0	90.44	90.00	6,714.3	-147.2	9,616.0	9,617.1	0.00	0.00	0.00
16,700.0	90.44	90.00	6,713.5	-147.2	9,716.0	9,717.1	0.00	0.00	0.00
16,800.0	90.44	90.00	6,712.8	-147.2	9,816.0	9,817.1	0.00	0.00	0.00
16,900.0	90.44	90.00	6,712.0	-147.2	9,916.0	9,917.1	0.00	0.00	0.00
17,000.0	90.44	90.00	6,711.2	-147.2	10,016.0	10,017.1	0.00	0.00	0.00
17,100.0	90.44	90.00	6,710.5	-147.2	10,116.0	10,117.0	0.00	0.00	0.00
17,200.0	90.44	90.00	6,709.7	-147.2	10,216.0	10,217.0	0.00	0.00	0.00
17,291.6	90.44	90.00	6,709.0	-147.2	10,307.6	10,308.6	0.00	0.00	0.00
TD at 17291.6									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL 2388'FNL & 2101'F - hit/miss target - Shape - Point	0.00	0.00	1.0	0.0	0.0	1,384,514.49	3,253,260.83	40.385330	-104.590840
50' N/S Hardline (190-302) - plan misses target center by 5297.1ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Rectangle (sides W100.0 H10,025.0 D0.0)	0.00	0.00	1.0	-147.2	5,295.1	1,384,421.56	3,258,556.94	40.384924	-104.571833
BHL 2612'FNL & 2353'F - plan hits target center - Point	0.00	0.00	6,709.0	-147.2	10,307.6	1,384,472.96	3,263,568.98	40.384920	-104.553840

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,266.4	6,786.0	7"	7	7-1/2

Database:	US_EDM	Local Co-ordinate Reference:	Well Klein 19O-302
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19O-302	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #4 (7-15-15)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,562.4	3,550.0	Parkman		0.00		
4,322.5	4,300.0	Sussex		0.00		
4,525.2	4,500.0	Shannon		0.00		
6,540.4	6,471.0	Sharon Springs		0.00		
6,787.1	6,644.0	Niobrara A		0.00		
7,006.0	6,744.0	Niobrara B		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,000.0	2,000.0	0.0	0.0	KOP #1 - Start Build 1.00	
5,372.1	5,335.7	-21.9	-72.5	KOP #2 - Start Drop -2.00	
6,060.5	6,022.1	-136.2	-450.9	Start Build 7.50	
7,266.4	6,786.0	-147.2	-487.2	Start 10025.3 hold at 7266.4 MD	
17,291.6	6,709.0	-147.2	-487.2	TD at 17291.6	



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

Klein 19O-HZ Pad Sec.19-T5N-R64W

Klein 19O-302

Wellbore #1

Plan #4 (7-15-15)

Anticollision Report

29 July, 2015



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #4 (7-15-15)		
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 1,000.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	7/27/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	17,291.6	Plan #4 (7-15-15) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells Sec.21-T5N-R64W						
Kohler 6-21 (Exist) - Wellbore #1 - Wellbore #1	16,388.8	6,689.9	586.2	180.9	1.446	Level 3, CC
Kohler 6-21 (Exist) - Wellbore #1 - Wellbore #1	16,400.0	6,689.8	586.3	180.7	1.445	Level 3, ES, SF
Kohler 7-21 (Exist) - Wellbore #1 - Wellbore #1	17,291.6	6,681.0	694.1	263.7	1.613	CC, ES, SF
Kohler 8-21 (Exist) - Wellbore #1 - Wellbore #1						Out of range
Klein (Existing) Sec.19-T5N-R64W						
Brent 1 (Exist.) - Wellbore #1 - Wellbore #1	11,070.8	6,767.1	615.0	480.3	4.565	CC
Brent 1 (Exist.) - Wellbore #1 - Wellbore #1	11,100.0	6,767.5	615.7	480.2	4.543	ES, SF
Brent 1-6I (Exist.) - Wellbore #1 - Wellbore #1	10,401.8	6,881.6	48.8	-229.0	0.176	Level 1, CC, ES, SF
Duell 20-1 (Exist.) - Wellbore #1 - Wellbore #1	9,583.6	6,766.0	351.8	256.9	3.707	CC
Duell 20-1 (Exist.) - Wellbore #1 - Wellbore #1	9,600.0	6,766.0	352.2	256.8	3.693	ES, SF
Lewis Klein 19-2 (Exist.) - Wellbore #1 - Wellbore #1	1,738.2	1,724.2	346.1	339.2	50.141	CC
Lewis Klein 19-2 (Exist.) - Wellbore #1 - Wellbore #1	1,800.0	1,783.8	346.3	339.2	48.501	ES
Lewis Klein 19-2 (Exist.) - Wellbore #1 - Wellbore #1	7,200.0	6,791.1	486.8	453.8	14.750	SF
Louis Klein 19-1 (Exist.) - Wellbore #1 - Wellbore #1	8,395.0	6,783.6	467.8	406.1	7.577	CC
Louis Klein 19-1 (Exist.) - Wellbore #1 - Wellbore #1	8,400.0	6,783.7	467.8	406.0	7.562	ES
Louis Klein 19-1 (Exist.) - Wellbore #1 - Wellbore #1	8,500.0	6,785.9	479.5	414.9	7.432	SF
Victor Klein 20-1A (Exist.) - Wellbore #1 - Wellbore #1	12,354.8	6,720.9	609.9	439.0	3.569	CC, ES
Victor Klein 20-1A (Exist.) - Wellbore #1 - Wellbore #1	12,400.0	6,721.7	611.6	439.4	3.553	SF
Klein 190-HZ Pad Sec.19-T5N-R64W						
Klein 19N-302 - Wellbore #1 - Plan #3 (7-15-15)	800.0	800.0	153.2	149.9	45.449	CC, ES
Klein 19N-302 - Wellbore #1 - Plan #3 (7-15-15)	1,600.0	1,572.7	207.9	200.8	29.106	SF
Klein 19N-432 - Wellbore #1 - Plan #3 (7-16-15)	1,000.0	1,000.0	150.5	146.2	35.236	CC
Klein 19N-432 - Wellbore #1 - Plan #3 (7-16-15)	1,100.0	1,098.8	150.9	146.2	31.992	ES
Klein 19N-432 - Wellbore #1 - Plan #3 (7-16-15)	17,291.6	17,407.1	788.7	203.4	1.347	Level 3, SF
Klein 19O-212 - Wellbore #1 - Plan #3 (7-15-15)	1,500.0	1,500.0	29.3	22.8	4.493	CC
Klein 19O-212 - Wellbore #1 - Plan #3 (7-15-15)	17,291.6	17,238.6	253.4	-320.2	0.442	Level 1, ES, SF
Klein 19O-232 - Wellbore #1 - Plan #4 (7-15-15)	1,000.0	1,000.0	61.9	57.7	14.500	CC
Klein 19O-232 - Wellbore #1 - Plan #4 (7-15-15)	17,291.6	17,994.3	534.1	-67.5	0.888	Level 1, ES, SF
Klein 19O-402 - Wellbore #1 - Plan #3 (7-15-15)	1,500.0	1,500.0	32.8	26.3	5.029	CC
Klein 19O-402 - Wellbore #1 - Plan #3 (7-15-15)	17,291.6	17,807.0	304.2	-234.1	0.565	Level 1, ES, SF
Klein 19P-202 - Wellbore #1 - Plan #3 (7-15-15)	200.0	200.0	162.7	162.0	241.270	CC, ES
Klein 19P-202 - Wellbore #1 - Plan #3 (7-15-15)	2,000.0	1,882.8	517.3	505.6	44.345	SF
Klein 19P-312 - Wellbore #1 - Plan #3 (7-15-15)	400.0	400.0	154.0	152.4	97.856	CC, ES
Klein 19P-312 - Wellbore #1 - Plan #3 (7-15-15)	5,500.0	5,363.6	967.6	939.6	34.582	SF

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 Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.21-T5N-R64W - Kohler 6-21 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6989-UNKNOWN													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		
15,600.0	6,722.0	6,696.0	6,696.0	249.4	133.9	-90.59	439.0	9,404.8	982.7	599.4	383.28	2.564		
15,700.0	6,721.2	6,695.2	6,695.2	252.2	133.9	-90.52	439.0	9,404.8	904.4	518.4	386.07	2.343		
15,800.0	6,720.5	6,694.5	6,694.5	255.0	133.9	-90.44	439.0	9,404.8	830.8	441.9	388.86	2.137		
15,900.0	6,719.7	6,693.7	6,693.7	257.8	133.9	-90.37	439.0	9,404.8	763.2	371.6	391.65	1.949		
16,000.0	6,718.9	6,692.9	6,692.9	260.6	133.9	-90.29	439.0	9,404.8	703.4	308.9	394.45	1.783		
16,100.0	6,718.2	6,692.2	6,692.2	263.4	133.8	-90.22	439.0	9,404.8	653.4	256.2	397.24	1.645		
16,200.0	6,717.4	6,691.4	6,691.4	266.2	133.8	-90.14	439.0	9,404.8	615.8	215.8	400.03	1.539		
16,300.0	6,716.6	6,690.6	6,690.6	269.0	133.8	-90.07	439.0	9,404.8	592.9	190.0	402.82	1.472 Level 3		
16,388.8	6,715.9	6,689.9	6,689.9	271.5	133.8	-90.00	439.0	9,404.8	586.2	180.9	405.29	1.446 Level 3, CC		
16,400.0	6,715.8	6,689.8	6,689.8	271.8	133.8	-89.99	439.0	9,404.8	586.3	180.7	405.61	1.445 Level 3, ES, SF		
16,500.0	6,715.1	6,689.1	6,689.1	274.6	133.8	-89.92	439.0	9,404.8	596.6	188.2	408.40	1.461 Level 3		
16,600.0	6,714.3	6,688.3	6,688.3	277.4	133.8	-89.84	439.0	9,404.8	623.1	211.9	411.18	1.515		
16,700.0	6,713.5	6,687.5	6,687.5	280.2	133.8	-89.77	439.0	9,404.8	663.7	249.7	413.97	1.603		
16,800.0	6,712.8	6,686.8	6,686.8	283.0	133.7	-89.69	439.0	9,404.8	716.0	299.3	416.76	1.718		
16,900.0	6,712.0	6,686.0	6,686.0	285.8	133.7	-89.62	439.0	9,404.8	777.8	358.2	419.54	1.854		
17,000.0	6,711.2	6,685.2	6,685.2	288.6	133.7	-89.54	439.0	9,404.8	846.9	424.5	422.33	2.005		
17,100.0	6,710.5	6,684.5	6,684.5	291.4	133.7	-89.47	439.0	9,404.8	921.6	496.5	425.12	2.168		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 19O-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.21-T5N-R64W - Kohler 7-21 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 6950-UNKNOWN												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	
16,900.0	6,712.0	6,684.0	6,684.0	285.8	133.7	-90.56	446.8	10,666.7	957.3	537.8	419.49	2.282	
17,000.0	6,711.2	6,683.2	6,683.2	288.6	133.7	-90.48	446.8	10,666.7	881.1	458.8	422.28	2.086	
17,100.0	6,710.5	6,682.5	6,682.5	291.4	133.6	-90.41	446.8	10,666.7	810.0	384.9	425.08	1.906	
17,200.0	6,709.7	6,681.7	6,681.7	294.2	133.6	-90.33	446.8	10,666.7	745.6	317.8	427.87	1.743	
17,291.6	6,709.0	6,681.0	6,681.0	296.8	133.6	-90.27	446.8	10,666.7	694.1	263.7	430.43	1.613 CC, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 19O-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design													Klein (Existing) Sec.19-T5N-R64W - Brent 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		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)						
10,300.0	6,762.7	6,756.4	6,754.9	101.3	12.1	-91.32	467.7	4,086.9	986.0	872.7	113.35	8.699					
10,400.0	6,761.9	6,757.8	6,756.3	104.1	12.1	-91.44	467.7	4,087.0	910.0	793.9	116.12	7.837					
10,500.0	6,761.2	6,759.2	6,757.7	106.9	12.1	-91.57	467.6	4,087.0	839.0	720.2	118.89	7.057					
10,600.0	6,760.4	6,760.6	6,759.0	109.6	12.1	-91.70	467.6	4,087.0	774.5	652.8	121.66	6.366					
10,700.0	6,759.6	6,762.0	6,760.4	112.4	12.1	-91.83	467.5	4,087.1	718.1	593.7	124.43	5.771					
10,800.0	6,758.9	6,763.3	6,761.8	115.2	12.1	-91.96	467.5	4,087.1	672.0	544.8	127.20	5.283					
10,900.0	6,758.1	6,764.7	6,763.2	118.0	12.1	-92.09	467.4	4,087.1	638.3	508.3	129.98	4.911					
11,000.0	6,757.3	6,766.1	6,764.6	120.8	12.1	-92.22	467.3	4,087.1	619.1	486.3	132.75	4.663					
11,070.8	6,756.8	6,767.1	6,765.6	122.7	12.1	-92.31	467.3	4,087.2	615.0	480.3	134.71	4.565 CC					
11,100.0	6,756.5	6,767.5	6,766.0	123.5	12.1	-92.35	467.3	4,087.2	615.7	480.2	135.52	4.543 ES, SF					
11,200.0	6,755.8	6,768.9	6,767.4	126.3	12.1	-92.48	467.2	4,087.2	628.4	490.1	138.29	4.544					
11,300.0	6,755.0	6,770.3	6,768.7	129.1	12.1	-92.61	467.2	4,087.2	656.3	515.2	141.07	4.652					
11,400.0	6,754.2	6,771.7	6,770.1	131.9	12.1	-92.74	467.1	4,087.3	697.5	553.7	143.84	4.849					
11,500.0	6,753.5	6,773.1	6,771.5	134.7	12.1	-92.87	467.1	4,087.3	749.9	603.3	146.61	5.115					
11,600.0	6,752.7	6,774.4	6,772.9	137.5	12.1	-92.99	467.0	4,087.3	811.3	661.9	149.38	5.431					
11,700.0	6,751.9	6,775.8	6,774.3	140.3	12.1	-93.12	466.9	4,087.4	879.8	727.6	152.15	5.782					
11,800.0	6,751.2	6,777.2	6,775.7	143.0	12.1	-93.25	466.9	4,087.4	953.8	798.9	154.92	6.157					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Brent 1-6l (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 647-UNKNOWN													Offset Well Error:	0.0 ft
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	
9,500.0	6,768.8	6,874.5	6,738.7	79.2	188.3	81.62	-196.0	3,417.9	903.1	648.0	255.16	3.539		
9,600.0	6,768.1	6,875.2	6,739.5	82.0	188.3	82.50	-196.0	3,417.9	803.3	545.4	257.89	3.115		
9,700.0	6,767.3	6,876.0	6,740.2	84.7	188.3	83.38	-196.0	3,417.9	703.5	442.9	260.57	2.700		
9,800.0	6,766.5	6,876.8	6,741.0	87.5	188.3	84.28	-196.0	3,417.9	603.8	340.6	263.20	2.294		
9,900.0	6,765.8	6,877.6	6,741.8	90.2	188.3	85.18	-196.0	3,417.9	504.2	238.4	265.79	1.897		
10,000.0	6,765.0	6,878.3	6,742.6	93.0	188.3	86.09	-196.0	3,417.9	404.8	136.4	268.31	1.509		
10,100.0	6,764.2	6,879.1	6,743.4	95.8	188.3	87.02	-196.0	3,417.9	305.7	35.0	270.78	1.129	Level 2	
10,200.0	6,763.5	6,879.9	6,744.2	98.5	188.3	87.95	-196.0	3,418.0	207.6	-65.5	273.18	0.760	Level 1	
10,300.0	6,762.7	6,880.7	6,745.0	101.3	188.3	88.89	-196.0	3,418.0	112.9	-162.6	275.51	0.410	Level 1	
10,400.0	6,761.9	6,881.5	6,745.8	104.1	188.2	89.83	-196.0	3,418.0	48.9	-228.9	277.78	0.176	Level 1	
10,401.8	6,761.9	6,881.6	6,745.8	104.1	188.2	89.85	-196.0	3,418.0	48.8	-229.0	277.82	0.176	Level 1, CC, ES, SF	
10,500.0	6,761.2	6,882.4	6,746.6	106.9	188.2	90.79	-196.0	3,418.0	109.7	-170.3	279.96	0.392	Level 1	
10,600.0	6,760.4	6,883.2	6,747.4	109.6	188.2	91.75	-196.0	3,418.0	204.1	-78.0	282.07	0.724	Level 1	
10,700.0	6,759.6	6,884.0	6,748.2	112.4	188.2	92.71	-196.0	3,418.0	302.1	18.1	284.09	1.064	Level 2	
10,800.0	6,758.9	6,884.8	6,749.1	115.2	188.2	93.69	-196.0	3,418.0	401.2	115.1	286.03	1.402	Level 3	
10,900.0	6,758.1	6,885.7	6,749.9	118.0	188.2	94.67	-196.0	3,418.0	500.6	212.7	287.88	1.739		
11,000.0	6,757.3	6,886.5	6,750.7	120.8	188.2	95.65	-196.0	3,418.1	600.2	310.5	289.64	2.072		
11,100.0	6,756.5	6,887.4	6,751.6	123.5	188.2	96.64	-196.0	3,418.1	699.9	408.6	291.31	2.403		
11,200.0	6,755.8	6,888.2	6,752.5	126.3	188.2	97.63	-196.0	3,418.1	799.7	506.8	292.87	2.730		
11,300.0	6,755.0	6,889.1	6,753.3	129.1	188.2	98.62	-196.0	3,418.1	899.5	605.1	294.34	3.056		
11,400.0	6,754.2	6,890.0	6,754.2	131.9	188.1	99.62	-196.0	3,418.1	999.3	703.6	295.71	3.379		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Duell 20-1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		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		
8,700.0	6,775.0	6,768.6	6,756.2	57.5	13.5	-90.97	204.6	2,599.9	951.1	880.2	70.85	13.424		
8,800.0	6,774.2	6,768.3	6,755.8	60.2	13.5	-90.92	204.6	2,599.9	859.0	785.4	73.54	11.680		
8,900.0	6,773.4	6,768.0	6,755.5	62.9	13.5	-90.87	204.6	2,599.9	768.8	692.6	76.24	10.084		
9,000.0	6,772.7	6,767.7	6,755.2	65.6	13.5	-90.82	204.6	2,599.9	681.5	602.5	78.95	8.631		
9,100.0	6,771.9	6,767.4	6,754.9	68.3	13.5	-90.77	204.6	2,599.9	598.1	516.4	81.67	7.323		
9,200.0	6,771.1	6,767.1	6,754.6	71.0	13.5	-90.72	204.6	2,599.9	520.5	436.1	84.40	6.168		
9,300.0	6,770.4	6,766.8	6,754.3	73.8	13.5	-90.67	204.6	2,599.9	451.9	364.8	87.13	5.187		
9,400.0	6,769.6	6,766.5	6,754.0	76.5	13.5	-90.63	204.6	2,599.9	396.9	307.0	89.87	4.416		
9,500.0	6,768.8	6,766.2	6,753.8	79.2	13.5	-90.58	204.6	2,599.9	361.6	269.0	92.61	3.905		
9,583.6	6,768.2	6,766.0	6,753.5	81.5	13.5	-90.54	204.6	2,599.9	351.8	256.9	94.91	3.707 CC		
9,600.0	6,768.1	6,766.0	6,753.5	82.0	13.5	-90.54	204.6	2,599.9	352.2	256.8	95.36	3.693 ES, SF		
9,700.0	6,767.3	6,765.7	6,753.2	84.7	13.5	-90.50	204.6	2,599.9	370.6	272.4	98.11	3.777		
9,800.0	6,766.5	6,765.5	6,753.0	87.5	13.5	-90.45	204.6	2,599.9	413.0	312.1	100.86	4.095		
9,900.0	6,765.8	6,765.2	6,752.7	90.2	13.5	-90.41	204.6	2,599.9	473.1	369.5	103.62	4.566		
10,000.0	6,765.0	6,765.0	6,752.5	93.0	13.5	-90.38	204.6	2,599.9	545.1	438.7	106.38	5.124		
10,100.0	6,764.2	6,764.7	6,752.3	95.8	13.5	-90.34	204.6	2,599.9	624.8	515.7	109.15	5.725		
10,200.0	6,763.5	6,764.5	6,752.0	98.5	13.5	-90.30	204.6	2,599.8	709.7	597.8	111.91	6.341		
10,300.0	6,762.7	6,764.3	6,751.8	101.3	13.5	-90.26	204.6	2,599.8	798.1	683.4	114.68	6.959		
10,400.0	6,761.9	6,764.1	6,751.6	104.1	13.5	-90.23	204.6	2,599.8	888.9	771.5	117.45	7.568		
10,500.0	6,761.2	6,763.9	6,751.4	106.9	13.5	-90.19	204.6	2,599.8	981.6	861.3	120.23	8.164		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Lewis Klein 19-2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	18.58	331.5	111.4	350.0					
100.0	100.0	86.6	86.6	0.1	0.1	18.62	331.4	111.6	349.7	349.5	0.23	1,538.037		
200.0	200.0	188.2	188.2	0.3	0.3	18.70	330.9	112.0	349.3	348.6	0.69	509.456		
300.0	300.0	288.5	288.5	0.6	0.6	18.73	330.1	111.9	348.6	347.4	1.15	304.365		
400.0	400.0	387.6	387.6	0.8	0.8	18.68	329.6	111.5	348.0	346.4	1.57	221.992		
500.0	500.0	486.3	486.3	1.0	0.9	18.58	329.6	110.8	347.7	345.8	1.95	178.048		
600.0	600.0	587.7	587.6	1.2	1.1	18.46	329.6	110.1	347.5	345.1	2.38	146.294		
700.0	700.0	688.1	688.0	1.5	1.4	18.39	329.2	109.4	346.9	344.1	2.85	121.906		
800.0	800.0	786.1	786.0	1.7	1.6	18.30	329.1	108.8	346.6	343.3	3.29	105.380		
900.0	900.0	887.7	887.7	1.9	1.8	18.25	329.0	108.5	346.4	342.7	3.71	93.342		
974.5	974.5	960.5	960.5	2.1	1.9	18.31	328.7	108.7	346.2	342.2	3.98	86.972		
1,000.0	1,000.0	985.2	985.2	2.1	1.9	18.33	328.6	108.9	346.2	342.1	4.07	85.072		
1,100.0	1,100.0	1,085.2	1,085.2	2.4	2.0	18.37	328.8	109.2	346.5	342.1	4.41	78.574		
1,200.0	1,200.0	1,186.9	1,186.9	2.6	2.2	18.36	328.9	109.2	346.5	341.7	4.79	72.361		
1,245.6	1,245.6	1,231.7	1,231.6	2.7	2.3	18.41	328.7	109.4	346.4	341.5	4.95	69.971		
1,300.0	1,300.0	1,284.2	1,284.2	2.8	2.3	18.44	328.8	109.6	346.6	341.4	5.14	67.453		
1,400.0	1,400.0	1,384.7	1,384.6	3.0	2.5	18.43	329.3	109.8	347.1	341.6	5.49	63.276		
1,500.0	1,500.0	1,487.6	1,487.6	3.3	2.6	18.38	329.4	109.4	347.1	341.2	5.90	58.866		
1,600.0	1,600.0	1,587.8	1,587.8	3.5	2.8	18.38	328.9	109.3	346.6	340.3	6.33	54.742		
1,700.0	1,700.0	1,687.0	1,687.0	3.7	3.0	18.44	328.4	109.5	346.2	339.4	6.75	51.274		
1,738.2	1,738.2	1,724.2	1,724.2	3.8	3.1	18.46	328.3	109.6	346.1	339.2	6.90	50.141 CC		
1,800.0	1,800.0	1,783.8	1,783.8	3.9	3.2	18.41	328.6	109.4	346.3	339.2	7.14	48.501 ES		
1,900.0	1,900.0	1,881.8	1,881.7	4.2	3.3	18.22	329.8	108.6	347.3	339.8	7.51	46.257		
2,000.0	2,000.0	1,980.7	1,980.7	4.4	3.5	18.05	331.5	108.0	348.7	340.8	7.88	44.277		
2,100.0	2,100.0	2,078.4	2,078.4	4.6	3.6	124.82	333.4	107.8	351.0	342.8	8.23	42.672		
2,200.0	2,200.0	2,178.4	2,178.3	4.8	3.8	125.05	335.8	107.9	354.8	346.2	8.57	41.394		
2,300.0	2,299.9	2,279.2	2,279.1	5.0	4.0	125.50	337.9	108.1	359.3	350.4	8.93	40.241		
2,400.0	2,399.7	2,381.6	2,381.4	5.2	4.1	126.21	339.5	108.3	364.5	355.1	9.30	39.170		
2,500.0	2,499.4	2,483.2	2,483.0	5.4	4.3	127.13	340.4	108.4	370.0	360.3	9.69	38.180		
2,600.0	2,598.9	2,584.2	2,584.0	5.6	4.5	128.28	340.7	108.7	376.3	366.3	10.07	37.380		
2,700.0	2,698.3	2,680.8	2,680.7	5.8	4.6	129.59	341.0	109.4	384.0	373.5	10.43	36.797		
2,800.0	2,797.4	2,780.8	2,780.6	6.1	4.8	131.04	341.7	110.0	393.4	382.6	10.83	36.309		
2,900.0	2,896.3	2,882.6	2,882.4	6.3	5.0	132.57	342.1	110.2	403.7	392.4	11.24	35.929		
2,932.7	2,928.5	2,915.3	2,915.1	6.4	5.1	133.11	341.9	110.3	407.2	395.8	11.36	35.839		
3,000.0	2,995.0	2,981.6	2,981.4	6.6	5.2	134.25	341.7	110.6	414.7	403.1	11.62	35.683		
3,100.0	3,093.7	3,081.0	3,080.8	6.9	5.3	135.87	341.4	110.8	426.1	414.1	12.02	35.460		
3,200.0	3,192.4	3,177.7	3,177.5	7.2	5.5	137.33	341.2	110.9	437.8	425.4	12.42	35.248		
3,300.0	3,291.0	3,278.0	3,277.8	7.5	5.7	138.76	341.2	111.1	450.1	437.2	12.84	35.057		
3,400.0	3,389.7	3,375.0	3,374.8	7.8	5.8	140.04	341.2	110.9	462.3	449.1	13.25	34.883		
3,500.0	3,488.4	3,472.0	3,471.8	8.1	6.0	141.22	341.8	110.9	475.3	461.7	13.68	34.741		
3,600.0	3,587.1	3,572.4	3,572.3	8.5	6.2	142.30	342.7	110.2	488.6	474.4	14.12	34.594		
3,700.0	3,685.7	3,671.1	3,670.9	8.8	6.4	143.25	343.7	109.1	501.6	487.1	14.56	34.443		
3,800.0	3,784.4	3,772.4	3,772.2	9.1	6.6	144.19	344.6	107.9	514.8	499.8	15.01	34.293		
3,900.0	3,883.1	3,876.7	3,876.5	9.5	6.8	145.15	344.6	106.5	527.2	511.8	15.45	34.123		
4,000.0	3,981.8	3,974.1	3,973.9	9.8	6.9	146.11	343.6	105.5	539.2	523.4	15.86	34.005		
4,100.0	4,080.5	4,071.2	4,070.9	10.2	7.1	147.06	342.7	105.2	551.9	535.6	16.26	33.932		
4,200.0	4,179.1	4,172.8	4,172.6	10.5	7.3	147.93	342.2	104.3	564.6	547.9	16.69	33.821		
4,300.0	4,277.8	4,274.4	4,274.2	10.9	7.5	148.78	341.2	102.9	576.9	559.8	17.13	33.685		
4,400.0	4,376.5	4,371.4	4,371.1	11.2	7.6	149.63	339.6	102.2	589.2	571.6	17.54	33.588		
4,500.0	4,475.2	4,469.3	4,469.0	11.6	7.8	150.43	338.4	101.6	601.9	584.0	17.96	33.506		
4,600.0	4,573.8	4,566.6	4,566.3	11.9	8.0	151.11	338.0	100.3	614.9	596.5	18.40	33.411		

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 Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Lewis Klein 19-2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	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	
4,700.0	4,672.5	4,664.1	4,663.8	12.3	8.2	151.77	337.6	99.4	628.3	609.4	18.85	33.333		
4,800.0	4,771.2	4,765.7	4,765.4	12.7	8.4	152.45	337.1	98.5	641.7	622.4	19.30	33.245		
4,900.0	4,869.9	4,869.7	4,869.4	13.0	8.6	153.08	336.4	96.9	654.5	634.7	19.76	33.116		
5,000.0	4,968.6	4,967.7	4,967.4	13.4	8.8	153.70	335.0	95.3	666.9	646.7	20.21	33.000		
5,100.0	5,067.2	5,063.9	5,063.6	13.7	9.0	154.30	333.7	94.2	679.8	659.1	20.65	32.918		
5,200.0	5,165.9	5,164.6	5,164.3	14.1	9.3	154.86	333.0	92.8	692.9	671.8	21.11	32.825		
5,300.0	5,264.6	5,262.0	5,261.6	14.5	9.5	155.41	331.8	91.5	705.9	684.3	21.56	32.737		
5,372.1	5,335.7	5,328.1	5,327.7	14.7	9.6	155.77	331.2	90.9	715.6	693.8	21.87	32.720		
5,400.0	5,363.3	5,352.8	5,352.5	14.8	9.7	155.93	331.1	90.7	719.5	697.5	22.00	32.709		
5,500.0	5,462.4	5,444.4	5,444.1	15.1	9.8	156.40	331.6	90.6	732.0	709.6	22.41	32.672		
5,600.0	5,561.9	5,541.7	5,541.3	15.3	10.0	156.70	332.9	90.6	742.1	719.3	22.79	32.564		
5,700.0	5,661.6	5,639.8	5,639.4	15.5	10.1	156.86	334.3	90.5	749.0	725.9	23.14	32.365		
5,800.0	5,761.6	5,735.1	5,734.7	15.7	10.3	156.96	335.4	91.3	753.3	729.8	23.45	32.120		
5,838.4	5,800.0	5,772.0	5,771.6	15.8	10.3	50.15	336.0	91.7	754.2	728.5	25.68	29.371		
5,900.0	5,861.6	5,832.5	5,832.0	15.9	10.4	50.11	337.2	92.3	755.4	729.6	25.86	29.208		
6,000.0	5,961.6	5,931.6	5,931.1	16.0	10.5	50.07	338.9	93.5	757.5	731.3	26.18	28.936		
6,060.5	6,022.1	5,990.2	5,989.7	16.1	10.6	50.06	339.8	94.5	758.9	732.5	26.37	28.782		
6,100.0	6,061.6	6,030.7	6,030.2	16.2	10.7	-39.98	340.4	95.3	759.1	734.7	24.38	31.130		
6,150.0	6,111.4	6,082.9	6,082.4	16.2	10.8	-40.28	341.0	96.3	756.9	732.5	24.42	30.994		
6,200.0	6,160.8	6,137.9	6,137.4	16.3	10.8	-40.89	341.2	97.3	752.0	727.6	24.41	30.804		
6,250.0	6,209.6	6,193.8	6,193.3	16.3	10.9	-41.83	340.9	98.1	744.3	720.0	24.37	30.541		
6,300.0	6,257.7	6,243.1	6,242.6	16.2	11.0	-43.03	340.3	98.8	734.0	709.7	24.30	30.212		
6,350.0	6,304.7	6,290.7	6,290.2	16.2	11.0	-44.54	339.7	99.4	721.5	697.2	24.21	29.797		
6,400.0	6,350.5	6,339.9	6,339.4	16.2	11.1	-46.47	339.0	100.0	706.8	682.6	24.16	29.254		
6,450.0	6,394.9	6,388.2	6,387.7	16.1	11.2	-48.79	338.0	100.5	690.0	665.8	24.16	28.559		
6,500.0	6,437.7	6,434.1	6,433.6	16.1	11.3	-51.51	336.8	100.9	671.3	647.1	24.24	27.694		
6,550.0	6,478.8	6,477.8	6,477.3	16.1	11.3	-54.63	335.5	101.2	651.1	626.7	24.43	26.654		
6,600.0	6,517.8	6,519.8	6,519.2	16.1	11.4	-58.17	334.2	101.3	629.8	605.0	24.75	25.441		
6,650.0	6,554.8	6,559.5	6,558.9	16.1	11.5	-62.12	332.9	101.2	607.6	582.4	25.22	24.088		
6,700.0	6,589.5	6,596.3	6,595.6	16.2	11.6	-66.35	331.7	100.8	585.1	559.3	25.81	22.667		
6,750.0	6,621.7	6,630.0	6,629.3	16.3	11.6	-70.73	330.6	100.3	562.9	536.4	26.50	21.246		
6,800.0	6,651.4	6,660.5	6,659.9	16.5	11.7	-75.12	329.5	99.7	541.6	514.4	27.22	19.898		
6,850.0	6,678.4	6,687.9	6,687.2	16.8	11.7	-79.34	328.5	99.0	521.9	493.9	27.94	18.677		
6,900.0	6,702.5	6,712.3	6,711.6	17.2	11.8	-83.25	327.6	98.4	504.5	475.8	28.64	17.612		
6,950.0	6,723.8	6,733.9	6,733.1	17.6	11.8	-86.71	326.8	97.8	490.2	460.9	29.32	16.719		
7,000.0	6,742.0	6,752.1	6,751.3	18.2	11.9	-89.58	326.0	97.3	479.8	449.8	29.98	16.002		
7,050.0	6,757.2	6,767.0	6,766.2	18.8	11.9	-91.76	325.3	96.9	473.9	443.2	30.66	15.457		
7,084.2	6,765.8	6,775.3	6,774.4	19.3	11.9	-92.83	324.9	96.7	472.6	441.5	31.15	15.175		
7,100.0	6,769.2	6,778.5	6,777.7	19.5	11.9	-93.20	324.7	96.6	472.9	441.5	31.37	15.075		
7,150.0	6,778.0	6,786.6	6,785.7	20.3	11.9	-93.84	324.3	96.4	477.2	445.1	32.15	14.843		
7,200.0	6,783.6	6,791.1	6,790.3	21.1	11.9	-93.66	324.1	96.2	486.8	453.8	33.00	14.750 SF		
7,250.0	6,785.9	6,792.2	6,791.3	22.0	11.9	-92.64	324.0	96.2	501.4	467.4	33.92	14.781		
7,266.4	6,786.0	6,791.8	6,790.9	22.3	11.9	-92.13	324.1	96.2	507.1	472.9	34.23	14.817		
7,300.0	6,785.7	6,790.5	6,789.7	22.9	11.9	-91.97	324.1	96.3	520.4	485.6	34.86	14.930		
7,400.0	6,785.0	6,786.8	6,785.9	24.9	11.9	-91.52	324.3	96.4	570.0	533.1	36.85	15.466		
7,500.0	6,784.2	6,783.0	6,782.2	27.1	11.9	-91.07	324.5	96.5	631.6	592.6	38.99	16.197		
7,600.0	6,783.4	6,779.3	6,778.5	29.3	11.9	-90.61	324.7	96.6	702.0	660.8	41.24	17.022		
7,700.0	6,782.7	6,775.6	6,774.7	31.7	11.9	-90.16	324.9	96.7	779.0	735.4	43.58	17.875		
7,800.0	6,781.9	6,771.8	6,771.0	34.1	11.9	-89.71	325.0	96.8	860.6	814.6	45.98	18.717		
7,900.0	6,781.1	6,768.1	6,767.3	36.6	11.9	-89.25	325.2	96.9	945.8	897.4	48.44	19.526		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 19O-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Louis Klein 19-1 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft
Reference		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	
7,600.0	6,783.4	6,764.2	6,762.5	29.3	12.4	-90.14	321.1	1,410.6	922.2	880.4	41.75	22.090	
7,700.0	6,782.7	6,766.8	6,765.1	31.7	12.4	-90.46	321.0	1,410.7	837.6	793.5	44.10	18.994	
7,800.0	6,781.9	6,769.4	6,767.7	34.1	12.4	-90.78	320.9	1,410.8	756.7	710.2	46.51	16.268	
7,900.0	6,781.1	6,771.9	6,770.2	36.6	12.4	-91.09	320.7	1,410.9	680.9	631.9	48.99	13.900	
8,000.0	6,780.4	6,774.4	6,772.7	39.1	12.4	-91.39	320.6	1,411.0	612.2	560.7	51.51	11.885	
8,100.0	6,779.6	6,776.8	6,775.1	41.6	12.4	-91.68	320.5	1,411.1	553.0	498.9	54.06	10.230	
8,200.0	6,778.8	6,779.1	6,777.4	44.2	12.4	-91.97	320.4	1,411.2	506.8	450.2	56.64	8.948	
8,300.0	6,778.1	6,781.5	6,779.7	46.8	12.4	-92.26	320.3	1,411.3	477.4	418.1	59.25	8.057	
8,395.0	6,777.3	6,783.6	6,781.9	49.3	12.5	-92.52	320.2	1,411.3	467.8	406.1	61.74	7.577 CC	
8,400.0	6,777.3	6,783.7	6,782.0	49.5	12.5	-92.53	320.2	1,411.3	467.8	406.0	61.87	7.562 ES	
8,500.0	6,776.5	6,785.9	6,784.2	52.1	12.5	-92.80	320.1	1,411.4	479.5	414.9	64.51	7.432 SF	
8,600.0	6,775.7	6,788.1	6,786.4	54.8	12.5	-93.07	320.0	1,411.5	510.8	443.6	67.17	7.604	
8,700.0	6,775.0	6,800.0	6,798.3	57.5	12.5	-94.52	319.5	1,411.9	558.5	488.8	69.77	8.006	
8,800.0	6,774.2	6,800.0	6,798.3	60.2	12.5	-94.52	319.5	1,411.9	618.8	546.3	72.45	8.541	
8,900.0	6,773.4	6,800.0	6,798.3	62.9	12.5	-94.52	319.5	1,411.9	688.3	613.2	75.14	9.160	
9,000.0	6,772.7	6,800.0	6,798.3	65.6	12.5	-94.52	319.5	1,411.9	764.7	686.8	77.85	9.823	
9,100.0	6,771.9	6,800.0	6,798.3	68.3	12.5	-94.52	319.5	1,411.9	846.0	765.4	80.56	10.501	
9,200.0	6,771.1	6,800.3	6,798.5	71.0	12.5	-94.56	319.5	1,411.9	930.9	847.6	83.27	11.179	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 19O-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Victor Klein 20-1A (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
11,600.0	6,752.7	6,708.3	6,707.0	137.5	12.3	-88.13	462.5	5,370.5	970.3	820.6	149.73	6.481		
11,700.0	6,751.9	6,710.0	6,708.7	140.3	12.4	-88.29	462.5	5,370.6	894.8	742.2	152.53	5.866		
11,800.0	6,751.2	6,711.7	6,710.4	143.0	12.4	-88.45	462.6	5,370.6	824.4	669.1	155.33	5.307		
11,900.0	6,750.4	6,713.3	6,712.0	145.8	12.4	-88.60	462.6	5,370.6	760.7	602.6	158.14	4.811		
12,000.0	6,749.6	6,715.0	6,713.7	148.6	12.4	-88.76	462.6	5,370.7	705.6	544.6	160.94	4.384		
12,100.0	6,748.9	6,716.7	6,715.4	151.4	12.4	-88.92	462.6	5,370.7	661.0	497.2	163.74	4.037		
12,200.0	6,748.1	6,718.3	6,717.1	154.2	12.4	-89.07	462.6	5,370.8	629.2	462.7	166.54	3.778		
12,300.0	6,747.3	6,720.0	6,718.7	157.0	12.4	-89.23	462.7	5,370.8	612.4	443.0	169.35	3.616		
12,354.8	6,746.9	6,720.9	6,719.7	158.5	12.4	-89.32	462.7	5,370.8	609.9	439.0	170.88	3.569 CC, ES		
12,400.0	6,746.6	6,721.7	6,720.4	159.8	12.4	-89.39	462.7	5,370.8	611.6	439.4	172.15	3.553 SF		
12,500.0	6,745.8	6,723.4	6,722.1	162.6	12.4	-89.55	462.7	5,370.9	626.9	452.0	174.95	3.584		
12,600.0	6,745.0	6,725.0	6,723.8	165.4	12.4	-89.70	462.7	5,370.9	657.3	479.6	177.75	3.698		
12,700.0	6,744.3	6,726.7	6,725.4	168.2	12.4	-89.86	462.7	5,371.0	700.8	520.3	180.55	3.882		
12,800.0	6,743.5	6,728.4	6,727.1	171.0	12.4	-90.02	462.8	5,371.0	755.1	571.7	183.35	4.118		
12,900.0	6,742.7	6,730.1	6,728.8	173.8	12.4	-90.18	462.8	5,371.1	818.0	631.9	186.15	4.395		
13,000.0	6,742.0	6,731.7	6,730.4	176.6	12.4	-90.33	462.8	5,371.1	887.8	698.8	188.94	4.699		
13,100.0	6,741.2	6,733.4	6,732.1	179.4	12.4	-90.49	462.8	5,371.1	962.9	771.2	191.74	5.022		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 19N-302 - Wellbore #1 - Plan #3 (7-15-15)												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 (ft)	Offset (ft)	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
0.0	0.0	0.0	0.0	0.0	0.0	-79.03	29.1	-150.4	153.2				
100.0	100.0	100.0	100.0	0.1	0.1	-79.03	29.1	-150.4	153.2	153.0	0.22	681.742	
200.0	200.0	200.0	200.0	0.3	0.3	-79.03	29.1	-150.4	153.2	152.6	0.67	227.247	
300.0	300.0	300.0	300.0	0.6	0.6	-79.03	29.1	-150.4	153.2	152.1	1.12	136.348	
400.0	400.0	400.0	400.0	0.8	0.8	-79.03	29.1	-150.4	153.2	151.7	1.57	97.392	
500.0	500.0	500.0	500.0	1.0	1.0	-79.03	29.1	-150.4	153.2	151.2	2.02	75.749	
600.0	600.0	600.0	600.0	1.2	1.2	-79.03	29.1	-150.4	153.2	150.8	2.47	61.977	
700.0	700.0	700.0	700.0	1.5	1.5	-79.03	29.1	-150.4	153.2	150.3	2.92	52.442	
800.0	800.0	800.0	800.0	1.7	1.7	-79.03	29.1	-150.4	153.2	149.9	3.37	45.449 CC, ES	
900.0	900.0	897.9	897.9	1.9	1.9	-78.64	30.3	-150.9	153.9	150.1	3.82	40.338	
1,000.0	1,000.0	995.7	995.6	2.1	2.1	-77.47	33.8	-152.2	156.0	151.7	4.26	36.616	
1,100.0	1,100.0	1,093.2	1,092.9	2.4	2.3	-75.60	39.6	-154.5	159.6	154.9	4.71	33.902	
1,200.0	1,200.0	1,190.3	1,189.6	2.6	2.6	-73.14	47.8	-157.6	165.0	159.8	5.16	31.954	
1,300.0	1,300.0	1,286.9	1,285.6	2.8	2.8	-70.22	58.1	-161.5	172.3	166.6	5.63	30.609	
1,400.0	1,400.0	1,383.0	1,380.7	3.0	3.1	-67.00	70.6	-166.3	181.7	175.6	6.11	29.746	
1,500.0	1,500.0	1,478.2	1,474.7	3.3	3.4	-63.64	85.2	-172.0	193.6	187.0	6.61	29.271	
1,600.0	1,600.0	1,572.7	1,567.4	3.5	3.7	-60.27	101.9	-178.3	207.9	200.8	7.14	29.106 SF	
1,700.0	1,700.0	1,667.8	1,660.4	3.7	4.0	-56.97	120.6	-185.5	224.8	217.1	7.71	29.161	
1,800.0	1,800.0	1,765.4	1,755.7	3.9	4.4	-54.00	140.3	-193.1	242.8	234.4	8.31	29.218	
1,900.0	1,900.0	1,863.1	1,851.1	4.2	4.8	-51.43	160.0	-200.6	261.2	252.3	8.92	29.279	
2,000.0	2,000.0	1,960.7	1,946.4	4.4	5.2	-49.21	179.7	-208.2	280.2	270.6	9.55	29.343	
2,100.0	2,100.0	2,058.4	2,041.8	4.6	5.6	59.53	199.4	-215.8	299.0	289.6	9.42	31.754	
2,200.0	2,200.0	2,156.0	2,137.1	4.8	6.0	61.48	219.0	-223.3	317.4	307.6	9.86	32.196	
2,300.0	2,299.9	2,253.6	2,232.4	5.0	6.4	63.47	238.7	-230.9	335.4	325.1	10.30	32.565	
2,400.0	2,399.7	2,351.2	2,327.7	5.2	6.8	65.49	258.4	-238.4	353.1	342.4	10.74	32.875	
2,500.0	2,499.4	2,448.7	2,422.8	5.4	7.3	67.55	278.0	-245.9	370.6	359.4	11.18	33.137	
2,600.0	2,598.9	2,546.0	2,517.9	5.6	7.7	69.64	297.6	-253.5	388.0	376.4	11.63	33.355	
2,700.0	2,698.3	2,643.2	2,612.8	5.8	8.1	71.76	317.2	-261.0	405.4	393.4	12.09	33.535	
2,800.0	2,797.4	2,740.2	2,707.5	6.1	8.6	73.91	336.8	-268.5	423.0	410.4	12.56	33.678	
2,900.0	2,896.3	2,837.0	2,802.0	6.3	9.0	76.09	356.3	-276.0	440.7	427.7	13.05	33.784	
2,932.7	2,928.5	2,868.6	2,832.8	6.4	9.1	76.80	362.7	-278.4	446.6	433.4	13.21	33.811	
3,000.0	2,995.0	2,933.6	2,896.4	6.6	9.4	78.36	375.8	-283.5	458.9	445.4	13.55	33.869	
3,100.0	3,093.7	3,030.2	2,990.7	6.9	9.8	80.52	395.3	-290.9	477.8	463.7	14.07	33.957	
3,200.0	3,192.4	3,126.8	3,085.0	7.2	10.3	82.52	414.7	-298.4	497.3	482.7	14.61	34.042	
3,300.0	3,291.0	3,223.4	3,179.3	7.5	10.7	84.38	434.2	-305.9	517.3	502.2	15.16	34.125	
3,400.0	3,389.7	3,320.0	3,273.7	7.8	11.2	86.09	453.7	-313.4	537.9	522.1	15.73	34.203	
3,500.0	3,488.4	3,416.7	3,368.0	8.1	11.6	87.68	473.1	-320.8	558.8	542.5	16.30	34.278	
3,600.0	3,587.1	3,513.3	3,462.3	8.5	12.0	89.16	492.6	-328.3	580.2	563.3	16.89	34.348	
3,700.0	3,685.7	3,609.9	3,556.7	8.8	12.5	90.54	512.1	-335.8	601.9	584.4	17.49	34.414	
3,800.0	3,784.4	3,706.5	3,651.0	9.1	12.9	91.82	531.6	-343.2	624.0	605.9	18.10	34.476	
3,900.0	3,883.1	3,803.1	3,745.3	9.5	13.3	93.01	551.0	-350.7	646.3	627.6	18.71	34.535	
4,000.0	3,981.8	3,899.7	3,839.6	9.8	13.8	94.12	570.5	-358.2	668.8	649.5	19.34	34.590	
4,100.0	4,080.5	3,996.3	3,934.0	10.2	14.2	95.17	590.0	-365.7	691.6	671.7	19.96	34.644	
4,200.0	4,179.1	4,092.9	4,028.3	10.5	14.7	96.14	609.5	-373.1	714.6	694.0	20.60	34.694	
4,300.0	4,277.8	4,189.5	4,122.6	10.9	15.1	97.06	628.9	-380.6	737.8	716.6	21.24	34.743	
4,400.0	4,376.5	4,286.1	4,217.0	11.2	15.5	97.92	648.4	-388.1	761.2	739.3	21.88	34.789	
4,500.0	4,475.2	4,382.7	4,311.3	11.6	16.0	98.73	667.9	-395.6	784.7	762.2	22.53	34.834	
4,600.0	4,573.8	4,479.3	4,405.6	11.9	16.4	99.50	687.3	-403.0	808.4	785.2	23.18	34.877	
4,700.0	4,672.5	4,575.9	4,499.9	12.3	16.9	100.22	706.8	-410.5	832.2	808.3	23.83	34.919	
4,800.0	4,771.2	4,672.5	4,594.3	12.7	17.3	100.90	726.3	-418.0	856.1	831.6	24.49	34.959	
4,900.0	4,869.9	4,769.1	4,688.6	13.0	17.8	101.54	745.8	-425.4	880.1	854.9	25.15	34.998	

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 Klein 19O-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 19O-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19N-302 - Wellbore #1 - Plan #3 (7-15-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,000.0	4,968.6	4,865.7	4,782.9	13.4	18.2	102.15	765.2	-432.9	904.2	878.4	25.81	35.036	
5,100.0	5,067.2	4,962.4	4,877.2	13.7	18.6	102.73	784.7	-440.4	928.4	901.9	26.47	35.073	
5,200.0	5,165.9	5,059.0	4,971.6	14.1	19.1	103.28	804.2	-447.9	952.7	925.5	27.14	35.108	
5,300.0	5,264.6	5,155.6	5,065.9	14.5	19.5	103.80	823.6	-455.3	977.1	949.2	27.80	35.143	
5,372.1	5,335.7	5,225.2	5,133.9	14.7	19.8	104.16	837.7	-460.7	994.7	966.4	28.28	35.168	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 19N-432 - Wellbore #1 - Plan #3 (7-16-15)													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 (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-91.38	-3.6	-150.4	150.5					
100.0	100.0	100.0	100.0	0.1	0.1	-91.38	-3.6	-150.4	150.5	150.3	0.22	669.489		
200.0	200.0	200.0	200.0	0.3	0.3	-91.38	-3.6	-150.4	150.5	149.8	0.67	223.163		
300.0	300.0	300.0	300.0	0.6	0.6	-91.38	-3.6	-150.4	150.5	149.4	1.12	133.898		
400.0	400.0	400.0	400.0	0.8	0.8	-91.38	-3.6	-150.4	150.5	148.9	1.57	95.641		
500.0	500.0	500.0	500.0	1.0	1.0	-91.38	-3.6	-150.4	150.5	148.5	2.02	74.388		
600.0	600.0	600.0	600.0	1.2	1.2	-91.38	-3.6	-150.4	150.5	148.0	2.47	60.863		
700.0	700.0	700.0	700.0	1.5	1.5	-91.38	-3.6	-150.4	150.5	147.6	2.92	51.499		
800.0	800.0	800.0	800.0	1.7	1.7	-91.38	-3.6	-150.4	150.5	147.1	3.37	44.633		
900.0	900.0	900.0	900.0	1.9	1.9	-91.38	-3.6	-150.4	150.5	146.7	3.82	39.382		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-91.38	-3.6	-150.4	150.5	146.2	4.27	35.236 CC		
1,100.0	1,100.0	1,098.8	1,098.8	2.4	2.4	-91.10	-2.9	-150.8	150.9	146.2	4.72	31.992 ES		
1,200.0	1,200.0	1,197.6	1,197.5	2.6	2.6	-90.24	-0.6	-152.1	152.1	146.9	5.16	29.468		
1,300.0	1,300.0	1,296.2	1,296.1	2.8	2.8	-88.85	3.1	-154.1	154.2	148.6	5.61	27.494		
1,400.0	1,400.0	1,394.6	1,394.3	3.0	3.0	-86.97	8.3	-156.9	157.2	151.2	6.06	25.962		
1,500.0	1,500.0	1,492.9	1,492.3	3.3	3.3	-84.67	15.0	-160.5	161.4	154.9	6.51	24.798		
1,600.0	1,600.0	1,590.8	1,589.8	3.5	3.5	-82.02	23.1	-164.9	166.9	159.9	6.97	23.946		
1,700.0	1,700.0	1,688.4	1,686.7	3.7	3.7	-79.13	32.7	-170.1	173.7	166.3	7.44	23.362		
1,800.0	1,800.0	1,785.6	1,783.1	3.9	4.0	-76.08	43.6	-176.1	182.2	174.3	7.92	23.011		
1,900.0	1,900.0	1,882.3	1,878.8	4.2	4.3	-72.98	56.0	-182.8	192.3	183.9	8.41	22.861		
2,000.0	2,000.0	1,978.6	1,973.8	4.4	4.6	-69.89	69.6	-190.2	204.2	195.3	8.92	22.885		
2,100.0	2,100.0	2,077.1	2,070.9	4.6	4.9	39.94	84.4	-198.2	216.7	207.4	9.27	23.388		
2,200.0	2,200.0	2,175.7	2,168.0	4.8	5.2	42.91	99.1	-206.2	228.5	218.8	9.70	23.549		
2,300.0	2,299.9	2,274.2	2,265.2	5.0	5.5	45.88	113.9	-214.2	239.6	229.5	10.14	23.637		
2,400.0	2,399.7	2,372.8	2,362.3	5.2	5.9	48.86	128.7	-222.2	250.2	239.7	10.57	23.667		
2,500.0	2,499.4	2,471.3	2,459.4	5.4	6.2	51.88	143.4	-230.2	260.5	249.4	11.01	23.655		
2,600.0	2,598.9	2,569.7	2,556.3	5.6	6.6	54.95	158.2	-238.2	270.4	258.9	11.45	23.612		
2,700.0	2,698.3	2,668.0	2,653.2	5.8	6.9	58.09	172.9	-246.2	280.1	268.3	11.90	23.545		
2,800.0	2,797.4	2,766.2	2,749.9	6.1	7.3	61.29	187.6	-254.2	289.9	277.6	12.36	23.460		
2,900.0	2,896.3	2,864.1	2,846.4	6.3	7.6	64.55	202.2	-262.1	299.9	287.0	12.83	23.364		
2,932.7	2,928.5	2,896.1	2,877.9	6.4	7.7	65.63	207.0	-264.7	303.2	290.2	12.99	23.331		
3,000.0	2,995.0	2,961.9	2,942.8	6.6	8.0	67.88	216.9	-270.1	310.3	296.9	13.33	23.272		
3,100.0	3,093.7	3,059.7	3,039.2	6.9	8.3	71.02	231.5	-278.0	321.7	307.8	13.85	23.226		
3,200.0	3,192.4	3,157.5	3,135.5	7.2	8.7	73.95	246.2	-285.9	334.0	319.6	14.38	23.220		
3,300.0	3,291.0	3,255.3	3,231.9	7.5	9.1	76.67	260.8	-293.9	347.1	332.2	14.93	23.245		
3,400.0	3,389.7	3,353.1	3,328.3	7.8	9.4	79.20	275.4	-301.8	361.0	345.5	15.50	23.294		
3,500.0	3,488.4	3,450.9	3,424.6	8.1	9.8	81.53	290.1	-309.8	375.5	359.4	16.07	23.361		
3,600.0	3,587.1	3,548.7	3,521.0	8.5	10.2	83.69	304.7	-317.7	390.6	373.9	16.66	23.442		
3,700.0	3,685.7	3,646.5	3,617.4	8.8	10.5	85.70	319.4	-325.6	406.2	388.9	17.26	23.533		
3,800.0	3,784.4	3,744.3	3,713.7	9.1	10.9	87.55	334.0	-333.6	422.2	404.4	17.87	23.632		
3,900.0	3,883.1	3,842.1	3,810.1	9.5	11.3	89.27	348.7	-341.5	438.7	420.2	18.48	23.737		
4,000.0	3,981.8	3,939.9	3,906.5	9.8	11.6	90.87	363.3	-349.5	455.5	436.4	19.10	23.845		
4,100.0	4,080.5	4,037.7	4,002.8	10.2	12.0	92.35	377.9	-357.4	472.7	452.9	19.73	23.956		
4,200.0	4,179.1	4,135.5	4,099.2	10.5	12.4	93.73	392.6	-365.4	490.1	469.8	20.36	24.069		
4,300.0	4,277.8	4,233.3	4,195.6	10.9	12.7	95.01	407.2	-373.3	507.8	486.8	21.00	24.182		
4,400.0	4,376.5	4,331.1	4,291.9	11.2	13.1	96.21	421.9	-381.2	525.8	504.1	21.64	24.295		
4,500.0	4,475.2	4,428.8	4,388.3	11.6	13.5	97.33	436.5	-389.2	543.9	521.6	22.28	24.407		
4,600.0	4,573.8	4,526.6	4,484.7	11.9	13.9	98.38	451.1	-397.1	562.3	539.3	22.93	24.519		
4,700.0	4,672.5	4,624.4	4,581.0	12.3	14.2	99.36	465.8	-405.1	580.8	557.2	23.58	24.629		
4,800.0	4,771.2	4,722.2	4,677.4	12.7	14.6	100.28	480.4	-413.0	599.4	575.2	24.23	24.737		
4,900.0	4,869.9	4,820.0	4,773.8	13.0	15.0	101.15	495.1	-421.0	618.2	593.4	24.88	24.844		

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 Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design		Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 19N-432 - Wellbore #1 - Plan #3 (7-16-15)											Offset Site Error:		0.0 ft
Survey Program:		0-MWD											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,000.0	4,968.6	4,917.8	4,870.1	13.4	15.4	101.97	509.7	-428.9	637.2	611.6	25.54	24.949			
5,100.0	5,067.2	5,015.6	4,966.5	13.7	15.7	102.74	524.4	-436.8	656.2	630.0	26.20	25.051			
5,200.0	5,165.9	5,113.4	5,062.8	14.1	16.1	103.46	539.0	-444.8	675.4	648.5	26.85	25.152			
5,300.0	5,264.6	5,211.2	5,159.2	14.5	16.5	104.15	553.6	-452.7	694.7	667.2	27.51	25.250			
5,372.1	5,335.7	5,281.7	5,228.7	14.7	16.7	104.62	564.2	-458.5	708.6	680.6	27.99	25.320			
5,400.0	5,363.3	5,309.0	5,255.6	14.8	16.9	104.89	568.3	-460.7	714.0	685.8	28.17	25.347			
5,500.0	5,462.4	5,407.1	5,352.3	15.1	17.2	105.67	583.0	-468.6	732.7	704.0	28.76	25.479			
5,600.0	5,561.9	5,516.8	5,460.4	15.3	17.6	106.16	599.0	-477.4	750.2	720.9	29.32	25.590			
5,700.0	5,661.6	5,616.0	5,588.5	15.5	18.0	106.43	613.9	-485.4	763.7	733.8	29.81	25.616			
5,800.0	5,761.6	5,776.4	5,718.4	15.7	18.2	106.48	623.8	-490.8	772.1	741.9	30.25	25.529			
5,838.4	5,800.0	5,826.8	5,768.7	15.8	18.3	-0.36	626.2	-492.1	774.0	743.7	30.36	25.497			
5,900.0	5,861.6	5,907.6	5,849.5	15.9	18.5	-0.45	628.5	-493.3	775.8	745.2	30.61	25.341			
6,000.0	5,961.6	6,019.7	5,961.6	16.0	18.6	-0.47	628.9	-493.5	776.1	745.1	30.98	25.054			
6,060.5	6,022.1	6,080.2	6,022.1	16.1	18.7	-0.47	628.9	-493.5	776.1	744.9	31.19	24.879			
6,100.0	6,061.6	6,119.7	6,061.6	16.2	18.8	-90.54	628.9	-493.5	776.1	744.8	31.33	24.774			
6,150.0	6,111.4	6,169.5	6,111.4	16.2	18.8	-90.85	628.9	-493.5	776.1	744.7	31.45	24.679			
6,200.0	6,160.8	6,220.0	6,161.8	16.3	18.9	-91.30	628.9	-492.2	776.2	744.7	31.52	24.624			
6,250.0	6,209.6	6,271.0	6,212.6	16.3	19.0	-91.76	628.9	-487.6	776.4	744.9	31.56	24.602			
6,300.0	6,257.7	6,322.5	6,263.4	16.2	19.0	-92.20	628.9	-479.5	776.6	745.1	31.56	24.608			
6,350.0	6,304.7	6,374.3	6,314.0	16.2	19.0	-92.64	628.9	-467.9	776.9	745.3	31.54	24.635			
6,400.0	6,350.5	6,426.7	6,364.0	16.2	19.0	-93.07	628.9	-452.7	777.2	745.7	31.49	24.677			
6,450.0	6,394.9	6,479.4	6,413.4	16.1	19.0	-93.49	628.9	-433.9	777.5	746.1	31.45	24.725			
6,500.0	6,437.7	6,532.6	6,461.7	16.1	19.0	-93.89	628.9	-411.6	777.9	746.5	31.41	24.767			
6,550.0	6,478.8	6,586.3	6,508.7	16.1	19.0	-94.28	628.9	-385.8	778.2	746.8	31.39	24.791			
6,600.0	6,517.8	6,640.3	6,554.1	16.1	18.9	-94.65	628.9	-356.5	778.6	747.2	31.42	24.780			
6,650.0	6,554.8	6,694.8	6,597.6	16.1	18.9	-95.00	628.9	-323.8	779.0	747.5	31.52	24.718			
6,700.0	6,589.5	6,749.7	6,639.0	16.2	18.8	-95.33	628.9	-287.9	779.4	747.7	31.70	24.586			
6,750.0	6,621.7	6,804.9	6,678.0	16.3	18.8	-95.63	628.9	-248.7	779.8	747.8	32.01	24.365			
6,800.0	6,651.4	6,860.5	6,714.3	16.5	18.8	-95.91	628.9	-206.6	780.2	747.8	32.45	24.042			
6,850.0	6,678.4	6,916.4	6,747.5	16.8	18.7	-96.16	628.9	-161.7	780.6	747.5	33.06	23.613			
6,900.0	6,702.5	6,972.6	6,777.6	17.2	18.7	-96.38	628.9	-114.3	780.9	747.1	33.84	23.077			
6,950.0	6,723.8	7,029.0	6,804.2	17.6	18.7	-96.57	628.9	-64.5	781.2	746.4	34.81	22.444			
7,000.0	6,742.0	7,085.7	6,827.1	18.2	18.7	-96.73	628.9	-12.7	781.4	745.5	35.96	21.733			
7,050.0	6,757.2	7,142.6	6,846.2	18.8	19.1	-96.85	628.9	40.9	781.6	744.3	37.30	20.955			
7,100.0	6,769.2	7,199.6	6,861.3	19.5	20.0	-96.95	628.9	95.8	781.8	743.0	38.81	20.142			
7,150.0	6,778.0	7,256.7	6,872.3	20.3	20.9	-97.01	628.9	151.8	781.9	741.4	40.49	19.309			
7,200.0	6,783.6	7,313.8	6,879.0	21.1	21.9	-97.03	628.9	208.6	781.9	739.6	42.31	18.482			
7,250.0	6,785.9	7,371.0	6,881.5	22.0	23.0	-97.02	628.9	265.7	781.9	737.7	44.23	17.680			
7,262.9	6,786.0	7,384.8	6,881.5	22.2	23.3	-97.01	628.9	279.5	781.9	737.2	44.72	17.484			
7,266.4	6,786.0	7,388.2	6,881.5	22.3	23.4	-97.01	628.9	282.9	781.9	737.0	44.85	17.435			
7,300.0	6,785.7	7,421.8	6,881.4	22.9	24.0	-97.03	628.9	316.6	781.9	735.8	46.14	16.946			
7,400.0	6,785.0	7,521.8	6,881.1	24.9	26.1	-97.06	628.9	416.6	782.0	731.8	50.17	15.587			
7,500.0	6,784.2	7,621.8	6,880.7	27.1	28.3	-97.09	628.9	516.6	782.0	727.6	54.47	14.357			
7,600.0	6,783.4	7,721.8	6,880.4	29.3	30.6	-97.12	628.9	616.6	782.1	723.1	58.98	13.259			
7,700.0	6,782.7	7,821.8	6,880.1	31.7	33.0	-97.16	628.9	716.6	782.1	718.5	63.67	12.285			
7,800.0	6,781.9	7,921.8	6,879.8	34.1	35.4	-97.19	628.8	816.6	782.2	713.7	68.48	11.422			
7,900.0	6,781.1	8,021.8	6,879.5	36.6	37.9	-97.22	628.8	916.6	782.2	708.8	73.40	10.657			
8,000.0	6,780.4	8,121.8	6,879.2	39.1	40.4	-97.26	628.8	1,016.6	782.3	703.9	78.41	9.977			
8,100.0	6,779.6	8,221.8	6,878.9	41.6	43.0	-97.29	628.8	1,116.6	782.4	698.9	83.49	9.371			
8,200.0	6,778.8	8,321.8	6,878.5	44.2	45.6	-97.32	628.8	1,216.6	782.4	693.8	88.63	8.828			
8,300.0	6,778.1	8,421.8	6,878.2	46.8	48.2	-97.36	628.8	1,316.5	782.5	688.7	93.82	8.341			

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 Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 19N-432 - Wellbore #1 - Plan #3 (7-16-15)												Offset Site Error: 0.0 ft			
Survey Program: 0-MWD														Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
8,400.0	6,777.3	8,521.8	6,877.9	49.5	50.8	-97.39	628.8	1,416.5	782.5	683.5	99.04	7.901			
8,500.0	6,776.5	8,621.8	6,877.6	52.1	53.5	-97.42	628.8	1,516.5	782.6	678.3	104.30	7.503			
8,600.0	6,775.7	8,721.8	6,877.3	54.8	56.1	-97.45	628.8	1,616.5	782.6	673.1	109.59	7.141			
8,700.0	6,775.0	8,821.8	6,877.0	57.5	58.8	-97.49	628.8	1,716.5	782.7	667.8	114.91	6.811			
8,800.0	6,774.2	8,921.8	6,876.7	60.2	61.5	-97.52	628.8	1,816.5	782.8	662.5	120.25	6.510			
8,900.0	6,773.4	9,021.8	6,876.3	62.9	64.2	-97.55	628.8	1,916.5	782.8	657.2	125.60	6.232			
9,000.0	6,772.7	9,121.8	6,876.0	65.6	66.9	-97.59	628.8	2,016.5	782.9	651.9	130.98	5.977			
9,100.0	6,771.9	9,221.8	6,875.7	68.3	69.6	-97.62	628.8	2,116.5	782.9	646.6	136.37	5.742			
9,200.0	6,771.1	9,321.8	6,875.4	71.0	72.3	-97.65	628.8	2,216.5	783.0	641.2	141.77	5.523			
9,300.0	6,770.4	9,421.8	6,875.1	73.8	75.1	-97.68	628.8	2,316.5	783.1	635.9	147.18	5.321			
9,400.0	6,769.6	9,521.8	6,874.8	76.5	77.8	-97.72	628.8	2,416.5	783.1	630.5	152.60	5.132			
9,500.0	6,768.8	9,621.8	6,874.5	79.2	80.5	-97.75	628.8	2,516.5	783.2	625.2	158.03	4.956			
9,600.0	6,768.1	9,721.8	6,874.1	82.0	83.3	-97.78	628.8	2,616.5	783.2	619.8	163.47	4.791			
9,700.0	6,767.3	9,821.8	6,873.8	84.7	86.0	-97.82	628.8	2,716.5	783.3	614.4	168.91	4.637			
9,800.0	6,766.5	9,921.8	6,873.5	87.5	88.8	-97.85	628.8	2,816.5	783.4	609.0	174.36	4.493			
9,900.0	6,765.8	10,021.8	6,873.2	90.2	91.5	-97.88	628.8	2,916.5	783.4	603.6	179.82	4.357			
10,000.0	6,765.0	10,121.8	6,872.9	93.0	94.3	-97.92	628.8	3,016.5	783.5	598.2	185.28	4.229			
10,100.0	6,764.2	10,221.8	6,872.6	95.8	97.1	-97.95	628.8	3,116.5	783.6	592.8	190.75	4.108			
10,200.0	6,763.5	10,321.8	6,872.3	98.5	99.8	-97.98	628.8	3,216.5	783.6	587.4	196.22	3.994			
10,300.0	6,762.7	10,421.8	6,871.9	101.3	102.6	-98.01	628.8	3,316.5	783.7	582.0	201.69	3.886			
10,400.0	6,761.9	10,521.8	6,871.6	104.1	105.4	-98.05	628.8	3,416.5	783.7	576.6	207.17	3.783			
10,500.0	6,761.2	10,621.8	6,871.3	106.9	108.1	-98.08	628.8	3,516.5	783.8	571.2	212.65	3.686			
10,600.0	6,760.4	10,721.8	6,871.0	109.6	110.9	-98.11	628.8	3,616.5	783.9	565.7	218.13	3.594			
10,700.0	6,759.6	10,821.8	6,870.7	112.4	113.7	-98.15	628.8	3,716.5	783.9	560.3	223.61	3.506			
10,800.0	6,758.9	10,921.8	6,870.4	115.2	116.5	-98.18	628.8	3,816.5	784.0	554.9	229.10	3.422			
10,900.0	6,758.1	11,021.8	6,870.1	118.0	119.2	-98.21	628.8	3,916.5	784.1	549.5	234.59	3.342			
11,000.0	6,757.3	11,121.8	6,869.7	120.8	122.0	-98.24	628.8	4,016.5	784.1	544.0	240.08	3.266			
11,100.0	6,756.5	11,221.8	6,869.4	123.5	124.8	-98.28	628.8	4,116.5	784.2	538.6	245.57	3.193			
11,200.0	6,755.8	11,321.8	6,869.1	126.3	127.6	-98.31	628.8	4,216.5	784.3	533.2	251.06	3.124			
11,300.0	6,755.0	11,421.8	6,868.8	129.1	130.4	-98.34	628.8	4,316.5	784.3	527.8	256.56	3.057			
11,400.0	6,754.2	11,521.8	6,868.5	131.9	133.2	-98.37	628.8	4,416.5	784.4	522.3	262.05	2.993			
11,500.0	6,753.5	11,621.8	6,868.2	134.7	135.9	-98.41	628.8	4,516.5	784.4	516.9	267.55	2.932			
11,600.0	6,752.7	11,721.8	6,867.9	137.5	138.7	-98.44	628.8	4,616.5	784.5	511.5	273.05	2.873			
11,700.0	6,751.9	11,821.8	6,867.5	140.3	141.5	-98.47	628.8	4,716.5	784.6	506.0	278.55	2.817			
11,800.0	6,751.2	11,921.8	6,867.2	143.0	144.3	-98.51	628.8	4,816.5	784.6	500.6	284.04	2.762			
11,900.0	6,750.4	12,021.8	6,866.9	145.8	147.1	-98.54	628.8	4,916.5	784.7	495.2	289.54	2.710			
12,000.0	6,749.6	12,121.8	6,866.6	148.6	149.9	-98.57	628.8	5,016.5	784.8	489.7	295.04	2.660			
12,100.0	6,748.9	12,221.8	6,866.3	151.4	152.7	-98.60	628.8	5,116.5	784.8	484.3	300.54	2.611			
12,200.0	6,748.1	12,321.8	6,866.0	154.2	155.5	-98.64	628.8	5,216.5	784.9	478.9	306.04	2.565			
12,300.0	6,747.3	12,421.8	6,865.7	157.0	158.3	-98.67	628.8	5,316.5	785.0	473.4	311.54	2.520			
12,400.0	6,746.6	12,521.8	6,865.3	159.8	161.0	-98.70	628.8	5,416.5	785.0	468.0	317.04	2.476			
12,500.0	6,745.8	12,621.8	6,865.0	162.6	163.8	-98.74	628.8	5,516.5	785.1	462.6	322.54	2.434			
12,600.0	6,745.0	12,721.8	6,864.7	165.4	166.6	-98.77	628.8	5,616.5	785.2	457.1	328.05	2.394			
12,700.0	6,744.3	12,821.8	6,864.4	168.2	169.4	-98.80	628.8	5,716.5	785.3	451.7	333.55	2.354			
12,800.0	6,743.5	12,921.8	6,864.1	171.0	172.2	-98.83	628.8	5,816.5	785.3	446.3	339.05	2.316			
12,900.0	6,742.7	13,021.8	6,863.8	173.8	175.0	-98.87	628.8	5,916.5	785.4	440.8	344.55	2.279			
13,000.0	6,742.0	13,121.8	6,863.5	176.6	177.8	-98.90	628.8	6,016.5	785.5	435.4	350.05	2.244			
13,100.0	6,741.2	13,221.8	6,863.1	179.4	180.6	-98.93	628.8	6,116.5	785.5	430.0	355.55	2.209			
13,200.0	6,740.4	13,321.8	6,862.8	182.2	183.4	-98.96	628.8	6,216.5	785.6	424.6	361.05	2.176			
13,300.0	6,739.7	13,421.8	6,862.5	185.0	186.2	-99.00	628.8	6,316.5	785.7	419.1	366.54	2.143			
13,400.0	6,738.9	13,521.8	6,862.2	187.8	189.0	-99.03	628.8	6,416.5	785.7	413.7	372.04	2.112			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 19N-432 - Wellbore #1 - Plan #3 (7-16-15)												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 (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
13,500.0	6,738.1	13,621.8	6,861.9	190.6	191.8	-99.06	628.8	6,516.5	785.8	408.3	377.54	2.081	
13,600.0	6,737.3	13,721.8	6,861.6	193.4	194.6	-99.10	628.8	6,616.5	785.9	402.8	383.04	2.052	
13,700.0	6,736.6	13,821.8	6,861.3	196.2	197.4	-99.13	628.8	6,716.5	786.0	397.4	388.54	2.023	
13,800.0	6,735.8	13,921.8	6,860.9	199.0	200.2	-99.16	628.8	6,816.5	786.0	392.0	394.03	1.995	
13,900.0	6,735.0	14,021.8	6,860.6	201.8	203.0	-99.19	628.8	6,916.5	786.1	386.6	399.53	1.968	
14,000.0	6,734.3	14,121.8	6,860.3	204.6	205.8	-99.23	628.8	7,016.5	786.2	381.1	405.03	1.941	
14,100.0	6,733.5	14,221.8	6,860.0	207.4	208.6	-99.26	628.8	7,116.5	786.2	375.7	410.52	1.915	
14,200.0	6,732.7	14,321.8	6,859.7	210.2	211.4	-99.29	628.8	7,216.5	786.3	370.3	416.02	1.890	
14,300.0	6,732.0	14,421.8	6,859.4	213.0	214.2	-99.32	628.8	7,316.5	786.4	364.9	421.51	1.866	
14,400.0	6,731.2	14,521.8	6,859.1	215.8	217.0	-99.36	628.8	7,416.5	786.5	359.5	427.00	1.842	
14,500.0	6,730.4	14,621.8	6,858.8	218.6	219.8	-99.39	628.8	7,516.5	786.5	354.0	432.50	1.819	
14,600.0	6,729.7	14,721.8	6,858.4	221.4	222.6	-99.42	628.8	7,616.5	786.6	348.6	437.99	1.796	
14,700.0	6,728.9	14,821.8	6,858.1	224.2	225.4	-99.45	628.8	7,716.5	786.7	343.2	443.48	1.774	
14,800.0	6,728.1	14,921.8	6,857.8	227.0	228.2	-99.49	628.8	7,816.4	786.8	337.8	448.97	1.752	
14,900.0	6,727.4	15,021.8	6,857.5	229.8	231.0	-99.52	628.8	7,916.4	786.8	332.4	454.46	1.731	
15,000.0	6,726.6	15,121.8	6,857.2	232.6	233.8	-99.55	628.8	8,016.4	786.9	327.0	459.95	1.711	
15,100.0	6,725.8	15,221.8	6,856.9	235.4	236.6	-99.58	628.8	8,116.4	787.0	321.5	465.44	1.691	
15,200.0	6,725.1	15,321.8	6,856.6	238.2	239.4	-99.62	628.8	8,216.4	787.1	316.1	470.93	1.671	
15,300.0	6,724.3	15,421.8	6,856.2	241.0	242.2	-99.65	628.8	8,316.4	787.1	310.7	476.41	1.652	
15,400.0	6,723.5	15,521.8	6,855.9	243.8	245.0	-99.68	628.8	8,416.4	787.2	305.3	481.90	1.634	
15,500.0	6,722.8	15,621.8	6,855.6	246.6	247.8	-99.71	628.8	8,516.4	787.3	299.9	487.38	1.615	
15,600.0	6,722.0	15,721.8	6,855.3	249.4	250.6	-99.75	628.8	8,616.4	787.4	294.5	492.87	1.598	
15,700.0	6,721.2	15,821.8	6,855.0	252.2	253.4	-99.78	628.8	8,716.4	787.4	289.1	498.35	1.580	
15,800.0	6,720.5	15,921.8	6,854.7	255.0	256.2	-99.81	628.8	8,816.4	787.5	283.7	503.83	1.563	
15,900.0	6,719.7	16,021.8	6,854.4	257.8	259.0	-99.85	628.8	8,916.4	787.6	278.3	509.31	1.546	
16,000.0	6,718.9	16,121.8	6,854.0	260.6	261.8	-99.88	628.8	9,016.4	787.7	272.9	514.79	1.530	
16,100.0	6,718.2	16,221.8	6,853.7	263.4	264.6	-99.91	628.8	9,116.4	787.7	267.5	520.27	1.514	
16,200.0	6,717.4	16,321.8	6,853.4	266.2	267.4	-99.94	628.8	9,216.4	787.8	262.1	525.75	1.498 Level 3	
16,300.0	6,716.6	16,421.8	6,853.1	269.0	270.2	-99.98	628.8	9,316.4	787.9	256.7	531.23	1.483 Level 3	
16,400.0	6,715.8	16,521.8	6,852.8	271.8	273.0	-100.01	628.8	9,416.4	788.0	251.3	536.71	1.468 Level 3	
16,500.0	6,715.1	16,621.8	6,852.5	274.6	275.8	-100.04	628.8	9,516.4	788.1	245.9	542.18	1.453 Level 3	
16,600.0	6,714.3	16,721.8	6,852.2	277.4	278.6	-100.07	628.8	9,616.4	788.1	240.5	547.66	1.439 Level 3	
16,700.0	6,713.5	16,821.8	6,851.8	280.2	281.4	-100.11	628.8	9,716.4	788.2	235.1	553.13	1.425 Level 3	
16,800.0	6,712.8	16,921.8	6,851.5	283.0	284.2	-100.14	628.8	9,816.4	788.3	229.7	558.61	1.411 Level 3	
16,900.0	6,712.0	17,021.7	6,851.2	285.8	287.1	-100.17	628.8	9,916.4	788.4	224.3	564.08	1.398 Level 3	
17,000.0	6,711.2	17,121.7	6,850.9	288.6	289.9	-100.20	628.8	10,016.4	788.4	218.9	569.55	1.384 Level 3	
17,100.0	6,710.5	17,221.7	6,850.6	291.4	292.7	-100.23	628.8	10,116.4	788.5	213.5	575.02	1.371 Level 3	
17,200.0	6,709.7	17,321.7	6,850.3	294.2	295.5	-100.27	628.8	10,216.4	788.6	208.1	580.49	1.359 Level 3	
17,247.6	6,709.3	17,369.4	6,850.1	295.6	296.8	-100.28	628.8	10,264.0	788.6	205.6	583.09	1.353 Level 3	
17,291.6	6,709.0	17,407.1	6,850.0	296.8	297.9	-100.30	628.8	10,301.7	788.7	203.4	585.33	1.347 Level 3, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-212 - Wellbore #1 - Plan #3 (7-15-15)													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 (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-5.46	-5.46	29.2	-2.8	29.3				
100.0	100.0	100.0	100.0	0.1	0.1	-5.46	-5.46	29.2	-2.8	29.3	29.1	0.22	130.295	
200.0	200.0	200.0	200.0	0.3	0.3	-5.46	-5.46	29.2	-2.8	29.3	28.6	0.67	43.432	
300.0	300.0	300.0	300.0	0.6	0.6	-5.46	-5.46	29.2	-2.8	29.3	28.2	1.12	26.059	
400.0	400.0	400.0	400.0	0.8	0.8	-5.46	-5.46	29.2	-2.8	29.3	27.7	1.57	18.614	
500.0	500.0	500.0	500.0	1.0	1.0	-5.46	-5.46	29.2	-2.8	29.3	27.3	2.02	14.477	
600.0	600.0	600.0	600.0	1.2	1.2	-5.46	-5.46	29.2	-2.8	29.3	26.8	2.47	11.845	
700.0	700.0	700.0	700.0	1.5	1.5	-5.46	-5.46	29.2	-2.8	29.3	26.4	2.92	10.023	
800.0	800.0	800.0	800.0	1.7	1.7	-5.46	-5.46	29.2	-2.8	29.3	25.9	3.37	8.686	
900.0	900.0	900.0	900.0	1.9	1.9	-5.46	-5.46	29.2	-2.8	29.3	25.5	3.82	7.664	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-5.46	-5.46	29.2	-2.8	29.3	25.0	4.27	6.858	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-5.46	-5.46	29.2	-2.8	29.3	24.6	4.72	6.205	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-5.46	-5.46	29.2	-2.8	29.3	24.1	5.17	5.665	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-5.46	-5.46	29.2	-2.8	29.3	23.7	5.62	5.212	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-5.46	-5.46	29.2	-2.8	29.3	23.2	6.07	4.826	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-5.46	-5.46	29.2	-2.8	29.3	22.8	6.52	4.493 CC	
1,600.0	1,600.0	1,599.9	1,599.9	3.5	3.5	-7.10	-7.10	29.3	-3.6	29.5	22.5	6.96	4.241	
1,700.0	1,700.0	1,699.7	1,699.6	3.7	3.7	-11.88	-11.88	29.6	-6.2	30.3	22.9	7.38	4.102	
1,800.0	1,800.0	1,799.4	1,799.2	3.9	3.9	-19.21	-19.21	30.2	-10.5	32.0	24.2	7.81	4.099	
1,900.0	1,900.0	1,898.9	1,898.6	4.2	4.1	-28.02	-28.02	31.1	-16.5	35.2	27.0	8.24	4.272	
2,000.0	2,000.0	1,998.2	1,997.5	4.4	4.3	-37.01	-37.01	32.1	-24.2	40.3	31.6	8.68	4.644	
2,100.0	2,100.0	2,097.2	2,096.1	4.6	4.6	62.55	62.55	33.4	-33.6	47.1	38.0	9.12	5.172	
2,200.0	2,200.0	2,196.1	2,194.4	4.8	4.8	57.73	57.73	35.0	-44.6	55.0	45.5	9.52	5.779	
2,300.0	2,299.9	2,295.2	2,292.7	5.0	5.0	54.70	54.70	36.7	-57.2	63.5	53.6	9.94	6.392	
2,400.0	2,399.7	2,394.9	2,391.5	5.2	5.3	53.39	53.39	38.5	-70.1	71.4	61.0	10.37	6.884	
2,500.0	2,499.4	2,494.7	2,490.4	5.4	5.6	53.35	53.35	40.3	-83.0	78.1	67.3	10.80	7.234	
2,600.0	2,598.9	2,594.5	2,589.4	5.6	5.9	54.27	54.27	42.1	-95.9	83.9	72.6	11.26	7.455	
2,700.0	2,698.3	2,694.3	2,688.4	5.8	6.2	56.00	56.00	43.9	-108.8	88.7	77.0	11.73	7.563	
2,800.0	2,797.4	2,794.2	2,787.4	6.1	6.4	58.47	58.47	45.7	-121.7	92.6	80.4	12.23	7.578	
2,900.0	2,896.3	2,894.0	2,886.3	6.3	6.7	61.64	61.64	47.5	-134.6	95.9	83.2	12.76	7.519	
2,932.7	2,928.5	2,926.6	2,918.6	6.4	6.8	62.82	62.82	48.1	-138.8	96.9	83.9	12.94	7.487	
3,000.0	2,995.0	2,993.7	2,985.2	6.6	7.0	65.31	65.31	49.3	-147.5	98.9	85.6	13.33	7.420	
3,100.0	3,093.7	3,093.5	3,084.1	6.9	7.3	68.81	68.81	51.1	-160.3	102.2	88.3	13.92	7.342	
3,200.0	3,192.4	3,193.2	3,183.0	7.2	7.6	72.08	72.08	52.9	-173.2	105.9	91.4	14.54	7.285	
3,300.0	3,291.0	3,293.0	3,281.9	7.5	8.0	75.12	75.12	54.7	-186.1	109.9	94.8	15.17	7.247	
3,400.0	3,389.7	3,392.8	3,380.9	7.8	8.3	77.94	77.94	56.4	-199.0	114.2	98.4	15.81	7.225	
3,500.0	3,488.4	3,492.5	3,479.8	8.1	8.6	80.55	80.55	58.2	-211.9	118.8	102.3	16.46	7.215	
3,600.0	3,587.1	3,592.3	3,578.7	8.5	8.9	82.96	82.96	60.0	-224.8	123.6	106.4	17.12	7.217	
3,700.0	3,685.7	3,692.0	3,677.6	8.8	9.2	85.19	85.19	61.8	-237.7	128.5	110.8	17.79	7.227	
3,800.0	3,784.4	3,791.8	3,776.5	9.1	9.5	87.25	87.25	63.6	-250.6	133.7	115.3	18.45	7.245	
3,900.0	3,883.1	3,891.5	3,875.4	9.5	9.8	89.16	89.16	65.4	-263.5	139.0	119.9	19.13	7.269	
4,000.0	3,981.8	3,991.3	3,974.3	9.8	10.2	90.92	90.92	67.2	-276.4	144.5	124.7	19.80	7.298	
4,100.0	4,080.5	4,091.0	4,073.2	10.2	10.5	92.56	92.56	69.0	-289.3	150.1	129.6	20.47	7.331	
4,200.0	4,179.1	4,190.8	4,172.1	10.5	10.8	94.07	94.07	70.8	-302.2	155.8	134.6	21.15	7.366	
4,300.0	4,277.8	4,290.6	4,271.0	10.9	11.1	95.48	95.48	72.6	-315.0	161.6	139.8	21.83	7.404	
4,400.0	4,376.5	4,390.3	4,369.9	11.2	11.4	96.79	96.79	74.4	-327.9	167.5	145.0	22.50	7.444	
4,500.0	4,475.2	4,490.1	4,468.8	11.6	11.8	98.01	98.01	76.2	-340.8	173.5	150.3	23.18	7.485	
4,600.0	4,573.8	4,589.8	4,567.7	11.9	12.1	99.15	99.15	78.0	-353.7	179.5	155.7	23.85	7.526	
4,700.0	4,672.5	4,689.6	4,666.6	12.3	12.4	100.21	100.21	79.8	-366.6	185.7	161.1	24.53	7.569	
4,800.0	4,771.2	4,789.3	4,765.5	12.7	12.7	101.21	101.21	81.5	-379.5	191.8	166.6	25.21	7.611	
4,900.0	4,869.9	4,889.1	4,864.4	13.0	13.0	102.14	102.14	83.3	-392.4	198.1	172.2	25.88	7.653	

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 Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design		Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-212 - Wellbore #1 - Plan #3 (7-15-15)											Offset Site Error:		0.0 ft											
Survey Program:		0-MWD											Offset Well Error:		0.0 ft											
Reference		Offset		Semi Major Axis			Distance							Warning												
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor														
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)															
5,000.0	4,968.6	4,988.8	4,963.3	13.4	13.4	103.02	85.1	-405.3	204.4	177.8	26.55	7.696														
5,100.0	5,067.2	5,088.6	5,062.2	13.7	13.7	103.84	86.9	-418.2	210.7	183.5	27.23	7.738														
5,200.0	5,165.9	5,188.4	5,161.1	14.1	14.0	104.62	88.7	-431.1	217.1	189.1	27.90	7.779														
5,300.0	5,264.6	5,288.1	5,260.0	14.5	14.4	105.35	90.5	-444.0	223.5	194.9	28.57	7.820														
5,372.1	5,335.7	5,360.0	5,331.3	14.7	14.6	105.85	91.8	-453.3	228.1	199.0	29.06	7.849														
5,400.0	5,363.3	5,387.9	5,358.9	14.8	14.7	106.04	92.3	-456.9	229.9	200.6	29.24	7.862														
														5,500.0	5,462.4	5,488.1	5,458.3	15.1	15.0	106.21	94.1	-469.6	235.5	205.7	29.81	7.900
														5,600.0	5,561.9	5,589.2	5,558.9	15.3	15.2	106.20	95.5	-479.8	239.8	209.6	30.28	7.921
														5,700.0	5,661.6	5,690.4	5,659.9	15.5	15.4	106.19	96.4	-486.5	242.7	212.0	30.69	7.908
														5,800.0	5,761.6	5,791.7	5,761.1	15.7	15.6	106.18	96.9	-489.6	244.0	213.0	31.04	7.862
5,838.4	5,800.0	5,830.6	5,800.0	15.8	15.7	-0.63	96.9	-489.9	244.1	218.1	26.03	9.377														
														5,900.0	5,861.6	5,892.2	5,861.6	15.9	15.8	-0.63	96.9	-489.9	244.1	217.8	26.27	9.292
														6,000.0	5,961.6	5,992.2	5,961.6	16.0	15.9	-0.63	96.9	-489.9	244.1	217.4	26.67	9.152
														6,060.5	6,022.1	6,052.8	6,022.1	16.1	16.0	-0.31	96.9	-488.5	244.1	217.2	26.91	9.070
														6,083.1	6,044.7	6,075.4	6,044.7	16.2	16.0	-90.00	96.9	-486.9	244.1	212.2	31.94	7.643
6,100.0	6,061.6	6,092.2	6,061.5	16.2	16.1	-89.77	96.9	-485.2	244.1	212.1	31.97	7.635														
														6,150.0	6,111.4	6,142.0	6,110.7	16.2	16.1	-89.07	96.9	-478.1	244.1	212.1	32.02	7.623
														6,200.0	6,160.8	6,191.6	6,159.2	16.3	16.1	-88.39	96.9	-467.8	244.2	212.2	32.03	7.624
														6,250.0	6,209.6	6,240.9	6,206.7	16.3	16.1	-87.71	96.9	-454.5	244.3	212.3	32.00	7.634
														6,300.0	6,257.7	6,290.1	6,253.1	16.2	16.0	-87.04	96.9	-438.2	244.4	212.5	31.94	7.652
6,350.0	6,304.7	6,339.1	6,298.2	16.2	16.0	-86.39	96.9	-419.0	244.6	212.7	31.86	7.677														
														6,400.0	6,350.5	6,388.0	6,341.8	16.2	16.0	-85.75	96.9	-397.0	244.8	213.0	31.77	7.705
														6,450.0	6,394.9	6,436.7	6,383.8	16.1	15.9	-85.13	96.9	-372.4	245.0	213.3	31.68	7.733
														6,500.0	6,437.7	6,485.2	6,424.1	16.1	15.9	-84.54	96.9	-345.3	245.2	213.6	31.61	7.757
														6,550.0	6,478.8	6,533.6	6,462.4	16.1	15.9	-83.97	96.9	-315.7	245.4	213.9	31.58	7.773
6,600.0	6,517.8	6,581.8	6,498.6	16.1	15.9	-83.43	96.9	-283.9	245.7	214.1	31.60	7.775														
														6,650.0	6,554.8	6,629.9	6,532.7	16.1	16.0	-82.91	96.9	-250.0	246.0	214.3	31.70	7.759
														6,700.0	6,589.5	6,677.9	6,564.5	16.2	16.2	-82.43	96.9	-214.0	246.2	214.3	31.90	7.720
														6,750.0	6,621.7	6,725.8	6,593.9	16.3	16.3	-81.98	96.9	-176.3	246.5	214.3	32.21	7.654
														6,800.0	6,651.4	6,773.6	6,620.8	16.5	16.6	-81.56	96.9	-136.9	246.8	214.1	32.65	7.558
6,850.0	6,678.4	6,821.2	6,645.2	16.8	16.9	-81.18	96.9	-95.9	247.0	213.8	33.24	7.431														
														6,900.0	6,702.5	6,868.8	6,666.9	17.2	17.3	-80.83	96.9	-53.6	247.3	213.3	33.99	7.275
														6,950.0	6,723.8	6,916.3	6,685.9	17.6	17.8	-80.52	96.9	-10.1	247.5	212.6	34.89	7.092
														7,000.0	6,742.0	6,963.7	6,702.2	18.2	18.3	-80.25	96.9	34.4	247.7	211.7	35.96	6.887
														7,050.0	6,757.2	7,011.0	6,715.7	18.8	19.0	-80.02	96.9	79.8	247.8	210.7	37.18	6.666
7,100.0	6,769.2	7,058.4	6,726.3	19.5	19.6	-79.83	96.9	125.9	248.0	209.4	38.54	6.434														
														7,150.0	6,778.0	7,105.6	6,734.0	20.3	20.4	-79.68	96.9	172.6	248.1	208.1	40.03	6.197
														7,200.0	6,783.6	7,152.8	6,738.8	21.1	21.2	-79.57	96.9	219.5	248.2	206.5	41.64	5.960
														7,250.0	6,785.9	7,200.0	6,740.7	22.0	22.0	-79.50	96.9	266.6	248.2	204.9	43.34	5.728
														7,266.4	6,786.0	7,215.5	6,740.7	22.3	22.3	-79.49	96.9	282.2	248.3	204.3	43.91	5.653
7,300.0	6,785.7	7,249.2	6,740.4	22.9	22.9	-79.47	96.9	315.8	248.3	203.1	45.17	5.496														
														7,400.0	6,785.0	7,349.2	6,739.4	24.9	24.9	-79.42	96.9	415.8	248.3	199.2	49.09	5.058
														7,500.0	6,784.2	7,449.2	6,738.4	27.1	27.1	-79.37	96.9	515.8	248.3	195.1	53.30	4.660
														7,600.0	6,783.4	7,549.2	6,737.4	29.3	29.3	-79.32	96.9	615.8	248.4	190.7	57.72	4.303
														7,700.0	6,782.7	7,649.2	6,736.4	31.7	31.7	-79.27	96.9	715.8	248.4	186.1	62.32	3.986
7,800.0	6,781.9	7,749.2	6,735.4	34.1	34.1	-79.22	96.9	815.8	248.5	181.4	67.06	3.705														
														7,900.0	6,781.1	7,849.2	6,734.4	36.6	36.5	-79.17	96.9	915.8	248.5	176.6	71.90	3.456
														8,000.0	6,780.4	7,949.2	6,733.4	39.1	39.1	-79.11	96.9	1,015.8	248.6	171.7	76.84	3.235
														8,100.0	6,779.6	8,049.2	6,732.4	41.6	41.6	-79.06	96.9	1,115.8	248.6	166.8	81.85	3.037
														8,200.0	6,778.8	8,149.2	6,731.4	44.2	44.2	-79.01	96.9	1,215.8	248.6	161.7	86.92	2.861
8,300.0	6,778.1	8,249.2	6,730.4	46.8	46.8	-78.96	96.9	1,315.8	248.7	156.7	92.04	2.702														

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 Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-212 - Wellbore #1 - Plan #3 (7-15-15)													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
				(ft)	(ft)	(°)								
8,400.0	6,777.3	8,349.2	6,729.4	49.5	49.4	-78.91	96.9	1,415.8	248.7	151.5	97.20	2.559		
8,500.0	6,776.5	8,449.2	6,728.4	52.1	52.1	-78.86	96.9	1,515.7	248.8	146.4	102.39	2.430		
8,600.0	6,775.7	8,549.2	6,727.4	54.8	54.7	-78.81	96.9	1,615.7	248.8	141.2	107.62	2.312		
8,700.0	6,775.0	8,649.2	6,726.4	57.5	57.4	-78.75	96.9	1,715.7	248.9	136.0	112.87	2.205		
8,800.0	6,774.2	8,749.2	6,725.5	60.2	60.1	-78.70	96.9	1,815.7	248.9	130.8	118.14	2.107		
8,900.0	6,773.4	8,849.2	6,724.5	62.9	62.8	-78.65	96.9	1,915.7	249.0	125.5	123.42	2.017		
9,000.0	6,772.7	8,949.2	6,723.5	65.6	65.5	-78.60	96.9	2,015.7	249.0	120.3	128.73	1.934		
9,100.0	6,771.9	9,049.2	6,722.5	68.3	68.2	-78.55	96.9	2,115.7	249.0	115.0	134.05	1.858		
9,200.0	6,771.1	9,149.2	6,721.5	71.0	71.0	-78.50	96.9	2,215.7	249.1	109.7	139.38	1.787		
9,300.0	6,770.4	9,249.2	6,720.5	73.8	73.7	-78.45	96.9	2,315.7	249.1	104.4	144.72	1.722		
9,400.0	6,769.6	9,349.2	6,719.5	76.5	76.4	-78.40	96.9	2,415.7	249.2	99.1	150.07	1.660		
9,500.0	6,768.8	9,449.2	6,718.5	79.2	79.2	-78.35	96.9	2,515.7	249.2	93.8	155.43	1.603		
9,600.0	6,768.1	9,549.2	6,717.5	82.0	81.9	-78.29	96.9	2,615.7	249.3	88.5	160.79	1.550		
9,700.0	6,767.3	9,649.2	6,716.5	84.7	84.7	-78.24	96.9	2,715.7	249.3	83.2	166.16	1.500		
9,800.0	6,766.5	9,749.2	6,715.5	87.5	87.4	-78.19	96.9	2,815.7	249.4	77.8	171.54	1.454 Level 3		
9,900.0	6,765.8	9,849.2	6,714.5	90.2	90.2	-78.14	96.9	2,915.7	249.4	72.5	176.92	1.410 Level 3		
10,000.0	6,765.0	9,949.2	6,713.5	93.0	93.0	-78.09	96.9	3,015.7	249.5	67.2	182.30	1.368 Level 3		
10,100.0	6,764.2	10,049.2	6,712.5	95.8	95.7	-78.04	96.9	3,115.7	249.5	61.8	187.69	1.329 Level 3		
10,200.0	6,763.5	10,149.2	6,711.5	98.5	98.5	-77.99	96.9	3,215.7	249.6	56.5	193.08	1.292 Level 3		
10,300.0	6,762.7	10,249.2	6,710.5	101.3	101.3	-77.94	96.9	3,315.7	249.6	51.1	198.48	1.258 Level 3		
10,400.0	6,761.9	10,349.2	6,709.5	104.1	104.0	-77.89	96.9	3,415.6	249.6	45.8	203.87	1.225 Level 2		
10,500.0	6,761.2	10,449.2	6,708.5	106.9	106.8	-77.84	96.9	3,515.6	249.7	40.4	209.27	1.193 Level 2		
10,600.0	6,760.4	10,549.2	6,707.5	109.6	109.6	-77.78	96.9	3,615.6	249.7	35.1	214.67	1.163 Level 2		
10,700.0	6,759.6	10,649.2	6,706.6	112.4	112.4	-77.73	96.9	3,715.6	249.8	29.7	220.07	1.135 Level 2		
10,800.0	6,758.9	10,749.2	6,705.6	115.2	115.1	-77.68	96.9	3,815.6	249.8	24.4	225.47	1.108 Level 2		
10,900.0	6,758.1	10,849.2	6,704.6	118.0	117.9	-77.63	96.9	3,915.6	249.9	19.0	230.87	1.082 Level 2		
11,000.0	6,757.3	10,949.2	6,703.6	120.8	120.7	-77.58	96.9	4,015.6	249.9	13.7	236.28	1.058 Level 2		
11,100.0	6,756.5	11,049.2	6,702.6	123.5	123.5	-77.53	96.9	4,115.6	250.0	8.3	241.68	1.034 Level 2		
11,200.0	6,755.8	11,149.2	6,701.6	126.3	126.3	-77.48	96.9	4,215.6	250.0	3.0	247.08	1.012 Level 2		
11,300.0	6,755.0	11,249.2	6,700.6	129.1	129.0	-77.43	96.9	4,315.6	250.1	-2.4	252.49	0.990 Level 1		
11,400.0	6,754.2	11,349.2	6,699.6	131.9	131.8	-77.38	96.9	4,415.6	250.1	-7.8	257.89	0.970 Level 1		
11,500.0	6,753.5	11,449.2	6,698.6	134.7	134.6	-77.33	96.9	4,515.6	250.2	-13.1	263.29	0.950 Level 1		
11,600.0	6,752.7	11,549.2	6,697.6	137.5	137.4	-77.28	96.9	4,615.6	250.2	-18.5	268.70	0.931 Level 1		
11,700.0	6,751.9	11,649.2	6,696.6	140.3	140.2	-77.23	96.9	4,715.6	250.3	-23.8	274.10	0.913 Level 1		
11,800.0	6,751.2	11,749.2	6,695.6	143.0	143.0	-77.18	96.9	4,815.6	250.3	-29.2	279.50	0.896 Level 1		
11,900.0	6,750.4	11,849.2	6,694.6	145.8	145.8	-77.12	96.9	4,915.6	250.4	-34.5	284.90	0.879 Level 1		
12,000.0	6,749.6	11,949.2	6,693.6	148.6	148.6	-77.07	96.9	5,015.6	250.4	-39.9	290.30	0.863 Level 1		
12,100.0	6,748.9	12,049.2	6,692.6	151.4	151.4	-77.02	96.9	5,115.6	250.5	-45.2	295.70	0.847 Level 1		
12,200.0	6,748.1	12,149.2	6,691.6	154.2	154.1	-76.97	96.9	5,215.6	250.5	-50.6	301.10	0.832 Level 1		
12,300.0	6,747.3	12,249.2	6,690.6	157.0	156.9	-76.92	96.9	5,315.5	250.6	-55.9	306.50	0.818 Level 1		
12,400.0	6,746.6	12,349.2	6,689.6	159.8	159.7	-76.87	96.9	5,415.5	250.6	-61.3	311.89	0.804 Level 1		
12,500.0	6,745.8	12,449.2	6,688.6	162.6	162.5	-76.82	96.9	5,515.5	250.7	-66.6	317.29	0.790 Level 1		
12,600.0	6,745.0	12,549.2	6,687.7	165.4	165.3	-76.77	96.9	5,615.5	250.7	-71.9	322.68	0.777 Level 1		
12,700.0	6,744.3	12,649.2	6,686.7	168.2	168.1	-76.72	96.9	5,715.5	250.8	-77.3	328.07	0.764 Level 1		
12,800.0	6,743.5	12,749.2	6,685.7	171.0	170.9	-76.67	96.9	5,815.5	250.8	-82.6	333.46	0.752 Level 1		
12,900.0	6,742.7	12,849.2	6,684.7	173.8	173.7	-76.62	96.9	5,915.5	250.9	-88.0	338.85	0.740 Level 1		
13,000.0	6,742.0	12,949.2	6,683.7	176.6	176.5	-76.57	96.9	6,015.5	251.0	-93.3	344.24	0.729 Level 1		
13,100.0	6,741.2	13,049.2	6,682.7	179.4	179.3	-76.52	96.9	6,115.5	251.0	-98.6	349.63	0.718 Level 1		
13,200.0	6,740.4	13,149.2	6,681.7	182.2	182.1	-76.47	96.9	6,215.5	251.1	-104.0	355.01	0.707 Level 1		
13,300.0	6,739.7	13,249.2	6,680.7	185.0	184.9	-76.42	96.9	6,315.5	251.1	-109.3	360.40	0.697 Level 1		
13,400.0	6,738.9	13,349.2	6,679.7	187.8	187.7	-76.37	96.9	6,415.5	251.2	-114.6	365.78	0.687 Level 1		

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 Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference														
Offset				Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
13,500.0	6,738.1	13,449.2	6,678.7	190.6	190.5	-76.32	96.9	6,515.5	251.2	-119.9	371.16	0.677	Level 1	
13,600.0	6,737.3	13,549.2	6,677.7	193.4	193.3	-76.27	96.9	6,615.5	251.3	-125.3	376.54	0.667	Level 1	
13,700.0	6,736.6	13,649.2	6,676.7	196.2	196.1	-76.22	96.9	6,715.5	251.3	-130.6	381.91	0.658	Level 1	
13,800.0	6,735.8	13,749.2	6,675.7	199.0	198.9	-76.17	96.9	6,815.5	251.4	-135.9	387.29	0.649	Level 1	
13,900.0	6,735.0	13,849.2	6,674.7	201.8	201.7	-76.12	96.9	6,915.5	251.4	-141.2	392.66	0.640	Level 1	
14,000.0	6,734.3	13,949.2	6,673.7	204.6	204.5	-76.07	96.9	7,015.5	251.5	-146.5	398.03	0.632	Level 1	
14,100.0	6,733.5	14,049.2	6,672.7	207.4	207.3	-76.02	96.9	7,115.5	251.5	-151.9	403.40	0.624	Level 1	
14,200.0	6,732.7	14,149.2	6,671.7	210.2	210.1	-75.97	96.9	7,215.4	251.6	-157.2	408.77	0.616	Level 1	
14,300.0	6,732.0	14,249.2	6,670.7	213.0	212.9	-75.92	96.9	7,315.4	251.7	-162.5	414.13	0.608	Level 1	
14,400.0	6,731.2	14,349.2	6,669.7	215.8	215.7	-75.87	96.9	7,415.4	251.7	-167.8	419.49	0.600	Level 1	
14,500.0	6,730.4	14,449.2	6,668.7	218.6	218.5	-75.82	96.9	7,515.4	251.8	-173.1	424.86	0.593	Level 1	
14,600.0	6,729.7	14,549.2	6,667.8	221.4	221.3	-75.77	96.9	7,615.4	251.8	-178.4	430.21	0.585	Level 1	
14,700.0	6,728.9	14,649.2	6,666.8	224.2	224.1	-75.72	96.9	7,715.4	251.9	-183.7	435.57	0.578	Level 1	
14,800.0	6,728.1	14,749.2	6,665.8	227.0	226.9	-75.67	96.9	7,815.4	251.9	-189.0	440.93	0.571	Level 1	
14,900.0	6,727.4	14,849.2	6,664.8	229.8	229.7	-75.62	96.9	7,915.4	252.0	-194.3	446.28	0.565	Level 1	
15,000.0	6,726.6	14,949.2	6,663.8	232.6	232.5	-75.57	96.9	8,015.4	252.0	-199.6	451.63	0.558	Level 1	
15,100.0	6,725.8	15,049.2	6,662.8	235.4	235.3	-75.52	96.9	8,115.4	252.1	-204.9	456.98	0.552	Level 1	
15,200.0	6,725.1	15,149.2	6,661.8	238.2	238.1	-75.47	96.9	8,215.4	252.2	-210.2	462.32	0.545	Level 1	
15,300.0	6,724.3	15,249.2	6,660.8	241.0	240.9	-75.42	96.9	8,315.4	252.2	-215.5	467.67	0.539	Level 1	
15,400.0	6,723.5	15,349.2	6,659.8	243.8	243.7	-75.37	96.9	8,415.4	252.3	-220.7	473.01	0.533	Level 1	
15,500.0	6,722.8	15,449.2	6,658.8	246.6	246.5	-75.32	96.9	8,515.4	252.3	-226.0	478.35	0.527	Level 1	
15,600.0	6,722.0	15,549.2	6,657.8	249.4	249.3	-75.27	96.9	8,615.4	252.4	-231.3	483.69	0.522	Level 1	
15,700.0	6,721.2	15,649.2	6,656.8	252.2	252.1	-75.22	96.9	8,715.4	252.4	-236.6	489.02	0.516	Level 1	
15,800.0	6,720.5	15,749.2	6,655.8	255.0	254.9	-75.17	96.9	8,815.4	252.5	-241.9	494.35	0.511	Level 1	
15,900.0	6,719.7	15,849.2	6,654.8	257.8	257.7	-75.12	96.9	8,915.4	252.6	-247.1	499.68	0.505	Level 1	
16,000.0	6,718.9	15,949.2	6,653.8	260.6	260.5	-75.07	96.9	9,015.4	252.6	-252.4	505.01	0.500	Level 1	
16,100.0	6,718.2	16,049.2	6,652.8	263.4	263.3	-75.02	96.9	9,115.3	252.7	-257.7	510.34	0.495	Level 1	
16,200.0	6,717.4	16,149.2	6,651.8	266.2	266.1	-74.97	96.9	9,215.3	252.7	-262.9	515.66	0.490	Level 1	
16,300.0	6,716.6	16,249.2	6,650.8	269.0	268.9	-74.92	96.9	9,315.3	252.8	-268.2	520.98	0.485	Level 1	
16,400.0	6,715.8	16,349.2	6,649.8	271.8	271.7	-74.87	96.9	9,415.3	252.9	-273.4	526.30	0.480	Level 1	
16,500.0	6,715.1	16,449.2	6,648.9	274.6	274.5	-74.82	96.9	9,515.3	252.9	-278.7	531.61	0.476	Level 1	
16,600.0	6,714.3	16,549.2	6,647.9	277.4	277.4	-74.77	96.9	9,615.3	253.0	-284.0	536.93	0.471	Level 1	
16,700.0	6,713.5	16,649.2	6,646.9	280.2	280.2	-74.72	96.9	9,715.3	253.0	-289.2	542.24	0.467	Level 1	
16,800.0	6,712.8	16,749.2	6,645.9	283.0	283.0	-74.67	96.9	9,815.3	253.1	-294.5	547.55	0.462	Level 1	
16,900.0	6,712.0	16,849.2	6,644.9	285.8	285.8	-74.62	96.9	9,915.3	253.2	-299.7	552.85	0.458	Level 1	
17,000.0	6,711.2	16,949.2	6,643.9	288.6	288.6	-74.57	96.9	10,015.3	253.2	-304.9	558.16	0.454	Level 1	
17,100.0	6,710.5	17,049.2	6,642.9	291.4	291.4	-74.52	96.9	10,115.3	253.3	-310.2	563.46	0.449	Level 1	
17,200.0	6,709.7	17,149.2	6,641.9	294.2	294.2	-74.47	96.9	10,215.3	253.3	-315.4	568.76	0.445	Level 1	
17,251.3	6,709.3	17,200.4	6,641.4	295.7	295.6	-74.45	96.9	10,266.6	253.4	-318.1	571.47	0.443	Level 1	
17,291.6	6,709.0	17,238.6	6,641.0	296.8	296.7	-74.43	96.9	10,304.7	253.4	-320.2	573.55	0.442	Level 1, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-232 - Wellbore #1 - Plan #4 (7-15-15)												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 (ft)	Offset (ft)	Semi Major Axis 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	180.00	-61.9	0.0	61.9				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-61.9	0.0	61.9	61.7	0.22	275.507	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-61.9	0.0	61.9	61.3	0.67	91.836	
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-61.9	0.0	61.9	60.8	1.12	55.101	
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-61.9	0.0	61.9	60.4	1.57	39.358	
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-61.9	0.0	61.9	59.9	2.02	30.612	
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-61.9	0.0	61.9	59.5	2.47	25.046	
700.0	700.0	700.0	700.0	1.5	1.5	180.00	-61.9	0.0	61.9	59.0	2.92	21.193	
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-61.9	0.0	61.9	58.6	3.37	18.367	
900.0	900.0	900.0	900.0	1.9	1.9	180.00	-61.9	0.0	61.9	58.1	3.82	16.206	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	180.00	-61.9	0.0	61.9	57.7	4.27	14.500 CC	
1,100.0	1,100.0	1,099.2	1,099.2	2.4	2.3	-178.97	-62.6	-1.1	62.6	57.9	4.70	13.320	
1,200.0	1,200.0	1,198.3	1,198.2	2.6	2.5	-176.01	-64.4	-4.5	64.6	59.5	5.11	12.645	
1,300.0	1,300.0	1,297.0	1,296.7	2.8	2.7	-171.51	-67.5	-10.1	68.4	62.8	5.53	12.361	
1,400.0	1,400.0	1,395.4	1,394.7	3.0	2.9	-166.05	-71.9	-17.9	74.3	68.3	5.97	12.446	
1,500.0	1,500.0	1,493.3	1,492.0	3.3	3.2	-160.26	-77.4	-27.8	82.6	76.2	6.42	12.872	
1,600.0	1,600.0	1,590.5	1,588.2	3.5	3.4	-154.68	-84.1	-39.8	93.8	86.9	6.90	13.593	
1,700.0	1,700.0	1,687.0	1,683.3	3.7	3.7	-149.66	-91.9	-53.8	107.8	100.4	7.41	14.550	
1,800.0	1,800.0	1,782.6	1,777.1	3.9	4.0	-145.32	-100.8	-69.8	124.7	116.8	7.95	15.682	
1,900.0	1,900.0	1,877.2	1,869.5	4.2	4.4	-141.67	-110.8	-87.6	144.5	135.9	8.53	16.931	
2,000.0	2,000.0	1,970.7	1,960.3	4.4	4.8	-138.64	-121.7	-107.1	166.9	157.8	9.15	18.250	
2,100.0	2,100.0	2,063.3	2,049.6	4.6	5.2	-29.31	-133.5	-128.4	191.3	182.2	9.08	21.057	
2,200.0	2,200.0	2,155.1	2,137.5	4.8	5.7	-27.40	-146.3	-151.4	216.6	207.1	9.51	22.791	
2,300.0	2,299.9	2,246.8	2,224.8	5.0	6.2	-25.91	-160.2	-176.1	242.9	232.9	9.94	24.443	
2,400.0	2,399.7	2,343.3	2,316.3	5.2	6.7	-24.76	-175.1	-202.9	268.6	258.2	10.39	25.859	
2,500.0	2,499.4	2,440.3	2,408.3	5.4	7.3	-23.94	-190.1	-229.8	292.8	281.9	10.84	27.001	
2,600.0	2,598.9	2,537.7	2,500.6	5.6	7.9	-23.37	-205.2	-256.8	315.5	304.2	11.31	27.890	
2,700.0	2,698.3	2,635.4	2,593.2	5.8	8.5	-23.00	-220.3	-283.9	336.6	324.8	11.79	28.553	
2,800.0	2,797.4	2,733.4	2,686.2	6.1	9.1	-22.77	-235.4	-311.1	356.2	343.9	12.28	29.012	
2,900.0	2,896.3	2,831.8	2,779.5	6.3	9.7	-22.67	-250.7	-338.4	374.2	361.4	12.78	29.288	
2,932.7	2,928.5	2,864.0	2,810.0	6.4	9.9	-22.66	-255.6	-347.3	379.7	366.8	12.94	29.341	
3,000.0	2,995.0	2,930.4	2,873.0	6.6	10.4	-22.70	-265.9	-365.7	391.0	377.7	13.29	29.409	
3,100.0	3,093.7	3,029.0	2,966.5	6.9	11.0	-22.75	-281.2	-393.1	407.7	393.9	13.82	29.492	
3,200.0	3,192.4	3,127.6	3,060.0	7.2	11.6	-22.80	-296.4	-420.4	424.4	410.0	14.36	29.557	
3,300.0	3,291.0	3,226.2	3,153.4	7.5	12.3	-22.85	-311.7	-447.8	441.1	426.2	14.90	29.607	
3,400.0	3,389.7	3,324.8	3,246.9	7.8	12.9	-22.89	-326.9	-475.1	457.7	442.3	15.44	29.644	
3,500.0	3,488.4	3,423.4	3,340.4	8.1	13.6	-22.93	-342.2	-502.5	474.4	458.4	15.99	29.671	
3,600.0	3,587.1	3,522.0	3,433.9	8.5	14.2	-22.96	-357.4	-529.8	491.1	474.6	16.54	29.689	
3,700.0	3,685.7	3,620.6	3,527.4	8.8	14.9	-23.00	-372.7	-557.2	507.8	490.7	17.10	29.700	
3,800.0	3,784.4	3,719.2	3,620.9	9.1	15.5	-23.03	-387.9	-584.5	524.5	506.8	17.66	29.705	
3,900.0	3,883.1	3,817.8	3,714.4	9.5	16.2	-23.06	-403.2	-611.9	541.2	523.0	18.22	29.705	
4,000.0	3,981.8	3,916.4	3,807.9	9.8	16.8	-23.09	-418.5	-639.2	557.9	539.1	18.78	29.701	
4,100.0	4,080.5	4,015.0	3,901.4	10.2	17.5	-23.11	-433.7	-666.6	574.6	555.2	19.35	29.693	
4,200.0	4,179.1	4,113.5	3,994.9	10.5	18.1	-23.14	-449.0	-693.9	591.3	571.3	19.92	29.683	
4,300.0	4,277.8	4,212.1	4,088.4	10.9	18.8	-23.16	-464.2	-721.3	608.0	587.5	20.49	29.670	
4,400.0	4,376.5	4,310.7	4,181.9	11.2	19.5	-23.18	-479.5	-748.6	624.7	603.6	21.06	29.655	
4,500.0	4,475.2	4,409.3	4,275.3	11.6	20.1	-23.21	-494.7	-776.0	641.3	619.7	21.64	29.638	
4,600.0	4,573.8	4,507.9	4,368.8	11.9	20.8	-23.23	-510.0	-803.3	658.0	635.8	22.22	29.621	
4,700.0	4,672.5	4,606.5	4,462.3	12.3	21.4	-23.24	-525.2	-830.7	674.7	651.9	22.79	29.602	
4,800.0	4,771.2	4,705.1	4,555.8	12.7	22.1	-23.26	-540.5	-858.0	691.4	668.0	23.37	29.582	
4,900.0	4,869.9	4,803.7	4,649.3	13.0	22.8	-23.28	-555.7	-885.4	708.1	684.2	23.95	29.562	

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 Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-232 - Wellbore #1 - Plan #4 (7-15-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,000.0	4,968.6	4,902.3	4,742.8	13.4	23.4	-23.30	-571.0	-912.7	724.8	700.3	24.53	29.542	
5,100.0	5,067.2	5,000.9	4,836.3	13.7	24.1	-23.31	-586.2	-940.1	741.5	716.4	25.12	29.520	
5,200.0	5,165.9	5,099.5	4,929.8	14.1	24.7	-23.33	-601.5	-967.4	758.2	732.5	25.70	29.499	
5,300.0	5,264.6	5,229.7	5,054.0	14.5	25.4	-23.38	-620.5	-1,001.5	773.1	746.7	26.36	29.331	
5,372.1	5,335.7	5,327.3	5,148.2	14.7	25.9	-23.48	-632.9	-1,023.8	781.0	754.2	26.82	29.120	
5,400.0	5,363.3	5,365.3	5,185.0	14.8	26.0	-23.54	-637.3	-1,031.7	783.6	756.6	26.99	29.034	
5,500.0	5,462.4	5,501.7	5,318.4	15.1	26.5	-23.74	-651.2	-1,056.6	791.8	764.2	27.53	28.763	
5,600.0	5,561.9	5,638.7	5,453.6	15.3	26.9	-23.87	-662.0	-1,075.9	798.5	770.5	27.99	28.525	
5,700.0	5,661.6	5,776.2	5,590.3	15.5	27.2	-23.95	-669.7	-1,089.7	803.7	775.3	28.39	28.313	
5,800.0	5,761.6	5,914.2	5,727.9	15.7	27.4	-23.97	-674.2	-1,097.7	807.4	778.7	28.71	28.126	
5,838.4	5,800.0	5,967.2	5,780.9	15.8	27.5	-130.77	-675.0	-1,099.3	808.5	766.0	42.47	19.037	
5,900.0	5,861.6	6,047.9	5,861.6	15.9	27.6	-130.76	-675.4	-1,100.0	809.1	766.4	42.66	18.967	
6,000.0	5,961.6	6,147.9	5,961.6	16.0	27.7	-130.76	-675.4	-1,100.0	809.1	766.1	42.92	18.850	
6,060.5	6,022.1	6,428.7	6,236.3	16.1	27.4	-133.18	-675.4	-1,050.0	801.1	758.5	42.60	18.806	
6,100.0	6,061.6	6,589.2	6,379.2	16.2	27.0	133.84	-675.4	-977.7	788.4	758.0	30.36	25.968	
6,150.0	6,111.4	6,753.3	6,506.5	16.2	26.6	129.54	-675.4	-874.5	767.6	736.7	30.96	24.797	
6,200.0	6,160.8	6,881.6	6,588.8	16.3	26.3	125.34	-675.4	-776.4	743.9	712.1	31.84	23.365	
6,250.0	6,209.6	6,983.8	6,642.0	16.3	26.3	121.57	-675.4	-689.2	718.8	685.9	32.90	21.848	
6,300.0	6,257.7	7,067.7	6,676.6	16.2	26.4	118.27	-675.4	-612.7	693.6	659.5	34.05	20.370	
6,350.0	6,304.7	7,138.8	6,699.2	16.2	26.6	115.36	-675.4	-545.4	668.8	633.6	35.21	18.996	
6,400.0	6,350.5	7,200.6	6,713.7	16.2	26.8	112.75	-675.4	-485.4	645.2	608.8	36.35	17.746	
6,450.0	6,394.9	7,255.6	6,722.5	16.1	27.1	110.33	-675.4	-431.1	623.0	585.5	37.49	16.616	
6,500.0	6,437.7	7,305.5	6,727.1	16.1	27.5	108.03	-675.4	-381.4	602.6	564.0	38.61	15.607	
6,550.0	6,478.8	7,351.5	6,728.5	16.1	27.8	105.76	-675.4	-335.5	584.3	544.6	39.72	14.710	
6,600.0	6,517.8	7,384.4	6,728.2	16.1	28.1	104.34	-675.4	-302.5	568.6	528.1	40.51	14.034	
6,650.0	6,554.8	7,417.7	6,727.9	16.1	28.5	102.75	-675.4	-269.2	555.9	514.5	41.41	13.424	
6,700.0	6,589.5	7,453.4	6,727.6	16.2	28.8	100.90	-675.4	-233.5	546.0	503.6	42.45	12.862	
6,750.0	6,621.7	7,491.3	6,727.2	16.3	29.3	98.85	-675.4	-195.6	538.7	495.1	43.58	12.361	
6,800.0	6,651.4	7,531.3	6,726.8	16.5	29.8	96.67	-675.4	-155.7	533.6	488.8	44.84	11.901	
6,850.0	6,678.4	7,573.1	6,726.5	16.8	30.4	94.45	-675.4	-113.8	530.4	484.3	46.16	11.492	
6,900.0	6,702.5	7,616.6	6,726.1	17.2	31.0	92.26	-675.4	-70.3	528.8	481.2	47.53	11.125	
6,950.0	6,723.8	7,661.7	6,725.6	17.6	31.7	90.18	-675.4	-25.2	528.3	479.3	48.97	10.788	
6,954.6	6,725.6	7,665.9	6,725.6	17.7	31.8	90.00	-675.4	-21.0	528.2	479.1	49.10	10.758	
7,000.0	6,742.0	7,708.1	6,725.2	18.2	32.5	88.29	-675.4	21.1	528.5	478.1	50.43	10.480	
7,050.0	6,757.2	7,755.6	6,724.8	18.8	33.3	86.63	-675.4	68.6	529.2	477.3	51.98	10.182	
7,100.0	6,769.2	7,804.0	6,724.3	19.5	34.2	85.26	-675.4	117.0	530.2	476.6	53.57	9.896	
7,150.0	6,778.0	7,853.1	6,723.9	20.3	35.2	84.21	-675.4	166.1	531.0	475.7	55.28	9.607	
7,200.0	6,783.6	7,902.7	6,723.4	21.1	36.1	83.52	-675.4	215.8	531.7	474.6	57.05	9.320	
7,250.0	6,785.9	7,952.6	6,722.9	22.0	37.2	83.20	-675.4	265.7	532.0	473.1	58.94	9.026	
7,266.4	6,786.0	7,969.0	6,722.8	22.3	37.5	83.18	-675.4	282.0	532.0	472.4	59.57	8.931	
7,300.0	6,785.7	8,002.6	6,722.5	22.9	38.2	83.17	-675.4	315.7	532.0	471.1	60.91	8.735	
7,400.0	6,785.0	8,102.6	6,721.6	24.9	40.4	83.16	-675.4	415.7	532.0	467.0	65.08	8.176	
7,500.0	6,784.2	8,202.6	6,720.6	27.1	42.6	83.14	-675.4	515.7	532.1	462.6	69.46	7.660	
7,600.0	6,783.4	8,302.6	6,719.7	29.3	45.0	83.12	-675.4	615.7	532.1	458.1	74.01	7.189	
7,700.0	6,782.7	8,402.6	6,718.8	31.7	47.3	83.11	-675.4	715.7	532.1	453.4	78.70	6.761	
7,800.0	6,781.9	8,502.6	6,717.9	34.1	49.8	83.09	-675.4	815.7	532.1	448.6	83.51	6.372	
7,900.0	6,781.1	8,602.6	6,716.9	36.6	52.2	83.07	-675.4	915.6	532.1	443.7	88.40	6.019	
8,000.0	6,780.4	8,702.6	6,716.0	39.1	54.7	83.05	-675.4	1,015.6	532.2	438.8	93.38	5.699	
8,100.0	6,779.6	8,802.6	6,715.1	41.6	57.3	83.04	-675.4	1,115.6	532.2	433.7	98.42	5.407	
8,200.0	6,778.8	8,902.6	6,714.2	44.2	59.8	83.02	-675.4	1,215.6	532.2	428.7	103.52	5.141	
8,300.0	6,778.1	9,002.6	6,713.2	46.8	62.4	83.00	-675.4	1,315.6	532.2	423.5	108.67	4.898	

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 Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-232 - Wellbore #1 - Plan #4 (7-15-15)													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 (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,400.0	6,777.3	9,102.6	6,712.3	49.5	65.0	82.99	82.99	-675.4	1,415.6	532.2	418.4	113.85	4.675	
8,500.0	6,776.5	9,202.6	6,711.4	52.1	67.6	82.97	82.97	-675.4	1,515.6	532.2	413.2	119.07	4.470	
8,600.0	6,775.7	9,302.6	6,710.5	54.8	70.2	82.95	82.95	-675.4	1,615.6	532.3	407.9	124.32	4.281	
8,700.0	6,775.0	9,402.6	6,709.5	57.5	72.9	82.94	82.94	-675.4	1,715.6	532.3	402.7	129.60	4.107	
8,800.0	6,774.2	9,502.6	6,708.6	60.2	75.5	82.92	82.92	-675.4	1,815.6	532.3	397.4	134.90	3.946	
8,900.0	6,773.4	9,602.6	6,707.7	62.9	78.2	82.90	82.90	-675.4	1,915.6	532.3	392.1	140.22	3.796	
9,000.0	6,772.7	9,702.6	6,706.8	65.6	80.9	82.89	82.89	-675.4	2,015.6	532.3	386.8	145.57	3.657	
9,100.0	6,771.9	9,802.6	6,705.8	68.3	83.5	82.87	82.87	-675.4	2,115.6	532.4	381.4	150.92	3.527	
9,200.0	6,771.1	9,902.6	6,704.9	71.0	86.2	82.85	82.85	-675.4	2,215.6	532.4	376.1	156.29	3.406	
9,300.0	6,770.4	10,002.6	6,704.0	73.8	88.9	82.84	82.84	-675.4	2,315.6	532.4	370.7	161.68	3.293	
9,400.0	6,769.6	10,102.6	6,703.1	76.5	91.6	82.82	82.82	-675.4	2,415.6	532.4	365.4	167.07	3.187	
9,500.0	6,768.8	10,202.6	6,702.1	79.2	94.4	82.80	82.80	-675.4	2,515.6	532.4	360.0	172.48	3.087	
9,600.0	6,768.1	10,302.6	6,701.2	82.0	97.1	82.79	82.79	-675.4	2,615.6	532.5	354.6	177.90	2.993	
9,700.0	6,767.3	10,402.6	6,700.3	84.7	99.8	82.77	82.77	-675.4	2,715.6	532.5	349.2	183.32	2.905	
9,800.0	6,766.5	10,502.6	6,699.4	87.5	102.5	82.75	82.75	-675.4	2,815.6	532.5	343.7	188.76	2.821	
9,900.0	6,765.8	10,602.6	6,698.4	90.2	105.3	82.74	82.74	-675.4	2,915.6	532.5	338.3	194.20	2.742	
10,000.0	6,765.0	10,702.6	6,697.5	93.0	108.0	82.72	82.72	-675.4	3,015.6	532.5	332.9	199.64	2.667	
10,100.0	6,764.2	10,802.6	6,696.6	95.8	110.7	82.70	82.70	-675.4	3,115.6	532.6	327.5	205.10	2.597	
10,200.0	6,763.5	10,902.6	6,695.7	98.5	113.5	82.69	82.69	-675.4	3,215.5	532.6	322.0	210.55	2.529	
10,300.0	6,762.7	11,002.6	6,694.7	101.3	116.2	82.67	82.67	-675.4	3,315.5	532.6	316.6	216.02	2.466	
10,400.0	6,761.9	11,102.6	6,693.8	104.1	119.0	82.65	82.65	-675.4	3,415.5	532.6	311.1	221.49	2.405	
10,500.0	6,761.2	11,202.6	6,692.9	106.9	121.7	82.64	82.64	-675.4	3,515.5	532.6	305.7	226.96	2.347	
10,600.0	6,760.4	11,302.6	6,692.0	109.6	124.5	82.62	82.62	-675.4	3,615.5	532.7	300.2	232.44	2.292	
10,700.0	6,759.6	11,402.6	6,691.0	112.4	127.2	82.60	82.60	-675.4	3,715.5	532.7	294.8	237.92	2.239	
10,800.0	6,758.9	11,502.6	6,690.1	115.2	130.0	82.59	82.59	-675.4	3,815.5	532.7	289.3	243.40	2.189	
10,900.0	6,758.1	11,602.6	6,689.2	118.0	132.7	82.57	82.57	-675.4	3,915.5	532.7	283.8	248.89	2.140	
11,000.0	6,757.3	11,702.6	6,688.3	120.8	135.5	82.55	82.55	-675.4	4,015.5	532.7	278.4	254.38	2.094	
11,100.0	6,756.5	11,802.6	6,687.3	123.5	138.3	82.53	82.53	-675.4	4,115.5	532.8	272.9	259.87	2.050	
11,200.0	6,755.8	11,902.6	6,686.4	126.3	141.0	82.52	82.52	-675.4	4,215.5	532.8	267.4	265.37	2.008	
11,300.0	6,755.0	12,002.6	6,685.5	129.1	143.8	82.50	82.50	-675.4	4,315.5	532.8	261.9	270.87	1.967	
11,400.0	6,754.2	12,102.6	6,684.6	131.9	146.6	82.48	82.48	-675.4	4,415.5	532.8	256.5	276.37	1.928	
11,500.0	6,753.5	12,202.6	6,683.6	134.7	149.3	82.47	82.47	-675.4	4,515.5	532.8	251.0	281.87	1.890	
11,600.0	6,752.7	12,302.6	6,682.7	137.5	152.1	82.45	82.45	-675.4	4,615.5	532.9	245.5	287.37	1.854	
11,700.0	6,751.9	12,402.6	6,681.8	140.3	154.9	82.43	82.43	-675.4	4,715.5	532.9	240.0	292.88	1.819	
11,800.0	6,751.2	12,502.6	6,680.9	143.0	157.7	82.42	82.42	-675.4	4,815.5	532.9	234.5	298.39	1.786	
11,900.0	6,750.4	12,602.6	6,679.9	145.8	160.4	82.40	82.40	-675.4	4,915.5	532.9	229.0	303.90	1.754	
12,000.0	6,749.6	12,702.6	6,679.0	148.6	163.2	82.38	82.38	-675.4	5,015.5	532.9	223.5	309.41	1.722	
12,100.0	6,748.9	12,802.6	6,678.1	151.4	166.0	82.37	82.37	-675.4	5,115.5	533.0	218.1	314.92	1.692	
12,200.0	6,748.1	12,902.6	6,677.2	154.2	168.8	82.35	82.35	-675.4	5,215.5	533.0	212.6	320.43	1.663	
12,300.0	6,747.3	13,002.6	6,676.2	157.0	171.6	82.33	82.33	-675.4	5,315.5	533.0	207.1	325.94	1.635	
12,400.0	6,746.6	13,102.6	6,675.3	159.8	174.3	82.32	82.32	-675.4	5,415.4	533.0	201.6	331.46	1.608	
12,500.0	6,745.8	13,202.6	6,674.4	162.6	177.1	82.30	82.30	-675.4	5,515.4	533.1	196.1	336.98	1.582	
12,600.0	6,745.0	13,302.6	6,673.5	165.4	179.9	82.28	82.28	-675.4	5,615.4	533.1	190.6	342.49	1.556	
12,700.0	6,744.3	13,402.6	6,672.5	168.2	182.7	82.27	82.27	-675.4	5,715.4	533.1	185.1	348.01	1.532	
12,800.0	6,743.5	13,502.6	6,671.6	171.0	185.5	82.25	82.25	-675.4	5,815.4	533.1	179.6	353.53	1.508	
12,900.0	6,742.7	13,602.6	6,670.7	173.8	188.3	82.23	82.23	-675.4	5,915.4	533.1	174.1	359.05	1.485 Level 3	
13,000.0	6,742.0	13,702.6	6,669.8	176.6	191.0	82.22	82.22	-675.4	6,015.4	533.2	168.6	364.57	1.462 Level 3	
13,100.0	6,741.2	13,802.6	6,668.8	179.4	193.8	82.20	82.20	-675.4	6,115.4	533.2	163.1	370.09	1.441 Level 3	
13,200.0	6,740.4	13,902.6	6,667.9	182.2	196.6	82.18	82.18	-675.4	6,215.4	533.2	157.6	375.61	1.420 Level 3	
13,300.0	6,739.7	14,002.6	6,667.0	185.0	199.4	82.17	82.17	-675.4	6,315.4	533.2	152.1	381.13	1.399 Level 3	
13,400.0	6,738.9	14,102.6	6,666.1	187.8	202.2	82.15	82.15	-675.4	6,415.4	533.2	146.6	386.66	1.379 Level 3	

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 Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-232 - Wellbore #1 - Plan #4 (7-15-15)												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 (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
13,500.0	6,738.1	14,202.6	6,665.1	190.6	205.0	82.13	-675.4	6,515.4	533.3	141.1	392.18	1.360	Level 3
13,600.0	6,737.3	14,302.6	6,664.2	193.4	207.8	82.12	-675.4	6,615.4	533.3	135.6	397.70	1.341	Level 3
13,700.0	6,736.6	14,402.6	6,663.3	196.2	210.6	82.10	-675.4	6,715.4	533.3	130.1	403.23	1.323	Level 3
13,800.0	6,735.8	14,502.6	6,662.4	199.0	213.4	82.08	-675.4	6,815.4	533.3	124.6	408.75	1.305	Level 3
13,900.0	6,735.0	14,602.6	6,661.4	201.8	216.2	82.07	-675.4	6,915.4	533.4	119.1	414.27	1.287	Level 3
14,000.0	6,734.3	14,702.6	6,660.5	204.6	218.9	82.05	-675.4	7,015.4	533.4	113.6	419.80	1.271	Level 3
14,100.0	6,733.5	14,802.6	6,659.6	207.4	221.7	82.03	-675.4	7,115.4	533.4	108.1	425.32	1.254	Level 3
14,200.0	6,732.7	14,902.6	6,658.7	210.2	224.5	82.02	-675.4	7,215.4	533.4	102.6	430.85	1.238	Level 2
14,300.0	6,732.0	15,002.6	6,657.7	213.0	227.3	82.00	-675.4	7,315.4	533.4	97.1	436.37	1.222	Level 2
14,400.0	6,731.2	15,102.6	6,656.8	215.8	230.1	81.98	-675.4	7,415.4	533.5	91.6	441.90	1.207	Level 2
14,500.0	6,730.4	15,202.6	6,655.9	218.6	232.9	81.97	-675.4	7,515.4	533.5	86.1	447.42	1.192	Level 2
14,600.0	6,729.7	15,302.6	6,655.0	221.4	235.7	81.95	-675.4	7,615.4	533.5	80.6	452.95	1.178	Level 2
14,700.0	6,728.9	15,402.6	6,654.0	224.2	238.5	81.93	-675.4	7,715.3	533.5	75.1	458.48	1.164	Level 2
14,800.0	6,728.1	15,502.6	6,653.1	227.0	241.3	81.92	-675.4	7,815.3	533.6	69.5	464.00	1.150	Level 2
14,900.0	6,727.4	15,602.6	6,652.2	229.8	244.1	81.90	-675.4	7,915.3	533.6	64.0	469.53	1.136	Level 2
15,000.0	6,726.6	15,702.6	6,651.3	232.6	246.9	81.88	-675.4	8,015.3	533.6	58.5	475.05	1.123	Level 2
15,100.0	6,725.8	15,802.6	6,650.3	235.4	249.7	81.87	-675.4	8,115.3	533.6	53.0	480.58	1.110	Level 2
15,200.0	6,725.1	15,902.6	6,649.4	238.2	252.5	81.85	-675.4	8,215.3	533.6	47.5	486.10	1.098	Level 2
15,300.0	6,724.3	16,002.6	6,648.5	241.0	255.3	81.83	-675.4	8,315.3	533.7	42.0	491.63	1.085	Level 2
15,400.0	6,723.5	16,102.6	6,647.6	243.8	258.1	81.82	-675.4	8,415.3	533.7	36.5	497.16	1.073	Level 2
15,500.0	6,722.8	16,202.6	6,646.6	246.6	260.9	81.80	-675.4	8,515.3	533.7	31.0	502.68	1.062	Level 2
15,600.0	6,722.0	16,302.6	6,645.7	249.4	263.7	81.78	-675.4	8,615.3	533.7	25.5	508.21	1.050	Level 2
15,700.0	6,721.2	16,402.6	6,644.8	252.2	266.5	81.77	-675.4	8,715.3	533.8	20.0	513.73	1.039	Level 2
15,800.0	6,720.5	16,502.6	6,643.9	255.0	269.3	81.75	-675.4	8,815.3	533.8	14.5	519.26	1.028	Level 2
15,900.0	6,719.7	16,602.6	6,642.9	257.8	272.1	81.73	-675.4	8,915.3	533.8	9.0	524.79	1.017	Level 2
16,000.0	6,718.9	16,702.6	6,642.0	260.6	274.9	81.72	-675.4	9,015.3	533.8	3.5	530.31	1.007	Level 2
16,100.0	6,718.2	16,802.6	6,641.1	263.4	277.6	81.70	-675.4	9,115.3	533.8	-2.0	535.84	0.996	Level 1
16,200.0	6,717.4	16,902.6	6,640.2	266.2	280.4	81.68	-675.4	9,215.3	533.9	-7.5	541.36	0.986	Level 1
16,300.0	6,716.6	17,002.6	6,639.2	269.0	283.2	81.67	-675.4	9,315.3	533.9	-13.0	546.89	0.976	Level 1
16,400.0	6,715.8	17,102.6	6,638.3	271.8	286.0	81.65	-675.4	9,415.3	533.9	-18.5	552.41	0.967	Level 1
16,500.0	6,715.1	17,202.6	6,637.4	274.6	288.8	81.63	-675.4	9,515.3	533.9	-24.0	557.94	0.957	Level 1
16,600.0	6,714.3	17,302.6	6,636.5	277.4	291.6	81.62	-675.4	9,615.3	534.0	-29.5	563.46	0.948	Level 1
16,700.0	6,713.5	17,402.6	6,635.5	280.2	294.4	81.60	-675.4	9,715.3	534.0	-35.0	568.98	0.938	Level 1
16,800.0	6,712.8	17,502.6	6,634.6	283.0	297.2	81.58	-675.4	9,815.3	534.0	-40.5	574.51	0.929	Level 1
16,900.0	6,712.0	17,602.6	6,633.7	285.8	300.0	81.57	-675.4	9,915.3	534.0	-46.0	580.03	0.921	Level 1
17,000.0	6,711.2	17,702.6	6,632.8	288.6	302.8	81.55	-675.4	10,015.2	534.0	-51.5	585.56	0.912	Level 1
17,100.0	6,710.5	17,802.6	6,631.8	291.4	305.6	81.53	-675.4	10,115.2	534.1	-57.0	591.08	0.904	Level 1
17,200.0	6,709.7	17,902.6	6,630.9	294.2	308.4	81.52	-675.4	10,215.2	534.1	-62.5	596.60	0.895	Level 1
17,291.6	6,709.0	17,994.3	6,630.1	296.8	311.0	81.50	-675.4	10,306.9	534.1	-67.5	601.66	0.888	Level 1, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-402 - Wellbore #1 - Plan #3 (7-15-15)												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 (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	-180.00	-32.8	0.0	32.8				
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-32.8	0.0	32.8	32.6	0.22	145.840	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-32.8	0.0	32.8	32.1	0.67	48.613	
300.0	300.0	300.0	300.0	0.6	0.6	-180.00	-32.8	0.0	32.8	31.7	1.12	29.168	
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-32.8	0.0	32.8	31.2	1.57	20.834	
500.0	500.0	500.0	500.0	1.0	1.0	-180.00	-32.8	0.0	32.8	30.8	2.02	16.204	
600.0	600.0	600.0	600.0	1.2	1.2	-180.00	-32.8	0.0	32.8	30.3	2.47	13.258	
700.0	700.0	700.0	700.0	1.5	1.5	-180.00	-32.8	0.0	32.8	29.9	2.92	11.218	
800.0	800.0	800.0	800.0	1.7	1.7	-180.00	-32.8	0.0	32.8	29.4	3.37	9.723	
900.0	900.0	900.0	900.0	1.9	1.9	-180.00	-32.8	0.0	32.8	29.0	3.82	8.579	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-180.00	-32.8	0.0	32.8	28.5	4.27	7.676	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-180.00	-32.8	0.0	32.8	28.1	4.72	6.945	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-180.00	-32.8	0.0	32.8	27.6	5.17	6.341	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-180.00	-32.8	0.0	32.8	27.2	5.62	5.834	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-180.00	-32.8	0.0	32.8	26.7	6.07	5.401	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-180.00	-32.8	0.0	32.8	26.3	6.52	5.029 CC	
1,600.0	1,600.0	1,599.6	1,599.6	3.5	3.5	-177.97	-33.3	-1.2	33.3	26.4	6.95	4.800	
1,700.0	1,700.0	1,699.1	1,699.0	3.7	3.7	-172.31	-34.9	-4.7	35.3	27.9	7.36	4.792	
1,800.0	1,800.0	1,798.3	1,798.0	3.9	3.9	-164.28	-37.6	-10.6	39.1	31.4	7.78	5.031	
1,900.0	1,900.0	1,897.1	1,896.4	4.2	4.1	-155.60	-41.4	-18.8	45.6	37.3	8.21	5.548	
2,000.0	2,000.0	1,995.4	1,994.0	4.4	4.3	-147.68	-46.1	-29.2	54.9	46.2	8.66	6.341	
2,100.0	2,100.0	2,093.2	2,090.8	4.6	4.5	-34.69	-51.9	-41.8	66.6	57.5	9.05	7.354	
2,200.0	2,200.0	2,190.5	2,186.7	4.8	4.8	-30.30	-58.7	-56.6	79.6	70.1	9.45	8.425	
2,300.0	2,299.9	2,287.3	2,281.7	5.0	5.1	-27.12	-66.4	-73.5	93.8	83.9	9.85	9.522	
2,400.0	2,399.7	2,383.6	2,375.8	5.2	5.4	-24.77	-75.1	-92.5	109.0	98.8	10.26	10.628	
2,500.0	2,499.4	2,480.6	2,469.9	5.4	5.8	-23.00	-84.7	-113.7	125.0	114.3	10.68	11.711	
2,600.0	2,598.9	2,579.5	2,565.8	5.6	6.2	-21.83	-94.8	-135.6	139.9	128.8	11.10	12.605	
2,700.0	2,698.3	2,678.6	2,661.9	5.8	6.6	-21.11	-104.8	-157.6	153.3	141.7	11.53	13.288	
2,800.0	2,797.4	2,777.9	2,758.2	6.1	7.0	-20.72	-114.9	-179.6	165.0	153.0	11.98	13.777	
2,900.0	2,896.3	2,877.3	2,854.7	6.3	7.5	-20.59	-125.0	-201.7	175.1	162.7	12.43	14.091	
2,932.7	2,928.5	2,909.9	2,886.2	6.4	7.6	-20.59	-128.3	-208.9	178.1	165.5	12.58	14.159	
3,000.0	2,995.0	2,977.0	2,951.3	6.6	7.9	-20.64	-135.1	-223.8	184.0	171.1	12.90	14.260	
3,100.0	3,093.7	3,076.6	3,047.9	6.9	8.4	-20.70	-145.2	-245.9	192.7	179.4	13.39	14.396	
3,200.0	3,192.4	3,176.2	3,144.5	7.2	8.9	-20.76	-155.3	-268.0	201.5	187.6	13.88	14.516	
3,300.0	3,291.0	3,275.8	3,241.1	7.5	9.4	-20.81	-165.4	-290.1	210.3	195.9	14.38	14.622	
3,400.0	3,389.7	3,375.4	3,337.7	7.8	9.8	-20.86	-175.5	-312.2	219.1	204.2	14.89	14.715	
3,500.0	3,488.4	3,475.0	3,434.3	8.1	10.3	-20.91	-185.6	-334.3	227.8	212.4	15.40	14.798	
3,600.0	3,587.1	3,574.6	3,530.9	8.5	10.8	-20.95	-195.7	-356.4	236.6	220.7	15.91	14.872	
3,700.0	3,685.7	3,674.3	3,627.5	8.8	11.3	-20.99	-205.8	-378.5	245.4	228.9	16.43	14.937	
3,800.0	3,784.4	3,773.9	3,724.1	9.1	11.8	-21.02	-215.9	-400.6	254.1	237.2	16.95	14.996	
3,900.0	3,883.1	3,873.5	3,820.7	9.5	12.3	-21.06	-226.0	-422.7	262.9	245.4	17.47	15.048	
4,000.0	3,981.8	3,973.1	3,917.3	9.8	12.8	-21.09	-236.1	-444.8	271.7	253.7	18.00	15.095	
4,100.0	4,080.5	4,072.7	4,013.9	10.2	13.3	-21.12	-246.2	-466.9	280.5	261.9	18.53	15.137	
4,200.0	4,179.1	4,172.3	4,110.5	10.5	13.8	-21.15	-256.3	-488.9	289.2	270.2	19.06	15.175	
4,300.0	4,277.8	4,271.9	4,207.2	10.9	14.4	-21.17	-266.4	-511.0	298.0	278.4	19.59	15.209	
4,400.0	4,376.5	4,371.6	4,303.8	11.2	14.9	-21.20	-276.5	-533.1	306.8	286.6	20.13	15.239	
4,500.0	4,475.2	4,471.2	4,400.4	11.6	15.4	-21.22	-286.6	-555.2	315.5	294.9	20.67	15.267	
4,600.0	4,573.8	4,570.8	4,497.0	11.9	15.9	-21.24	-296.7	-577.3	324.3	303.1	21.21	15.292	
4,700.0	4,672.5	4,670.4	4,593.6	12.3	16.4	-21.26	-306.8	-599.4	333.1	311.3	21.75	15.314	
4,800.0	4,771.2	4,770.0	4,690.2	12.7	16.9	-21.28	-316.9	-621.5	341.9	319.6	22.29	15.334	
4,900.0	4,869.9	4,869.6	4,786.8	13.0	17.4	-21.30	-327.0	-643.6	350.6	327.8	22.84	15.353	

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 Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design		Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-402 - Wellbore #1 - Plan #3 (7-15-15)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,000.0	4,968.6	4,969.2	4,883.4	13.4	18.0	-21.32	-337.1	-665.7	359.4	336.0	23.38	15.370			
5,100.0	5,067.2	5,068.9	4,980.0	13.7	18.5	-21.34	-347.2	-687.8	368.2	344.2	23.93	15.385			
5,200.0	5,165.9	5,168.5	5,076.6	14.1	19.0	-21.35	-357.3	-709.9	377.0	352.5	24.48	15.398			
5,300.0	5,264.6	5,268.1	5,173.2	14.5	19.5	-21.37	-367.4	-732.0	385.7	360.7	25.03	15.411			
5,372.1	5,335.7	5,339.9	5,242.9	14.7	19.9	-21.38	-374.7	-748.0	392.0	366.6	25.43	15.419			
5,400.0	5,363.3	5,367.7	5,269.8	14.8	20.0	-21.40	-377.5	-754.1	394.6	369.0	25.58	15.427			
5,500.0	5,462.4	5,477.7	5,376.8	15.1	20.5	-21.37	-388.2	-777.6	405.0	378.9	26.09	15.523			
5,600.0	5,561.9	5,593.3	5,490.0	15.3	20.9	-21.27	-397.8	-798.4	415.0	388.5	26.54	15.635			
5,700.0	5,661.6	5,709.4	5,604.7	15.5	21.3	-21.13	-405.4	-815.1	424.3	397.4	26.93	15.755			
5,800.0	5,761.6	5,826.0	5,720.4	15.7	21.6	-20.94	-411.1	-827.6	432.9	405.6	27.26	15.881			
5,838.4	5,800.0	5,870.9	5,765.2	15.8	21.7	-127.67	-412.8	-831.2	436.0	399.2	36.78	11.854			
5,900.0	5,861.6	5,943.1	5,837.2	15.9	21.8	-127.52	-414.9	-835.8	440.2	403.1	37.03	11.888			
6,000.0	5,961.6	6,060.7	5,954.7	16.0	22.0	-127.40	-416.6	-839.7	443.7	406.3	37.38	11.869			
6,060.5	6,022.1	6,128.0	6,022.1	16.1	22.0	-127.38	-416.8	-840.0	444.0	406.4	37.58	11.816			
6,100.0	6,061.6	6,167.5	6,061.6	16.2	22.1	142.66	-416.8	-840.0	444.8	416.6	28.23	15.759			
6,150.0	6,111.4	6,217.4	6,111.4	16.2	22.2	142.83	-416.8	-840.0	448.2	420.1	28.12	15.938			
6,200.0	6,160.8	6,306.8	6,200.6	16.3	22.2	143.33	-416.8	-835.4	452.2	424.3	27.94	16.188			
6,250.0	6,209.6	6,402.3	6,294.6	16.3	22.2	143.57	-416.8	-819.0	454.0	426.3	27.67	16.409			
6,300.0	6,257.7	6,498.0	6,386.1	16.2	22.0	143.48	-416.8	-791.0	453.3	426.0	27.32	16.591			
6,350.0	6,304.7	6,592.9	6,472.6	16.2	21.8	143.06	-416.8	-752.1	450.2	423.3	26.93	16.716			
6,400.0	6,350.5	6,686.0	6,552.2	16.2	21.6	142.34	-416.8	-703.8	444.9	418.4	26.55	16.756			
6,450.0	6,394.9	6,776.6	6,623.4	16.1	21.4	141.31	-416.8	-648.0	437.5	411.3	26.23	16.678			
6,500.0	6,437.7	6,863.8	6,685.2	16.1	21.3	139.99	-416.8	-586.5	428.2	402.2	26.04	16.441			
6,550.0	6,478.8	6,947.5	6,737.6	16.1	21.3	138.40	-416.8	-521.3	417.3	391.3	26.06	16.014			
6,600.0	6,517.8	7,027.3	6,780.7	16.1	21.4	136.54	-416.8	-454.2	405.2	378.8	26.36	15.370			
6,650.0	6,554.8	7,103.2	6,814.9	16.1	21.6	134.43	-416.8	-386.5	392.1	365.1	26.98	14.534			
6,700.0	6,589.5	7,175.3	6,841.1	16.2	21.9	132.08	-416.8	-319.3	378.3	350.4	27.96	13.533			
6,750.0	6,621.7	7,243.8	6,859.9	16.3	22.4	129.50	-416.8	-253.5	364.2	335.0	29.28	12.440			
6,800.0	6,651.4	7,308.9	6,872.3	16.5	23.0	126.69	-416.8	-189.6	350.1	319.2	30.94	11.317			
6,850.0	6,678.4	7,370.9	6,879.1	16.8	23.7	123.64	-416.8	-127.9	336.4	303.5	32.90	10.224			
6,900.0	6,702.5	7,428.9	6,880.8	17.2	24.4	120.46	-416.8	-70.0	323.2	288.1	35.06	9.219			
6,950.0	6,723.8	7,474.1	6,880.7	17.6	25.1	118.10	-416.8	-24.8	311.9	275.0	36.92	8.447			
7,000.0	6,742.0	7,520.6	6,880.5	18.2	25.8	115.81	-416.8	21.7	303.1	264.2	38.91	7.790			
7,050.0	6,757.2	7,568.2	6,880.4	18.8	26.6	113.72	-416.8	69.3	296.4	255.4	40.97	7.235			
7,100.0	6,769.2	7,616.7	6,880.2	19.5	27.4	111.93	-416.8	117.8	291.6	248.5	43.04	6.774			
7,150.0	6,778.0	7,665.9	6,880.1	20.3	28.3	110.53	-416.8	166.9	288.3	243.1	45.12	6.389			
7,200.0	6,783.6	7,715.5	6,879.9	21.1	29.2	109.60	-416.8	216.6	286.3	239.1	47.14	6.073			
7,250.0	6,785.9	7,765.4	6,879.8	22.0	30.2	109.19	-416.8	266.5	285.5	236.4	49.11	5.813			
7,262.8	6,786.0	7,778.2	6,879.8	22.2	30.5	109.18	-416.8	279.3	285.4	235.8	49.59	5.756			
7,266.4	6,786.0	7,781.8	6,879.8	22.3	30.5	109.18	-416.8	282.9	285.4	235.7	49.72	5.740			
7,300.0	6,785.7	7,815.4	6,879.7	22.9	31.2	109.21	-416.8	316.5	285.5	234.5	50.98	5.600			
7,400.0	6,785.0	7,915.4	6,879.4	24.9	33.4	109.30	-416.8	416.5	285.6	230.7	54.89	5.203			
7,500.0	6,784.2	8,015.4	6,879.1	27.1	35.6	109.39	-416.8	516.5	285.8	226.8	59.03	4.842			
7,600.0	6,783.4	8,115.4	6,878.8	29.3	37.9	109.48	-416.8	616.5	286.0	222.6	63.34	4.515			
7,700.0	6,782.7	8,215.4	6,878.5	31.7	40.3	109.56	-416.8	716.5	286.1	218.3	67.79	4.221			
7,800.0	6,781.9	8,315.4	6,878.2	34.1	42.7	109.65	-416.8	816.5	286.3	213.9	72.35	3.957			
7,900.0	6,781.1	8,415.4	6,877.9	36.6	45.2	109.74	-416.8	916.5	286.4	209.4	77.00	3.720			
8,000.0	6,780.4	8,515.4	6,877.6	39.1	47.7	109.83	-416.8	1,016.5	286.6	204.9	81.72	3.507			
8,100.0	6,779.6	8,615.4	6,877.3	41.6	50.3	109.92	-416.8	1,116.5	286.7	200.2	86.50	3.315			
8,200.0	6,778.8	8,715.4	6,877.0	44.2	52.9	110.01	-416.8	1,216.5	286.9	195.6	91.34	3.141			
8,300.0	6,778.1	8,815.4	6,876.7	46.8	55.5	110.10	-416.8	1,316.5	287.1	190.9	96.21	2.984			

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 Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-402 - Wellbore #1 - Plan #3 (7-15-15)												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 (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,400.0	6,777.3	8,915.4	6,876.4	49.5	58.1	110.18	-416.8	1,416.5	287.2	186.1	101.11	2.841	
8,500.0	6,776.5	9,015.4	6,876.1	52.1	60.7	110.27	-416.8	1,516.5	287.4	181.3	106.05	2.710	
8,600.0	6,775.7	9,115.4	6,875.8	54.8	63.3	110.36	-416.8	1,616.5	287.6	176.6	111.01	2.590	
8,700.0	6,775.0	9,215.4	6,875.5	57.5	66.0	110.45	-416.8	1,716.5	287.7	171.7	115.98	2.481	
8,800.0	6,774.2	9,315.4	6,875.2	60.2	68.7	110.54	-416.8	1,816.5	287.9	166.9	120.98	2.380	
8,900.0	6,773.4	9,415.4	6,874.9	62.9	71.4	110.62	-416.8	1,916.5	288.1	162.1	125.98	2.286	
9,000.0	6,772.7	9,515.4	6,874.6	65.6	74.1	110.71	-416.8	2,016.5	288.2	157.2	131.00	2.200	
9,100.0	6,771.9	9,615.4	6,874.3	68.3	76.8	110.80	-416.8	2,116.5	288.4	152.4	136.03	2.120	
9,200.0	6,771.1	9,715.4	6,874.0	71.0	79.5	110.89	-416.8	2,216.5	288.6	147.5	141.07	2.045	
9,300.0	6,770.4	9,815.4	6,873.7	73.8	82.2	110.97	-416.8	2,316.5	288.7	142.6	146.11	1.976	
9,400.0	6,769.6	9,915.4	6,873.4	76.5	84.9	111.06	-416.8	2,416.5	288.9	137.7	151.16	1.911	
9,500.0	6,768.8	10,015.4	6,873.1	79.2	87.6	111.15	-416.8	2,516.5	289.1	132.8	156.21	1.850	
9,600.0	6,768.1	10,115.4	6,872.8	82.0	90.4	111.24	-416.8	2,616.5	289.2	128.0	161.27	1.793	
9,700.0	6,767.3	10,215.4	6,872.5	84.7	93.1	111.32	-416.8	2,716.5	289.4	123.1	166.33	1.740	
9,800.0	6,766.5	10,315.4	6,872.2	87.5	95.8	111.41	-416.8	2,816.5	289.6	118.2	171.39	1.690	
9,900.0	6,765.8	10,415.4	6,871.9	90.2	98.6	111.50	-416.8	2,916.5	289.7	113.3	176.45	1.642	
10,000.0	6,765.0	10,515.4	6,871.6	93.0	101.3	111.58	-416.8	3,016.5	289.9	108.4	181.51	1.597	
10,100.0	6,764.2	10,615.4	6,871.3	95.8	104.1	111.67	-416.8	3,116.5	290.1	103.5	186.57	1.555	
10,200.0	6,763.5	10,715.4	6,871.0	98.5	106.8	111.76	-416.8	3,216.5	290.3	98.6	191.63	1.515	
10,300.0	6,762.7	10,815.4	6,870.8	101.3	109.6	111.84	-416.8	3,316.5	290.4	93.8	196.68	1.477 Level 3	
10,400.0	6,761.9	10,915.4	6,870.5	104.1	112.4	111.93	-416.8	3,416.5	290.6	88.9	201.74	1.441 Level 3	
10,500.0	6,761.2	11,015.4	6,870.2	106.9	115.1	112.01	-416.8	3,516.5	290.8	84.0	206.79	1.406 Level 3	
10,600.0	6,760.4	11,115.4	6,869.9	109.6	117.9	112.10	-416.8	3,616.5	291.0	79.1	211.85	1.373 Level 3	
10,700.0	6,759.6	11,215.4	6,869.6	112.4	120.7	112.19	-416.8	3,716.5	291.1	74.3	216.90	1.342 Level 3	
10,800.0	6,758.9	11,315.4	6,869.3	115.2	123.4	112.27	-416.8	3,816.5	291.3	69.4	221.94	1.313 Level 3	
10,900.0	6,758.1	11,415.4	6,869.0	118.0	126.2	112.36	-416.8	3,916.5	291.5	64.5	226.98	1.284 Level 3	
11,000.0	6,757.3	11,515.4	6,868.7	120.8	129.0	112.44	-416.8	4,016.5	291.7	59.7	232.02	1.257 Level 3	
11,100.0	6,756.5	11,615.4	6,868.4	123.5	131.7	112.53	-416.8	4,116.5	291.9	54.8	237.06	1.231 Level 2	
11,200.0	6,755.8	11,715.4	6,868.1	126.3	134.5	112.61	-416.8	4,216.5	292.0	50.0	242.09	1.206 Level 2	
11,300.0	6,755.0	11,815.4	6,867.8	129.1	137.3	112.70	-416.8	4,316.5	292.2	45.1	247.12	1.183 Level 2	
11,400.0	6,754.2	11,915.4	6,867.5	131.9	140.1	112.79	-416.8	4,416.5	292.4	40.3	252.15	1.160 Level 2	
11,500.0	6,753.5	12,015.4	6,867.2	134.7	142.8	112.87	-416.8	4,516.5	292.6	35.4	257.17	1.138 Level 2	
11,600.0	6,752.7	12,115.4	6,866.9	137.5	145.6	112.96	-416.8	4,616.5	292.8	30.6	262.18	1.117 Level 2	
11,700.0	6,751.9	12,215.4	6,866.6	140.3	148.4	113.04	-416.8	4,716.5	293.0	25.8	267.20	1.096 Level 2	
11,800.0	6,751.2	12,315.4	6,866.3	143.0	151.2	113.12	-416.8	4,816.5	293.1	20.9	272.20	1.077 Level 2	
11,900.0	6,750.4	12,415.4	6,866.0	145.8	154.0	113.21	-416.8	4,916.5	293.3	16.1	277.21	1.058 Level 2	
12,000.0	6,749.6	12,515.4	6,865.7	148.6	156.8	113.29	-416.8	5,016.5	293.5	11.3	282.20	1.040 Level 2	
12,100.0	6,748.9	12,615.4	6,865.4	151.4	159.5	113.38	-416.8	5,116.5	293.7	6.5	287.20	1.023 Level 2	
12,200.0	6,748.1	12,715.4	6,865.1	154.2	162.3	113.46	-416.8	5,216.5	293.9	1.7	292.18	1.006 Level 2	
12,300.0	6,747.3	12,815.4	6,864.8	157.0	165.1	113.55	-416.8	5,316.5	294.1	-3.1	297.17	0.990 Level 1	
12,400.0	6,746.6	12,915.4	6,864.5	159.8	167.9	113.63	-416.8	5,416.5	294.3	-7.9	302.14	0.974 Level 1	
12,500.0	6,745.8	13,015.4	6,864.2	162.6	170.7	113.72	-416.8	5,516.5	294.5	-12.7	307.12	0.959 Level 1	
12,600.0	6,745.0	13,115.4	6,863.9	165.4	173.5	113.80	-416.8	5,616.5	294.6	-17.4	312.08	0.944 Level 1	
12,700.0	6,744.3	13,215.4	6,863.6	168.2	176.3	113.88	-416.8	5,716.5	294.8	-22.2	317.04	0.930 Level 1	
12,800.0	6,743.5	13,315.4	6,863.3	171.0	179.1	113.97	-416.8	5,816.5	295.0	-27.0	322.00	0.916 Level 1	
12,900.0	6,742.7	13,415.4	6,863.0	173.8	181.9	114.05	-416.8	5,916.5	295.2	-31.7	326.95	0.903 Level 1	
13,000.0	6,742.0	13,515.4	6,862.7	176.6	184.6	114.13	-416.8	6,016.4	295.4	-36.5	331.90	0.890 Level 1	
13,100.0	6,741.2	13,615.4	6,862.4	179.4	187.4	114.22	-416.8	6,116.4	295.6	-41.2	336.83	0.878 Level 1	
13,200.0	6,740.4	13,715.4	6,862.1	182.2	190.2	114.30	-416.8	6,216.4	295.8	-46.0	341.77	0.865 Level 1	
13,300.0	6,739.7	13,815.4	6,861.9	185.0	193.0	114.38	-416.8	6,316.4	296.0	-50.7	346.70	0.854 Level 1	
13,400.0	6,738.9	13,915.4	6,861.6	187.8	195.8	114.47	-416.8	6,416.4	296.2	-55.4	351.62	0.842 Level 1	

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 Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-402 - Wellbore #1 - Plan #3 (7-15-15)													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 (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	
13,500.0	6,738.1	14,015.4	6,861.3	190.6	198.6	114.55	-416.8	6,516.4	296.4	-60.2	356.53	0.831	Level 1	
13,600.0	6,737.3	14,115.4	6,861.0	193.4	201.4	114.63	-416.8	6,616.4	296.6	-64.9	361.44	0.821	Level 1	
13,700.0	6,736.6	14,215.4	6,860.7	196.2	204.2	114.71	-416.8	6,716.4	296.8	-69.6	366.35	0.810	Level 1	
13,800.0	6,735.8	14,315.4	6,860.4	199.0	207.0	114.80	-416.8	6,816.4	297.0	-74.3	371.25	0.800	Level 1	
13,900.0	6,735.0	14,415.4	6,860.1	201.8	209.8	114.88	-416.8	6,916.4	297.2	-79.0	376.14	0.790	Level 1	
14,000.0	6,734.3	14,515.4	6,859.8	204.6	212.6	114.96	-416.8	7,016.4	297.4	-83.7	381.02	0.780	Level 1	
14,100.0	6,733.5	14,615.4	6,859.5	207.4	215.4	115.04	-416.8	7,116.4	297.6	-88.3	385.91	0.771	Level 1	
14,200.0	6,732.7	14,715.4	6,859.2	210.2	218.2	115.13	-416.8	7,216.4	297.8	-93.0	390.78	0.762	Level 1	
14,300.0	6,732.0	14,815.4	6,858.9	213.0	221.0	115.21	-416.8	7,316.4	298.0	-97.7	395.65	0.753	Level 1	
14,400.0	6,731.2	14,915.4	6,858.6	215.8	223.8	115.29	-416.8	7,416.4	298.2	-102.3	400.51	0.744	Level 1	
14,500.0	6,730.4	15,015.4	6,858.3	218.6	226.6	115.37	-416.8	7,516.4	298.4	-107.0	405.36	0.736	Level 1	
14,600.0	6,729.7	15,115.4	6,858.0	221.4	229.4	115.45	-416.8	7,616.4	298.6	-111.6	410.21	0.728	Level 1	
14,700.0	6,728.9	15,215.4	6,857.7	224.2	232.2	115.54	-416.8	7,716.4	298.8	-116.3	415.06	0.720	Level 1	
14,800.0	6,728.1	15,315.4	6,857.4	227.0	235.0	115.62	-416.8	7,816.4	299.0	-120.9	419.89	0.712	Level 1	
14,900.0	6,727.4	15,415.4	6,857.1	229.8	237.8	115.70	-416.8	7,916.4	299.2	-125.5	424.72	0.704	Level 1	
15,000.0	6,726.6	15,515.4	6,856.8	232.6	240.6	115.78	-416.8	8,016.4	299.4	-130.2	429.55	0.697	Level 1	
15,100.0	6,725.8	15,615.4	6,856.5	235.4	243.4	115.86	-416.8	8,116.4	299.6	-134.8	434.36	0.690	Level 1	
15,200.0	6,725.1	15,715.4	6,856.2	238.2	246.2	115.94	-416.8	8,216.4	299.8	-139.4	439.18	0.683	Level 1	
15,300.0	6,724.3	15,815.4	6,855.9	241.0	249.0	116.02	-416.8	8,316.4	300.0	-144.0	443.98	0.676	Level 1	
15,400.0	6,723.5	15,915.4	6,855.6	243.8	251.8	116.10	-416.8	8,416.4	300.2	-148.6	448.78	0.669	Level 1	
15,500.0	6,722.8	16,015.4	6,855.3	246.6	254.6	116.18	-416.8	8,516.4	300.4	-153.2	453.57	0.662	Level 1	
15,600.0	6,722.0	16,115.4	6,855.0	249.4	257.4	116.27	-416.8	8,616.4	300.6	-157.7	458.35	0.656	Level 1	
15,700.0	6,721.2	16,215.4	6,854.7	252.2	260.2	116.35	-416.8	8,716.4	300.8	-162.3	463.13	0.650	Level 1	
15,800.0	6,720.5	16,315.4	6,854.4	255.0	263.0	116.43	-416.8	8,816.4	301.0	-166.9	467.91	0.643	Level 1	
15,900.0	6,719.7	16,415.4	6,854.1	257.8	265.8	116.51	-416.8	8,916.4	301.3	-171.4	472.67	0.637	Level 1	
16,000.0	6,718.9	16,515.4	6,853.8	260.6	268.6	116.59	-416.8	9,016.4	301.5	-176.0	477.43	0.631	Level 1	
16,100.0	6,718.2	16,615.4	6,853.5	263.4	271.4	116.67	-416.8	9,116.4	301.7	-180.5	482.18	0.626	Level 1	
16,200.0	6,717.4	16,715.3	6,853.2	266.2	274.2	116.75	-416.8	9,216.4	301.9	-185.0	486.93	0.620	Level 1	
16,300.0	6,716.6	16,815.3	6,852.9	269.0	277.0	116.83	-416.8	9,316.4	302.1	-189.6	491.67	0.614	Level 1	
16,400.0	6,715.8	16,915.3	6,852.7	271.8	279.8	116.91	-416.8	9,416.4	302.3	-194.1	496.40	0.609	Level 1	
16,500.0	6,715.1	17,015.3	6,852.4	274.6	282.6	116.99	-416.8	9,516.4	302.5	-198.6	501.13	0.604	Level 1	
16,600.0	6,714.3	17,115.3	6,852.1	277.4	285.4	117.06	-416.8	9,616.4	302.7	-203.1	505.85	0.598	Level 1	
16,700.0	6,713.5	17,215.3	6,851.8	280.2	288.2	117.14	-416.8	9,716.4	303.0	-207.6	510.56	0.593	Level 1	
16,800.0	6,712.8	17,315.3	6,851.5	283.0	291.0	117.22	-416.8	9,816.4	303.2	-212.1	515.26	0.588	Level 1	
16,900.0	6,712.0	17,415.3	6,851.2	285.8	293.8	117.30	-416.8	9,916.4	303.4	-216.6	519.96	0.583	Level 1	
17,000.0	6,711.2	17,515.3	6,850.9	288.6	296.6	117.38	-416.8	10,016.4	303.6	-221.1	524.66	0.579	Level 1	
17,100.0	6,710.5	17,615.3	6,850.6	291.4	299.4	117.46	-416.8	10,116.4	303.8	-225.5	529.34	0.574	Level 1	
17,200.0	6,709.7	17,715.3	6,850.3	294.2	302.2	117.54	-416.8	10,216.4	304.0	-230.0	534.02	0.569	Level 1	
17,291.6	6,709.0	17,807.0	6,850.0	296.8	304.8	117.61	-416.8	10,308.0	304.2	-234.1	538.30	0.565	Level 1, ES, SF	

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Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 19P-202 - Wellbore #1 - Plan #3 (7-15-15)												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 (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-112.38	-61.9	-150.4	162.7				
100.0	100.0	100.0	100.0	0.1	0.1	-112.38	-61.9	-150.4	162.7	162.5	0.22	723.809	
200.0	200.0	200.0	200.0	0.3	0.3	-112.38	-61.9	-150.4	162.7	162.0	0.67	241.270 CC, ES	
300.0	300.0	296.2	296.2	0.6	0.5	-112.55	-62.8	-151.3	163.8	162.7	1.10	149.401	
400.0	400.0	392.4	392.3	0.8	0.7	-113.07	-65.5	-153.7	167.3	165.8	1.52	109.983	
500.0	500.0	488.3	488.0	1.0	1.0	-113.87	-69.9	-157.9	173.1	171.1	1.96	88.188	
600.0	600.0	583.8	583.1	1.2	1.2	-114.91	-76.0	-163.6	181.2	178.8	2.42	74.843	
700.0	700.0	678.8	677.6	1.5	1.5	-116.11	-83.8	-170.9	191.7	188.8	2.90	66.137	
800.0	800.0	773.3	771.1	1.7	1.8	-117.41	-93.3	-179.8	204.6	201.2	3.40	60.205	
900.0	900.0	867.0	863.6	1.9	2.1	-118.74	-104.3	-190.2	219.9	216.0	3.92	56.045	
1,000.0	1,000.0	960.0	954.9	2.1	2.5	-120.06	-116.9	-202.0	237.7	233.2	4.48	53.072	
1,100.0	1,100.0	1,052.0	1,044.9	2.4	2.9	-121.32	-130.9	-215.2	257.8	252.8	5.06	50.925	
1,200.0	1,200.0	1,143.0	1,133.5	2.6	3.3	-122.51	-146.4	-229.7	280.4	274.7	5.68	49.373	
1,300.0	1,300.0	1,233.0	1,220.5	2.8	3.7	-123.62	-163.2	-245.4	305.3	298.9	6.33	48.258	
1,400.0	1,400.0	1,321.8	1,305.7	3.0	4.2	-124.63	-181.2	-262.3	332.5	325.5	7.00	47.475	
1,500.0	1,500.0	1,409.4	1,389.3	3.3	4.7	-125.56	-200.4	-280.3	362.0	354.2	7.71	46.952	
1,600.0	1,600.0	1,503.1	1,478.3	3.5	5.3	-126.44	-221.9	-300.5	392.9	384.4	8.48	46.332	
1,700.0	1,700.0	1,598.1	1,568.4	3.7	5.9	-127.21	-243.7	-320.9	423.9	414.6	9.27	45.746	
1,800.0	1,800.0	1,693.0	1,658.5	3.9	6.5	-127.87	-265.4	-341.4	455.0	444.9	10.06	45.223	
1,900.0	1,900.0	1,787.9	1,748.6	4.2	7.1	-128.44	-287.2	-361.8	486.1	475.2	10.86	44.759	
2,000.0	2,000.0	1,882.8	1,838.7	4.4	7.8	-128.95	-309.0	-382.2	517.3	505.6	11.66	44.345 SF	
2,100.0	2,100.0	1,978.0	1,929.1	4.6	8.4	-129.51	-330.8	-402.7	547.7	538.1	12.57	57.204	
2,200.0	2,200.0	2,073.6	2,019.8	4.8	9.0	-130.00	-352.7	-423.2	576.6	566.6	13.57	57.355	
2,300.0	2,299.9	2,169.6	2,111.0	5.0	9.6	-130.51	-374.7	-443.9	604.0	593.5	14.57	57.324	
2,400.0	2,399.7	2,266.0	2,202.5	5.2	10.2	-131.00	-396.8	-464.7	630.0	618.9	15.57	57.138	
2,500.0	2,499.4	2,362.8	2,294.3	5.4	10.9	-131.51	-419.0	-485.5	654.4	642.9	16.57	56.819	
2,600.0	2,598.9	2,459.9	2,386.5	5.6	11.5	-132.00	-441.3	-506.4	677.4	665.3	17.57	56.384	
2,700.0	2,698.3	2,557.3	2,479.0	5.8	12.1	-132.51	-463.6	-527.3	698.8	686.3	18.57	55.847	
2,800.0	2,797.4	2,655.0	2,571.7	6.1	12.8	-133.00	-486.0	-548.3	718.9	705.8	19.57	55.217	
2,900.0	2,896.3	2,752.9	2,664.6	6.3	13.4	-133.51	-508.5	-569.4	737.4	723.9	20.57	54.503	
2,932.7	2,928.5	2,784.9	2,695.0	6.4	13.6	-133.51	-515.8	-576.3	743.2	729.5	21.07	54.252	
3,000.0	2,995.0	2,851.0	2,757.7	6.6	14.1	-134.00	-531.0	-590.5	754.9	740.9	22.07	53.735	
3,100.0	3,093.7	2,949.0	2,850.8	6.9	14.7	-134.51	-553.5	-611.6	772.4	757.8	23.07	52.996	
3,200.0	3,192.4	3,047.1	2,943.9	7.2	15.3	-135.00	-576.0	-632.7	790.0	774.9	24.07	52.290	
3,300.0	3,291.0	3,145.2	3,037.0	7.5	16.0	-135.51	-598.5	-653.8	807.7	792.0	25.07	51.614	
3,400.0	3,389.7	3,243.3	3,130.2	7.8	16.6	-136.00	-621.0	-674.9	825.4	809.2	26.07	50.968	
3,500.0	3,488.4	3,341.4	3,223.3	8.1	17.3	-136.51	-643.5	-696.0	843.2	826.5	27.07	50.348	
3,600.0	3,587.1	3,439.5	3,316.4	8.5	17.9	-137.00	-666.0	-717.1	861.1	843.8	28.07	49.755	
3,700.0	3,685.7	3,537.5	3,409.5	8.8	18.6	-137.51	-688.4	-738.2	879.1	861.2	29.07	49.185	
3,800.0	3,784.4	3,635.6	3,502.6	9.1	19.2	-138.00	-710.9	-759.4	897.1	878.7	30.07	48.639	
3,900.0	3,883.1	3,733.7	3,595.7	9.5	19.8	-138.51	-733.4	-780.5	915.2	896.2	31.07	48.115	
4,000.0	3,981.8	3,831.8	3,688.8	9.8	20.5	-139.00	-755.9	-801.6	933.4	913.8	32.07	47.611	
4,100.0	4,080.5	3,929.9	3,781.9	10.2	21.1	-139.51	-778.4	-822.7	951.6	931.4	33.07	47.127	
4,200.0	4,179.1	4,028.0	3,875.0	10.5	21.8	-140.00	-800.9	-843.8	969.8	949.0	34.07	46.662	
4,300.0	4,277.8	4,126.1	3,968.1	10.9	22.4	-140.51	-823.4	-864.9	988.1	966.7	35.07	46.214	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 19P-312 - Wellbore #1 - Plan #3 (7-15-15)												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 (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-102.29	-32.8	-150.4	154.0				
100.0	100.0	100.0	100.0	0.1	0.1	-102.29	-32.8	-150.4	154.0	153.7	0.22	684.995	
200.0	200.0	200.0	200.0	0.3	0.3	-102.29	-32.8	-150.4	154.0	153.3	0.67	228.332	
300.0	300.0	300.0	300.0	0.6	0.6	-102.29	-32.8	-150.4	154.0	152.8	1.12	136.999	
400.0	400.0	400.0	400.0	0.8	0.8	-102.29	-32.8	-150.4	154.0	152.4	1.57	97.856 CC, ES	
500.0	500.0	496.7	496.7	1.0	1.0	-102.54	-33.7	-151.3	155.0	153.0	1.99	77.728	
600.0	600.0	593.3	593.2	1.2	1.2	-103.27	-36.3	-153.8	158.2	155.8	2.41	65.682	
700.0	700.0	689.7	689.4	1.5	1.4	-104.42	-40.6	-158.1	163.6	160.7	2.84	57.660	
800.0	800.0	785.7	785.0	1.7	1.6	-105.90	-46.7	-164.0	171.2	167.9	3.28	52.199	
900.0	900.0	881.2	879.9	1.9	1.9	-107.62	-54.5	-171.5	181.1	177.4	3.74	48.443	
1,000.0	1,000.0	976.1	973.9	2.1	2.1	-109.47	-63.9	-180.7	193.4	189.2	4.22	45.854	
1,100.0	1,100.0	1,070.3	1,066.8	2.4	2.5	-111.36	-74.8	-191.3	208.1	203.4	4.72	44.083	
1,200.0	1,200.0	1,163.6	1,158.6	2.6	2.8	-113.23	-87.3	-203.5	225.3	220.0	5.25	42.894	
1,300.0	1,300.0	1,256.1	1,249.0	2.8	3.2	-115.01	-101.3	-217.0	244.9	239.1	5.81	42.124	
1,400.0	1,400.0	1,347.6	1,337.9	3.0	3.6	-116.69	-116.6	-232.0	266.9	260.5	6.41	41.662	
1,500.0	1,500.0	1,437.9	1,425.2	3.3	4.0	-118.24	-133.2	-248.1	291.4	284.4	7.03	41.441	
1,600.0	1,600.0	1,532.3	1,515.9	3.5	4.5	-119.69	-151.8	-266.2	317.7	310.0	7.71	41.207	
1,700.0	1,700.0	1,628.4	1,608.4	3.7	5.1	-120.96	-170.7	-284.6	344.2	335.8	8.41	40.922	
1,800.0	1,800.0	1,724.6	1,700.8	3.9	5.6	-122.04	-189.6	-303.0	370.9	361.8	9.13	40.642	
1,900.0	1,900.0	1,820.7	1,793.3	4.2	6.1	-122.98	-208.6	-321.4	397.7	387.9	9.85	40.375	
2,000.0	2,000.0	1,916.9	1,885.8	4.4	6.7	-123.80	-227.5	-339.8	424.6	414.0	10.58	40.125	
2,100.0	2,100.0	2,013.2	1,978.4	4.6	7.2	-17.67	-246.5	-358.2	450.7	441.3	9.41	47.903	
2,200.0	2,200.0	2,110.0	2,071.5	4.8	7.8	-18.33	-265.5	-376.8	475.3	465.4	9.87	48.149	
2,300.0	2,299.9	2,207.1	2,164.8	5.0	8.3	-19.00	-284.6	-395.4	498.4	488.0	10.34	48.208	
2,400.0	2,399.7	2,304.5	2,258.5	5.2	8.9	-19.66	-303.8	-414.0	519.9	509.1	10.81	48.106	
2,500.0	2,499.4	2,402.3	2,352.5	5.4	9.4	-20.33	-323.1	-432.7	539.9	528.6	11.28	47.866	
2,600.0	2,598.9	2,500.3	2,446.8	5.6	10.0	-21.02	-342.4	-451.5	558.4	546.7	11.75	47.506	
2,700.0	2,698.3	2,598.6	2,541.2	5.8	10.6	-21.73	-361.7	-470.3	575.4	563.2	12.23	47.039	
2,800.0	2,797.4	2,697.0	2,635.9	6.1	11.1	-22.47	-381.1	-489.2	590.9	578.2	12.71	46.477	
2,900.0	2,896.3	2,795.7	2,730.8	6.3	11.7	-23.23	-400.5	-508.0	604.9	591.7	13.20	45.828	
2,932.7	2,928.5	2,827.9	2,761.8	6.4	11.9	-23.48	-406.9	-514.2	609.2	595.8	13.36	45.598	
3,000.0	2,995.0	2,894.4	2,825.7	6.6	12.3	-24.04	-420.0	-527.0	617.8	604.1	13.70	45.111	
3,100.0	3,093.7	2,993.2	2,920.7	6.9	12.8	-24.84	-439.4	-545.9	630.8	616.6	14.20	44.419	
3,200.0	3,192.4	3,092.0	3,015.7	7.2	13.4	-25.61	-458.8	-564.8	643.9	629.1	14.71	43.762	
3,300.0	3,291.0	3,190.8	3,110.7	7.5	14.0	-26.35	-478.3	-583.7	657.0	641.8	15.23	43.137	
3,400.0	3,389.7	3,289.5	3,205.7	7.8	14.5	-27.06	-497.7	-602.6	670.3	654.6	15.76	42.541	
3,500.0	3,488.4	3,388.3	3,300.6	8.1	15.1	-27.74	-517.2	-621.5	683.7	667.4	16.29	41.973	
3,600.0	3,587.1	3,487.1	3,395.6	8.5	15.7	-28.39	-536.6	-640.4	697.2	680.3	16.83	41.430	
3,700.0	3,685.7	3,585.9	3,490.6	8.8	16.3	-29.03	-556.1	-659.3	710.7	693.3	17.37	40.910	
3,800.0	3,784.4	3,684.7	3,585.6	9.1	16.8	-29.63	-575.5	-678.2	724.4	706.4	17.92	40.412	
3,900.0	3,883.1	3,783.4	3,680.6	9.5	17.4	-30.22	-595.0	-697.2	738.1	719.6	18.48	39.935	
4,000.0	3,981.8	3,882.2	3,775.5	9.8	18.0	-30.78	-614.4	-716.1	751.9	732.8	19.05	39.478	
4,100.0	4,080.5	3,981.0	3,870.5	10.2	18.6	-31.32	-633.9	-735.0	765.7	746.1	19.61	39.039	
4,200.0	4,179.1	4,079.8	3,965.5	10.5	19.1	-31.85	-653.3	-753.9	779.6	759.5	20.19	38.617	
4,300.0	4,277.8	4,178.5	4,060.5	10.9	19.7	-32.35	-672.8	-772.8	793.6	772.9	20.77	38.212	
4,400.0	4,376.5	4,277.3	4,155.4	11.2	20.3	-32.84	-692.2	-791.7	807.7	786.3	21.35	37.822	
4,500.0	4,475.2	4,376.1	4,250.4	11.6	20.9	-33.31	-711.7	-810.6	821.8	799.8	21.94	37.447	
4,600.0	4,573.8	4,474.9	4,345.4	11.9	21.4	-33.77	-731.1	-829.5	835.9	813.4	22.54	37.087	
4,700.0	4,672.5	4,573.7	4,440.4	12.3	22.0	-34.21	-750.5	-848.4	850.1	827.0	23.14	36.739	
4,800.0	4,771.2	4,672.4	4,535.4	12.7	22.6	-34.64	-770.0	-867.4	864.4	840.6	23.74	36.404	
4,900.0	4,869.9	4,771.2	4,630.3	13.0	23.2	-35.05	-789.4	-886.3	878.7	854.3	24.35	36.082	

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 Klein 19O-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 19O-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-312 - Wellbore #1 - Plan #3 (7-15-15)												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,000.0	4,968.6	4,870.0	4,725.3	13.4	23.7	-35.45	-808.9	-905.2	893.0	868.1	24.97	35.771	
5,100.0	5,067.2	4,968.8	4,820.3	13.7	24.3	-35.83	-828.3	-924.1	907.4	881.8	25.58	35.471	
5,200.0	5,165.9	5,067.5	4,915.3	14.1	24.9	-36.21	-847.8	-943.0	921.8	895.6	26.20	35.181	
5,300.0	5,264.6	5,166.3	5,010.3	14.5	25.5	-36.57	-867.2	-961.9	936.3	909.5	26.83	34.902	
5,372.1	5,335.7	5,237.5	5,078.7	14.7	25.9	-36.83	-881.2	-975.5	946.7	919.5	27.28	34.706	
5,400.0	5,363.3	5,265.1	5,105.2	14.8	26.0	-36.97	-886.7	-980.8	950.9	923.4	27.44	34.650	
5,500.0	5,462.4	5,363.6	5,200.0	15.1	26.6	-37.42	-906.1	-999.7	967.6	939.6	27.98	34.582 SF	
5,600.0	5,561.9	5,461.7	5,294.3	15.3	27.2	-37.77	-925.4	-1,018.5	987.0	958.5	28.47	34.667	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 190-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4639.0ft (RKB - 13')

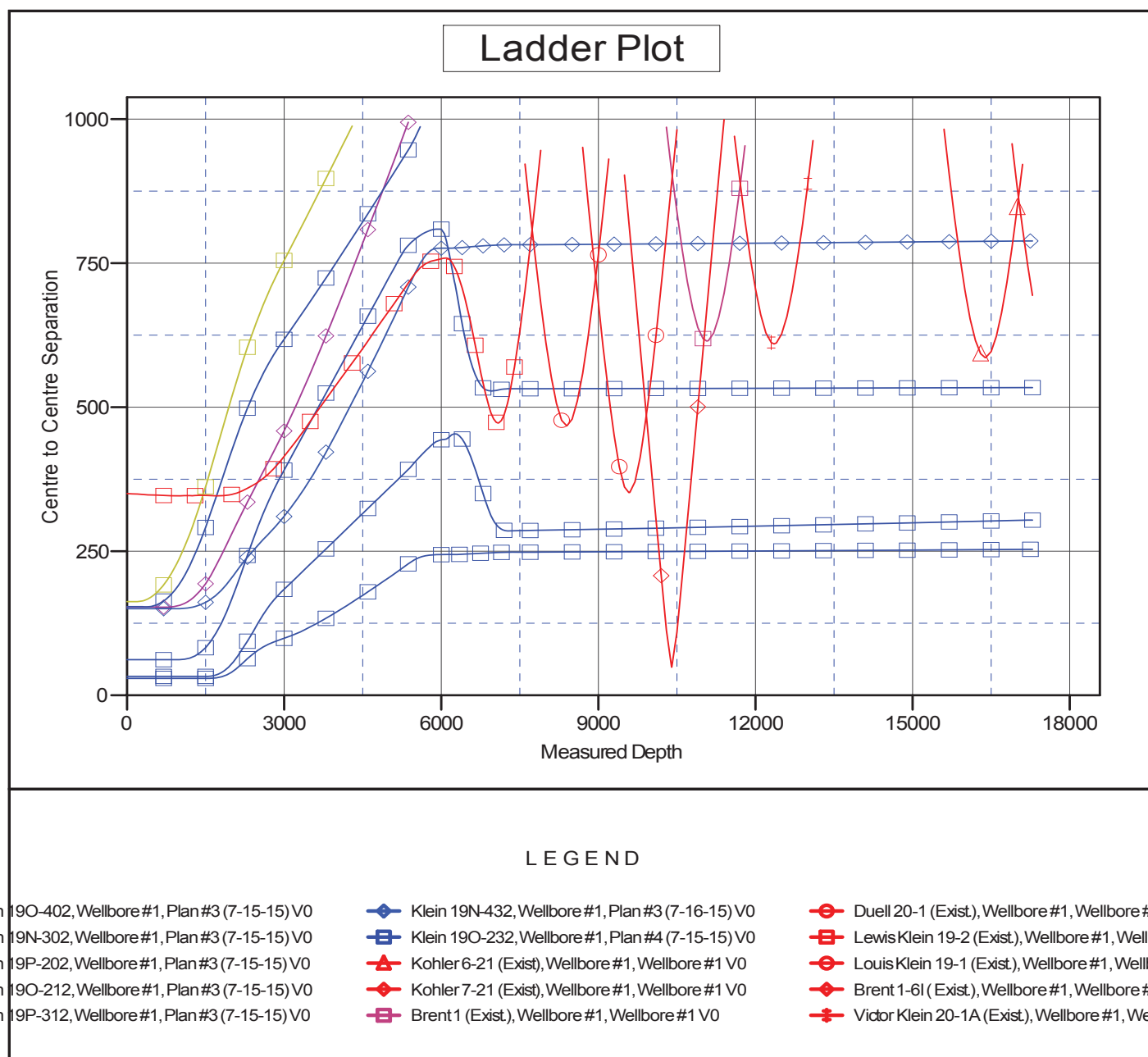
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Klein 190-302

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.59°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-302
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4639.0ft (RKB - 13')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4639.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Klein 19O-302	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (7-15-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4639.0ft (RKB - 13')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Klein 19O-302

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.59°

