

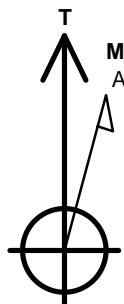
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Klein 190-402**

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 1384481.68 3253261.17 40.385240 -104.590840
 RKB - 13' WELL @ 4639.0ft (RKB - 13')

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' N/S Hardline (190-402)	1.0	-384.0	5266.0	Rectangle (Sides: L10384.3 W100.0)
SHL 2418'FNL & 2100 FEL, Sec.19	1.0	0.0	0.0	Point
BHL 2385'FSL 2353'FEL, Sec.21	6850.0	-384.0	10310.5	Point



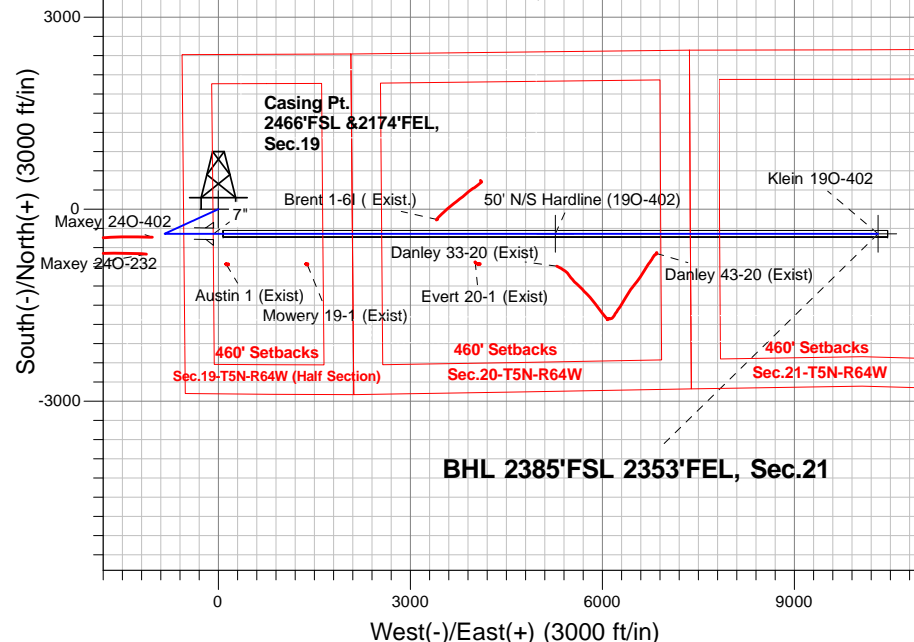
Azimuths to True North
 Magnetic North: 8.22°
 Magnetic Field
 Strength: 52713.1snT
 Dip Angle: 66.92°
 Date: 7/15/2015
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1500.0	1500.0	KOP #1 - Start Build 1.50
5301.2	5400.1	KOP #2 - Start Drop -2.00
6116.9	6222.9	Start Build 7.50
6880.8	7425.1	Start 10384.3 hold at 7425.1 MD
6850.0	17809.5	TD at 17809.5

Klein 190-HZ Pad Sec.19-T5N-R64W
 Klein 190-402
 Plan #3 (7-15-15)

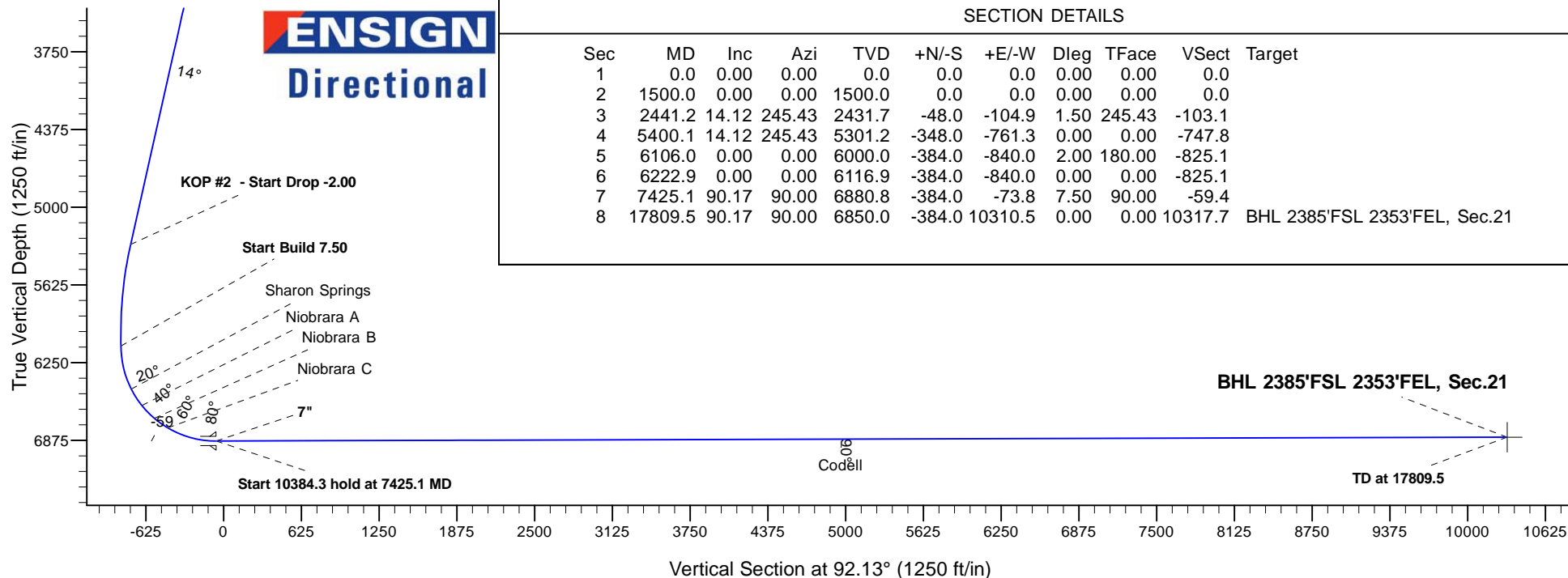
SHL 2418'FNL & 2100 FEL, Sec.19



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	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	2441.2	14.12	245.43	2431.7	-48.0	-104.9	1.50	245.43	-103.1	
4	5400.1	14.12	245.43	5301.2	-348.0	-761.3	0.00	0.00	-747.8	
5	6106.0	0.00	0.00	6000.0	-384.0	-840.0	2.00	180.00	-825.1	
6	6222.9	0.00	0.00	6116.9	-384.0	-840.0	0.00	0.00	-825.1	
7	7425.1	90.17	90.00	6880.8	-384.0	-73.8	7.50	90.00	-59.4	
8	17809.5	90.17	90.00	6850.0	-384.0	10310.5	0.00	0.00	10317.7	BHL 2385'FSL 2353'FEL, Sec.21

BHL 2385'FSL 2353'FEL, Sec.21





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

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

Klein 19O-402

Wellbore #1

Plan: Plan #3 (7-15-15)

Standard Planning Report

29 July, 2015

Database:	US_EDM	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (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 190-402		
Well Position	+N/-S	-62.0 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 #3 (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	92.13

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	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,441.2	14.12	245.43	2,431.7	-48.0	-104.9	1.50	1.50	0.00	245.43	
5,400.1	14.12	245.43	5,301.2	-348.0	-761.3	0.00	0.00	0.00	0.00	
6,106.0	0.00	0.00	6,000.0	-384.0	-840.0	2.00	-2.00	0.00	180.00	
6,222.9	0.00	0.00	6,116.9	-384.0	-840.0	0.00	0.00	0.00	0.00	
7,425.1	90.17	90.00	6,880.8	-384.0	-73.8	7.50	7.50	0.00	90.00	
17,809.5	90.17	90.00	6,850.0	-384.0	10,310.5	0.00	0.00	0.00	0.00	BHL 2385°FSL 2353°F

Database:	US_EDM	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (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
KOP #1 - Start Build 1.50									
1,600.0	1.50	245.43	1,600.0	-0.5	-1.2	-1.2	1.50	1.50	0.00
1,700.0	3.00	245.43	1,699.9	-2.2	-4.8	-4.7	1.50	1.50	0.00
1,800.0	4.50	245.43	1,799.7	-4.9	-10.7	-10.5	1.50	1.50	0.00
1,900.0	6.00	245.43	1,899.3	-8.7	-19.0	-18.7	1.50	1.50	0.00
2,000.0	7.50	245.43	1,998.6	-13.6	-29.7	-29.2	1.50	1.50	0.00
2,100.0	9.00	245.43	2,097.5	-19.6	-42.8	-42.0	1.50	1.50	0.00
2,200.0	10.50	245.43	2,196.1	-26.6	-58.2	-57.1	1.50	1.50	0.00
2,300.0	12.00	245.43	2,294.2	-34.7	-75.9	-74.6	1.50	1.50	0.00
2,400.0	13.50	245.43	2,391.7	-43.9	-96.0	-94.3	1.50	1.50	0.00
2,441.2	14.12	245.43	2,431.7	-48.0	-104.9	-103.1	1.50	1.50	0.00
2,500.0	14.12	245.43	2,488.7	-53.9	-118.0	-115.9	0.00	0.00	0.00
2,600.0	14.12	245.43	2,585.7	-64.1	-140.2	-137.7	0.00	0.00	0.00
2,700.0	14.12	245.43	2,682.7	-74.2	-162.3	-159.5	0.00	0.00	0.00
2,800.0	14.12	245.43	2,779.7	-84.4	-184.5	-181.3	0.00	0.00	0.00
2,900.0	14.12	245.43	2,876.6	-94.5	-206.7	-203.0	0.00	0.00	0.00
3,000.0	14.12	245.43	2,973.6	-104.6	-228.9	-224.8	0.00	0.00	0.00
3,100.0	14.12	245.43	3,070.6	-114.8	-251.1	-246.6	0.00	0.00	0.00
3,200.0	14.12	245.43	3,167.6	-124.9	-273.3	-268.4	0.00	0.00	0.00
3,300.0	14.12	245.43	3,264.6	-135.1	-295.4	-290.2	0.00	0.00	0.00
3,400.0	14.12	245.43	3,361.5	-145.2	-317.6	-312.0	0.00	0.00	0.00
3,500.0	14.12	245.43	3,458.5	-155.3	-339.8	-333.8	0.00	0.00	0.00
3,600.0	14.12	245.43	3,555.5	-165.5	-362.0	-355.6	0.00	0.00	0.00
3,700.0	14.12	245.43	3,652.5	-175.6	-384.2	-377.4	0.00	0.00	0.00
3,800.0	14.12	245.43	3,749.5	-185.8	-406.4	-399.2	0.00	0.00	0.00
3,900.0	14.12	245.43	3,846.4	-195.9	-428.5	-420.9	0.00	0.00	0.00
4,000.0	14.12	245.43	3,943.4	-206.0	-450.7	-442.7	0.00	0.00	0.00
4,100.0	14.12	245.43	4,040.4	-216.2	-472.9	-464.5	0.00	0.00	0.00
4,200.0	14.12	245.43	4,137.4	-226.3	-495.1	-486.3	0.00	0.00	0.00
4,300.0	14.12	245.43	4,234.4	-236.5	-517.3	-508.1	0.00	0.00	0.00
4,400.0	14.12	245.43	4,331.3	-246.6	-539.5	-529.9	0.00	0.00	0.00
4,500.0	14.12	245.43	4,428.3	-256.7	-561.6	-551.7	0.00	0.00	0.00
4,600.0	14.12	245.43	4,525.3	-266.9	-583.8	-573.5	0.00	0.00	0.00
4,700.0	14.12	245.43	4,622.3	-277.0	-606.0	-595.3	0.00	0.00	0.00
4,800.0	14.12	245.43	4,719.3	-287.2	-628.2	-617.1	0.00	0.00	0.00
4,900.0	14.12	245.43	4,816.2	-297.3	-650.4	-638.9	0.00	0.00	0.00
5,000.0	14.12	245.43	4,913.2	-307.5	-672.6	-660.6	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (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	14.12	245.43	5,010.2	-317.6	-694.7	-682.4	0.00	0.00	0.00
5,200.0	14.12	245.43	5,107.2	-327.7	-716.9	-704.2	0.00	0.00	0.00
5,300.0	14.12	245.43	5,204.2	-337.9	-739.1	-726.0	0.00	0.00	0.00
5,400.0	14.12	245.43	5,301.1	-348.0	-761.3	-747.8	0.00	0.00	0.00
5,400.1	14.12	245.43	5,301.2	-348.0	-761.3	-747.8	0.00	0.00	0.00
KOP #2 - Start Drop -2.00									
5,500.0	12.12	245.43	5,398.5	-357.5	-781.9	-768.1	2.00	-2.00	0.00
5,600.0	10.12	245.43	5,496.6	-365.5	-799.5	-785.3	2.00	-2.00	0.00
5,700.0	8.12	245.43	5,595.4	-372.1	-813.9	-799.5	2.00	-2.00	0.00
5,800.0	6.12	245.43	5,694.6	-377.2	-825.2	-810.5	2.00	-2.00	0.00
5,900.0	4.12	245.43	5,794.2	-380.9	-833.3	-818.5	2.00	-2.00	0.00
6,000.0	2.12	245.43	5,894.0	-383.2	-838.2	-823.4	2.00	-2.00	0.00
6,100.0	0.12	245.43	5,994.0	-384.0	-840.0	-825.1	2.00	-2.00	0.00
6,106.0	0.00	0.00	6,000.0	-384.0	-840.0	-825.1	2.00	-2.00	0.00
6,200.0	0.00	0.00	6,094.0	-384.0	-840.0	-825.1	0.00	0.00	0.00
6,222.9	0.00	0.00	6,116.9	-384.0	-840.0	-825.1	0.00	0.00	0.00
Start Build 7.50									
6,300.0	5.79	90.00	6,193.9	-384.0	-836.1	-821.2	7.50	7.50	0.00
6,400.0	13.29	90.00	6,292.4	-384.0	-819.6	-804.7	7.50	7.50	0.00
6,500.0	20.79	90.00	6,388.0	-384.0	-790.3	-775.4	7.50	7.50	0.00
6,600.0	28.29	90.00	6,478.9	-384.0	-748.8	-734.0	7.50	7.50	0.00
6,700.0	35.79	90.00	6,563.6	-384.0	-695.8	-681.0	7.50	7.50	0.00
6,800.0	43.29	90.00	6,640.7	-384.0	-632.2	-617.4	7.50	7.50	0.00
6,900.0	50.79	90.00	6,708.8	-384.0	-559.0	-544.4	7.50	7.50	0.00
7,000.0	58.29	90.00	6,766.7	-384.0	-477.6	-463.0	7.50	7.50	0.00
7,100.0	65.79	90.00	6,813.6	-384.0	-389.4	-374.8	7.50	7.50	0.00
7,200.0	73.29	90.00	6,848.5	-384.0	-295.8	-281.3	7.50	7.50	0.00
7,300.0	80.79	90.00	6,871.0	-384.0	-198.4	-184.0	7.50	7.50	0.00
7,400.0	88.29	90.00	6,880.5	-384.0	-98.9	-84.5	7.50	7.50	0.00
7,425.1	90.17	90.00	6,880.8	-384.0	-73.8	-59.5	7.50	7.50	0.00
Start 10384.3 hold at 7425.1 MD - 7"									
7,500.0	90.17	90.00	6,880.6	-384.0	1.1	15.4	0.00	0.00	0.00
7,600.0	90.17	90.00	6,880.3	-384.0	101.1	115.3	0.00	0.00	0.00
7,700.0	90.17	90.00	6,880.0	-384.0	201.1	215.2	0.00	0.00	0.00
7,800.0	90.17	90.00	6,879.7	-384.0	301.1	315.2	0.00	0.00	0.00
7,900.0	90.17	90.00	6,879.4	-384.0	401.1	415.1	0.00	0.00	0.00
8,000.0	90.17	90.00	6,879.1	-384.0	501.1	515.0	0.00	0.00	0.00
8,100.0	90.17	90.00	6,878.8	-384.0	601.1	615.0	0.00	0.00	0.00
8,200.0	90.17	90.00	6,878.5	-384.0	701.1	714.9	0.00	0.00	0.00
8,300.0	90.17	90.00	6,878.2	-384.0	801.1	814.8	0.00	0.00	0.00
8,400.0	90.17	90.00	6,877.9	-384.0	901.1	914.8	0.00	0.00	0.00
8,500.0	90.17	90.00	6,877.6	-384.0	1,001.1	1,014.7	0.00	0.00	0.00
8,600.0	90.17	90.00	6,877.3	-384.0	1,101.1	1,114.6	0.00	0.00	0.00
8,700.0	90.17	90.00	6,877.0	-384.0	1,201.1	1,214.5	0.00	0.00	0.00
8,800.0	90.17	90.00	6,876.7	-384.0	1,301.1	1,314.5	0.00	0.00	0.00
8,900.0	90.17	90.00	6,876.4	-384.0	1,401.1	1,414.4	0.00	0.00	0.00
9,000.0	90.17	90.00	6,876.1	-384.0	1,501.1	1,514.3	0.00	0.00	0.00
9,100.0	90.17	90.00	6,875.8	-384.0	1,601.1	1,614.3	0.00	0.00	0.00
9,200.0	90.17	90.00	6,875.5	-384.0	1,701.1	1,714.2	0.00	0.00	0.00
9,300.0	90.17	90.00	6,875.2	-384.0	1,801.1	1,814.1	0.00	0.00	0.00
9,400.0	90.17	90.00	6,875.0	-384.0	1,901.1	1,914.1	0.00	0.00	0.00
9,500.0	90.17	90.00	6,874.7	-384.0	2,001.1	2,014.0	0.00	0.00	0.00
9,600.0	90.17	90.00	6,874.4	-384.0	2,101.1	2,113.9	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Klein 19O-402
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-402	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (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	90.17	90.00	6,874.1	-384.0	2,201.1	2,213.8	0.00	0.00	0.00
9,800.0	90.17	90.00	6,873.8	-384.0	2,301.1	2,313.8	0.00	0.00	0.00
9,900.0	90.17	90.00	6,873.5	-384.0	2,401.1	2,413.7	0.00	0.00	0.00
10,000.0	90.17	90.00	6,873.2	-384.0	2,501.1	2,513.6	0.00	0.00	0.00
10,100.0	90.17	90.00	6,872.9	-384.0	2,601.1	2,613.6	0.00	0.00	0.00
10,200.0	90.17	90.00	6,872.6	-384.0	2,701.1	2,713.5	0.00	0.00	0.00
10,300.0	90.17	90.00	6,872.3	-384.0	2,801.1	2,813.4	0.00	0.00	0.00
10,400.0	90.17	90.00	6,872.0	-384.0	2,901.1	2,913.4	0.00	0.00	0.00
10,500.0	90.17	90.00	6,871.7	-384.0	3,001.1	3,013.3	0.00	0.00	0.00
10,600.0	90.17	90.00	6,871.4	-384.0	3,101.1	3,113.2	0.00	0.00	0.00
10,700.0	90.17	90.00	6,871.1	-384.0	3,201.1	3,213.2	0.00	0.00	0.00
10,800.0	90.17	90.00	6,870.8	-384.0	3,301.1	3,313.1	0.00	0.00	0.00
10,900.0	90.17	90.00	6,870.5	-384.0	3,401.1	3,413.0	0.00	0.00	0.00
11,000.0	90.17	90.00	6,870.2	-384.0	3,501.1	3,512.9	0.00	0.00	0.00
11,100.0	90.17	90.00	6,869.9	-384.0	3,601.1	3,612.9	0.00	0.00	0.00
11,200.0	90.17	90.00	6,869.6	-384.0	3,701.1	3,712.8	0.00	0.00	0.00
11,300.0	90.17	90.00	6,869.3	-384.0	3,801.1	3,812.7	0.00	0.00	0.00
11,400.0	90.17	90.00	6,869.0	-384.0	3,901.1	3,912.7	0.00	0.00	0.00
11,500.0	90.17	90.00	6,868.7	-384.0	4,001.1	4,012.6	0.00	0.00	0.00
11,600.0	90.17	90.00	6,868.4	-384.0	4,101.1	4,112.5	0.00	0.00	0.00
11,700.0	90.17	90.00	6,868.1	-384.0	4,201.1	4,212.5	0.00	0.00	0.00
11,800.0	90.17	90.00	6,867.8	-384.0	4,301.1	4,312.4	0.00	0.00	0.00
11,900.0	90.17	90.00	6,867.5	-384.0	4,401.1	4,412.3	0.00	0.00	0.00
12,000.0	90.17	90.00	6,867.2	-384.0	4,501.1	4,512.2	0.00	0.00	0.00
12,100.0	90.17	90.00	6,866.9	-384.0	4,601.1	4,612.2	0.00	0.00	0.00
12,200.0	90.17	90.00	6,866.6	-384.0	4,701.1	4,712.1	0.00	0.00	0.00
12,300.0	90.17	90.00	6,866.3	-384.0	4,801.1	4,812.0	0.00	0.00	0.00
12,400.0	90.17	90.00	6,866.1	-384.0	4,901.1	4,912.0	0.00	0.00	0.00
12,500.0	90.17	90.00	6,865.8	-384.0	5,001.1	5,011.9	0.00	0.00	0.00
12,600.0	90.17	90.00	6,865.5	-384.0	5,101.1	5,111.8	0.00	0.00	0.00
12,700.0	90.17	90.00	6,865.2	-384.0	5,201.1	5,211.8	0.00	0.00	0.00
12,800.0	90.17	90.00	6,864.9	-384.0	5,301.1	5,311.7	0.00	0.00	0.00
12,900.0	90.17	90.00	6,864.6	-384.0	5,401.1	5,411.6	0.00	0.00	0.00
13,000.0	90.17	90.00	6,864.3	-384.0	5,501.1	5,511.5	0.00	0.00	0.00
13,100.0	90.17	90.00	6,864.0	-384.0	5,601.1	5,611.5	0.00	0.00	0.00
13,200.0	90.17	90.00	6,863.7	-384.0	5,701.1	5,711.4	0.00	0.00	0.00
13,300.0	90.17	90.00	6,863.4	-384.0	5,801.1	5,811.3	0.00	0.00	0.00
13,400.0	90.17	90.00	6,863.1	-384.0	5,901.1	5,911.3	0.00	0.00	0.00
13,500.0	90.17	90.00	6,862.8	-384.0	6,001.1	6,011.2	0.00	0.00	0.00
13,600.0	90.17	90.00	6,862.5	-384.0	6,101.1	6,111.1	0.00	0.00	0.00
13,700.0	90.17	90.00	6,862.2	-384.0	6,201.1	6,211.1	0.00	0.00	0.00
13,800.0	90.17	90.00	6,861.9	-384.0	6,301.1	6,311.0	0.00	0.00	0.00
13,900.0	90.17	90.00	6,861.6	-384.0	6,401.1	6,410.9	0.00	0.00	0.00
14,000.0	90.17	90.00	6,861.3	-384.0	6,501.1	6,510.8	0.00	0.00	0.00
14,100.0	90.17	90.00	6,861.0	-384.0	6,601.1	6,610.8	0.00	0.00	0.00
14,200.0	90.17	90.00	6,860.7	-384.0	6,701.1	6,710.7	0.00	0.00	0.00
14,300.0	90.17	90.00	6,860.4	-384.0	6,801.1	6,810.6	0.00	0.00	0.00
14,400.0	90.17	90.00	6,860.1	-384.0	6,901.1	6,910.6	0.00	0.00	0.00
14,500.0	90.17	90.00	6,859.8	-384.0	7,001.1	7,010.5	0.00	0.00	0.00
14,600.0	90.17	90.00	6,859.5	-384.0	7,101.1	7,110.4	0.00	0.00	0.00
14,700.0	90.17	90.00	6,859.2	-384.0	7,201.1	7,210.4	0.00	0.00	0.00
14,800.0	90.17	90.00	6,858.9	-384.0	7,301.1	7,310.3	0.00	0.00	0.00
14,900.0	90.17	90.00	6,858.6	-384.0	7,401.1	7,410.2	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (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	90.17	90.00	6,858.3	-384.0	7,501.1	7,510.2	0.00	0.00	0.00	
15,100.0	90.17	90.00	6,858.0	-384.0	7,601.1	7,610.1	0.00	0.00	0.00	
15,200.0	90.17	90.00	6,857.7	-384.0	7,701.1	7,710.0	0.00	0.00	0.00	
15,300.0	90.17	90.00	6,857.4	-384.0	7,801.1	7,809.9	0.00	0.00	0.00	
15,400.0	90.17	90.00	6,857.1	-384.0	7,901.1	7,909.9	0.00	0.00	0.00	
15,500.0	90.17	90.00	6,856.9	-384.0	8,001.1	8,009.8	0.00	0.00	0.00	
15,600.0	90.17	90.00	6,856.6	-384.0	8,101.1	8,109.7	0.00	0.00	0.00	
15,700.0	90.17	90.00	6,856.3	-384.0	8,201.1	8,209.7	0.00	0.00	0.00	
15,800.0	90.17	90.00	6,856.0	-384.0	8,301.1	8,309.6	0.00	0.00	0.00	
15,900.0	90.17	90.00	6,855.7	-384.0	8,401.1	8,409.5	0.00	0.00	0.00	
16,000.0	90.17	90.00	6,855.4	-384.0	8,501.1	8,509.5	0.00	0.00	0.00	
16,100.0	90.17	90.00	6,855.1	-384.0	8,601.1	8,609.4	0.00	0.00	0.00	
16,200.0	90.17	90.00	6,854.8	-384.0	8,701.1	8,709.3	0.00	0.00	0.00	
16,300.0	90.17	90.00	6,854.5	-384.0	8,801.1	8,809.2	0.00	0.00	0.00	
16,400.0	90.17	90.00	6,854.2	-384.0	8,901.1	8,909.2	0.00	0.00	0.00	
16,500.0	90.17	90.00	6,853.9	-384.0	9,001.1	9,009.1	0.00	0.00	0.00	
16,600.0	90.17	90.00	6,853.6	-384.0	9,101.1	9,109.0	0.00	0.00	0.00	
16,700.0	90.17	90.00	6,853.3	-384.0	9,201.0	9,209.0	0.00	0.00	0.00	
16,800.0	90.17	90.00	6,853.0	-384.0	9,301.0	9,308.9	0.00	0.00	0.00	
16,900.0	90.17	90.00	6,852.7	-384.0	9,401.0	9,408.8	0.00	0.00	0.00	
17,000.0	90.17	90.00	6,852.4	-384.0	9,501.0	9,508.8	0.00	0.00	0.00	
17,100.0	90.17	90.00	6,852.1	-384.0	9,601.0	9,608.7	0.00	0.00	0.00	
17,200.0	90.17	90.00	6,851.8	-384.0	9,701.0	9,708.6	0.00	0.00	0.00	
17,300.0	90.17	90.00	6,851.5	-384.0	9,801.0	9,808.5	0.00	0.00	0.00	
17,400.0	90.17	90.00	6,851.2	-384.0	9,901.0	9,908.5	0.00	0.00	0.00	
17,500.0	90.17	90.00	6,850.9	-384.0	10,001.0	10,008.4	0.00	0.00	0.00	
17,600.0	90.17	90.00	6,850.6	-384.0	10,101.0	10,108.3	0.00	0.00	0.00	
17,700.0	90.17	90.00	6,850.3	-384.0	10,201.0	10,208.3	0.00	0.00	0.00	
17,800.0	90.17	90.00	6,850.0	-384.0	10,301.0	10,308.2	0.00	0.00	0.00	
17,809.5	90.17	90.00	6,850.0	-384.0	10,310.5	10,317.7	0.00	0.00	0.00	
TD at 17809.5										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
50' N/S Hardline (190-41)	0.00	0.00	1.0	-384.0	5,265.9	1,384,151.70	3,258,530.56	40.384184	-104.571938	
- hit/miss target										
- Shape										
- plan misses target center by 5279.9ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)										
- Rectangle (sides W100.0 H10,384.3 D0.0)										
SHL 2418'FNL & 2100 F	0.00	0.00	1.0	0.0	0.0	1,384,481.70	3,253,261.17	40.385240	-104.590840	
- plan hits target center										
- Point										
BHL 2385'FSL 2353'FEL	0.00	0.00	6,850.0	-384.0	10,310.5	1,384,203.42	3,263,574.64	40.384180	-104.553830	
- plan hits target center										
- Point										

Database:	US_EDM	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (7-15-15)		

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,425.1	6,880.8	7"	7	7-1/2

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,594.3	3,550.0	Parkman		0.00	
4,367.7	4,300.0	Sussex		0.00	
4,573.9	4,500.0	Shannon		0.00	
6,582.1	6,463.0	Sharon Springs		0.00	
6,740.8	6,596.0	Niobrara A		0.00	
6,883.2	6,698.0	Niobrara B		0.00	
7,016.0	6,775.0	Niobrara C		0.00	
7,244.1	6,860.0	Ft Hays		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,500.0	1,500.0	0.0	0.0	KOP #1 - Start Build 1.50
5,400.1	5,301.2	-48.0	-104.9	KOP #2 - Start Drop -2.00
6,222.9	6,116.9	-348.0	-761.3	Start Build 7.50
7,425.1	6,880.8	-384.0	-840.0	Start 10384.3 hold at 7425.1 MD
17,809.5	6,850.0	-384.0	-840.0	TD at 17809.5



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

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

Klein 19O-402

Wellbore #1

Plan #3 (7-15-15)

Anticollision Report

29 July, 2015



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-402
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-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #3 (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	7/29/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	17,809.5	Plan #3 (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						
Klein (Existing) Sec.19-T5N-R64W						
Brent 1-6I (Exist.) - Wellbore #1 - Wellbore #1	10,918.8	6,989.8	220.9	-63.7	0.776	Level 1, CC, ES, SF
Klein 19O-HZ Pad Sec.19-T5N-R64W						
Klein 19N-302 - Wellbore #1 - Plan #3 (7-15-15)	800.0	800.0	162.7	159.3	48.253	CC, ES
Klein 19N-302 - Wellbore #1 - Plan #3 (7-15-15)	1,500.0	1,473.1	210.0	203.4	31.766	SF
Klein 19N-432 - Wellbore #1 - Plan #3 (7-16-15)	1,000.0	1,000.0	153.2	149.0	35.881	CC, ES
Klein 19N-432 - Wellbore #1 - Plan #3 (7-16-15)	2,400.0	2,360.8	242.5	231.8	22.623	SF
Klein 19O-212 - Wellbore #1 - Plan #3 (7-15-15)	1,500.0	1,500.0	62.0	55.5	9.511	CC
Klein 19O-212 - Wellbore #1 - Plan #3 (7-15-15)	17,809.5	17,238.6	554.6	-6.1	0.989	Level 1, ES, SF
Klein 19O-232 - Wellbore #1 - Plan #4 (7-15-15)	1,000.0	1,000.0	29.1	24.9	6.825	CC
Klein 19O-232 - Wellbore #1 - Plan #4 (7-15-15)	17,809.5	17,995.9	339.5	-142.4	0.704	Level 1, ES, SF
Klein 19O-302 - Wellbore #1 - Plan #4 (7-15-15)	1,500.0	1,500.0	32.8	26.3	5.029	CC
Klein 19O-302 - Wellbore #1 - Plan #4 (7-15-15)	17,809.5	17,291.6	304.2	-234.1	0.565	Level 1, ES, SF
Klein 19P-202 - Wellbore #1 - Plan #3 (7-15-15)	200.0	200.0	153.2	152.6	227.251	CC, ES
Klein 19P-202 - Wellbore #1 - Plan #3 (7-15-15)	6,106.0	5,956.2	972.1	919.2	18.383	SF
Klein 19P-312 - Wellbore #1 - Plan #3 (7-15-15)	400.0	400.0	150.4	148.9	95.614	CC, ES
Klein 19P-312 - Wellbore #1 - Plan #3 (7-15-15)	17,809.5	18,154.7	831.5	222.3	1.365	Level 3, SF
Maxey 24O-HZ Pad Sec.24-T5N-R65W						
Maxey 24O-232 - Wellbore #1 - Wellbore #1	6,600.0	11,018.0	540.1	450.5	6.026	SF
Maxey 24O-232 - Wellbore #1 - Wellbore #1	6,614.4	11,018.0	539.8	450.2	6.027	CC, ES
Maxey 24O-402 - Wellbore #1 - Wellbore #1	6,222.9	11,254.0	817.0	671.9	5.631	SF
Maxey 24O-402 - Wellbore #1 - Wellbore #1	6,752.1	11,254.0	480.0	440.1	12.039	CC, ES
Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W						
Austin 1 (Exist) - Wellbore #1 - Wellbore #1	7,625.1	6,860.6	484.1	444.2	12.132	CC, ES
Austin 1 (Exist) - Wellbore #1 - Wellbore #1	7,700.0	6,860.8	489.8	448.5	11.859	SF
Danley 33-20 (Exist) - Wellbore #1 - Wellbore #1	12,797.7	7,055.5	514.2	333.8	2.851	CC
Danley 33-20 (Exist) - Wellbore #1 - Wellbore #1	12,800.0	7,055.2	514.2	333.8	2.850	ES, SF
Danley 43-20 (Exist) - Wellbore #1 - Wellbore #1	14,344.0	7,051.7	300.6	76.6	1.342	Level 3, CC, ES, SF
Evert 20-1 (Exist) - Wellbore #1 - Wellbore #1	11,509.4	6,867.5	441.3	218.3	1.979	CC, ES, SF
Mowery 19-1 (Exist) - Wellbore #1 - Wellbore #1	8,890.4	6,857.0	489.8	420.2	7.036	CC
Mowery 19-1 (Exist) - Wellbore #1 - Wellbore #1	8,900.0	6,857.1	489.9	420.1	7.012	ES
Mowery 19-1 (Exist) - Wellbore #1 - Wellbore #1	9,000.0	6,857.4	501.9	429.4	6.923	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-402
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-402	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 #3 (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
10,000.0	6,873.2	6,974.6	6,838.8	87.2	187.2	-85.94	-163.2	3,419.6	944.9	688.3	256.58	3.683	
10,100.0	6,872.9	6,976.2	6,840.4	89.9	187.2	-86.35	-163.2	3,419.6	848.0	588.3	259.65	3.266	
10,200.0	6,872.6	6,977.8	6,842.0	92.7	187.1	-86.77	-163.2	3,419.7	751.9	489.2	262.72	2.862	
10,300.0	6,872.3	6,979.4	6,843.6	95.4	187.1	-87.19	-163.1	3,419.7	657.0	391.2	265.78	2.472	
10,400.0	6,872.0	6,981.0	6,845.3	98.2	187.1	-87.62	-163.1	3,419.7	563.8	295.0	268.84	2.097	
10,500.0	6,871.7	6,982.7	6,846.9	100.9	187.1	-88.04	-163.1	3,419.8	473.5	201.6	271.89	1.741	
10,600.0	6,871.4	6,984.4	6,848.6	103.7	187.0	-88.48	-163.1	3,419.8	387.8	112.9	274.94	1.411	Level 3
10,700.0	6,871.1	6,986.0	6,850.2	106.4	187.0	-88.91	-163.1	3,419.8	310.9	32.9	277.97	1.118	Level 2
10,800.0	6,870.8	6,987.7	6,851.9	109.2	187.0	-89.35	-163.1	3,419.9	250.8	-30.2	281.00	0.893	Level 1
10,900.0	6,870.5	6,989.4	6,853.6	111.9	187.0	-89.79	-163.1	3,419.9	221.7	-62.3	284.02	0.781	Level 1
10,918.8	6,870.4	6,989.8	6,854.0	112.5	187.0	-89.88	-163.1	3,419.9	220.9	-63.7	284.58	0.776	Level 1, CC, ES, SF
11,000.0	6,870.2	6,991.1	6,855.4	114.7	187.0	-90.24	-163.1	3,419.9	235.3	-51.7	287.02	0.820	Level 1
11,100.0	6,869.9	6,992.9	6,857.1	117.5	186.9	-90.69	-163.1	3,420.0	285.7	-4.4	290.01	0.985	Level 1
11,200.0	6,869.6	6,994.6	6,858.8	120.2	186.9	-91.14	-163.1	3,420.0	357.5	64.5	292.98	1.220	Level 2
11,300.0	6,869.3	6,996.4	6,860.6	123.0	186.9	-91.60	-163.1	3,420.0	440.5	144.5	295.95	1.488	Level 3
11,400.0	6,869.0	6,998.2	6,862.4	125.8	186.9	-92.06	-163.1	3,420.1	529.4	230.5	298.89	1.771	
11,500.0	6,868.7	7,000.0	6,864.2	128.5	186.8	-92.52	-163.1	3,420.1	621.6	319.8	301.82	2.060	
11,600.0	6,868.4	7,001.8	6,866.0	131.3	186.8	-92.99	-163.1	3,420.1	716.0	411.3	304.73	2.350	
11,700.0	6,868.1	7,003.6	6,867.8	134.1	186.8	-93.46	-163.1	3,420.2	811.7	504.1	307.62	2.639	
11,800.0	6,867.8	7,005.4	6,869.6	136.9	186.8	-93.93	-163.1	3,420.2	908.3	597.8	310.49	2.925	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	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 #3 (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)	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	-67.62	61.9	-150.4	162.7				
100.0	100.0	100.0	100.0	0.1	0.1	-67.62	61.9	-150.4	162.7	162.5	0.22	723.788	
200.0	200.0	200.0	200.0	0.3	0.3	-67.62	61.9	-150.4	162.7	162.0	0.67	241.263	
300.0	300.0	300.0	300.0	0.6	0.6	-67.62	61.9	-150.4	162.7	161.6	1.12	144.758	
400.0	400.0	400.0	400.0	0.8	0.8	-67.62	61.9	-150.4	162.7	161.1	1.57	103.398	
500.0	500.0	500.0	500.0	1.0	1.0	-67.62	61.9	-150.4	162.7	160.7	2.02	80.421	
600.0	600.0	600.0	600.0	1.2	1.2	-67.62	61.9	-150.4	162.7	160.2	2.47	65.799	
700.0	700.0	700.0	700.0	1.5	1.5	-67.62	61.9	-150.4	162.7	159.8	2.92	55.676	
800.0	800.0	800.0	800.0	1.7	1.7	-67.62	61.9	-150.4	162.7	159.3	3.37	48.253 CC, ES	
900.0	900.0	897.1	897.1	1.9	1.9	-67.31	63.1	-150.9	163.6	159.7	3.81	42.888	
1,000.0	1,000.0	994.1	994.1	2.1	2.1	-66.39	66.5	-152.2	166.2	162.0	4.26	39.056	
1,100.0	1,100.0	1,090.9	1,090.6	2.4	2.3	-64.92	72.3	-154.4	170.7	166.0	4.70	36.313	
1,200.0	1,200.0	1,187.3	1,186.6	2.6	2.6	-63.00	80.2	-157.5	177.2	172.1	5.16	34.379	
1,300.0	1,300.0	1,283.2	1,281.9	2.8	2.8	-60.74	90.4	-161.4	185.9	180.2	5.62	33.063	
1,400.0	1,400.0	1,378.5	1,376.3	3.0	3.1	-58.26	102.7	-166.1	196.7	190.6	6.11	32.227	
1,500.0	1,500.0	1,473.1	1,469.6	3.3	3.4	-55.68	117.1	-171.6	210.0	203.4	6.61	31.766 SF	
1,600.0	1,600.0	1,566.8	1,561.6	3.5	3.7	61.54	133.5	-177.9	225.1	218.2	6.96	32.330	
1,700.0	1,699.9	1,661.0	1,653.8	3.7	4.0	64.62	152.0	-185.0	241.7	234.3	7.40	32.675	
1,800.0	1,799.7	1,758.4	1,748.8	3.9	4.4	67.95	171.7	-192.5	258.5	250.7	7.84	32.977	
1,900.0	1,899.3	1,855.5	1,843.7	4.1	4.8	71.33	191.2	-200.1	275.4	267.1	8.29	33.231	
2,000.0	1,998.6	1,952.3	1,938.2	4.3	5.1	74.75	210.8	-207.5	292.6	283.8	8.75	33.452	
2,100.0	2,097.5	2,048.7	2,032.3	4.5	5.5	78.21	230.2	-215.0	310.3	301.1	9.22	33.647	
2,200.0	2,196.1	2,144.7	2,126.1	4.8	6.0	81.67	249.5	-222.4	328.8	319.1	9.72	33.819	
2,300.0	2,294.2	2,240.2	2,219.3	5.1	6.4	85.12	268.8	-229.8	348.4	338.2	10.26	33.970	
2,400.0	2,391.7	2,335.2	2,312.0	5.5	6.8	88.52	287.9	-237.2	369.3	358.5	10.83	34.101	
2,441.2	2,431.7	2,374.1	2,350.0	5.6	6.9	89.90	295.8	-240.2	378.3	367.2	11.08	34.151	
2,500.0	2,488.7	2,429.6	2,404.2	5.9	7.2	92.00	307.0	-244.5	391.6	380.2	11.44	34.230	
2,600.0	2,585.7	2,523.9	2,496.3	6.3	7.6	95.27	326.0	-251.8	415.4	403.3	12.08	34.386	
2,700.0	2,682.7	2,618.3	2,588.5	6.7	8.0	98.20	345.0	-259.1	440.4	427.7	12.74	34.563	
2,800.0	2,779.7	2,712.7	2,680.6	7.1	8.4	100.82	364.0	-266.4	466.4	453.0	13.42	34.754	
2,900.0	2,876.6	2,807.0	2,772.8	7.6	8.8	103.17	383.0	-273.7	493.3	479.2	14.11	34.952	
3,000.0	2,973.6	2,901.4	2,864.9	8.0	9.3	105.28	402.1	-281.0	520.8	506.0	14.82	35.155	
3,100.0	3,070.6	2,995.8	2,957.0	8.5	9.7	107.19	421.1	-288.3	549.0	533.5	15.53	35.360	
3,200.0	3,167.6	3,090.1	3,049.2	9.0	10.1	108.91	440.1	-295.6	577.7	561.5	16.25	35.563	
3,300.0	3,264.6	3,184.5	3,141.3	9.5	10.5	110.48	459.1	-302.9	606.9	589.9	16.97	35.764	
3,400.0	3,361.5	3,278.9	3,233.5	10.0	11.0	111.90	478.1	-310.2	636.4	618.7	17.70	35.961	
3,500.0	3,458.5	3,373.2	3,325.6	10.5	11.4	113.20	497.2	-317.5	666.3	647.9	18.43	36.153	
3,600.0	3,555.5	3,467.6	3,417.7	10.9	11.8	114.39	516.2	-324.8	696.4	677.3	19.16	36.341	
3,700.0	3,652.5	3,562.0	3,509.9	11.4	12.2	115.48	535.2	-332.1	726.9	707.0	19.90	36.523	
3,800.0	3,749.5	3,656.3	3,602.0	12.0	12.7	116.49	554.2	-339.4	757.5	736.9	20.64	36.700	
3,900.0	3,846.4	3,750.7	3,694.2	12.5	13.1	117.42	573.2	-346.7	788.3	767.0	21.38	36.870	
4,000.0	3,943.4	3,845.0	3,786.3	13.0	13.5	118.28	592.3	-354.0	819.4	797.2	22.12	37.035	
4,100.0	4,040.4	3,939.4	3,878.4	13.5	14.0	119.07	611.3	-361.3	850.5	827.7	22.87	37.195	
4,200.0	4,137.4	4,033.8	3,970.6	14.0	14.4	119.81	630.3	-368.6	881.9	858.2	23.61	37.348	
4,300.0	4,234.4	4,128.1	4,062.7	14.5	14.8	120.51	649.3	-375.9	913.3	888.9	24.36	37.496	
4,400.0	4,331.3	4,222.5	4,154.8	15.0	15.3	121.15	668.4	-383.2	944.8	919.7	25.10	37.639	
4,500.0	4,428.3	4,316.9	4,247.0	15.5	15.7	121.76	687.4	-390.5	976.5	950.6	25.85	37.777	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-402
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-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-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 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	-79.04	29.1	-150.4	153.2					
100.0	100.0	100.0	100.0	0.1	0.1	-79.04	29.1	-150.4	153.2	153.0	0.22	681.739		
200.0	200.0	200.0	200.0	0.3	0.3	-79.04	29.1	-150.4	153.2	152.6	0.67	227.246		
300.0	300.0	300.0	300.0	0.6	0.6	-79.04	29.1	-150.4	153.2	152.1	1.12	136.348		
400.0	400.0	400.0	400.0	0.8	0.8	-79.04	29.1	-150.4	153.2	151.7	1.57	97.391		
500.0	500.0	500.0	500.0	1.0	1.0	-79.04	29.1	-150.4	153.2	151.2	2.02	75.749		
600.0	600.0	600.0	600.0	1.2	1.2	-79.04	29.1	-150.4	153.2	150.8	2.47	61.976		
700.0	700.0	700.0	700.0	1.5	1.5	-79.04	29.1	-150.4	153.2	150.3	2.92	52.441		
800.0	800.0	800.0	800.0	1.7	1.7	-79.04	29.1	-150.4	153.2	149.9	3.37	45.449		
900.0	900.0	900.0	900.0	1.9	1.9	-79.04	29.1	-150.4	153.2	149.4	3.82	40.102		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-79.04	29.1	-150.4	153.2	149.0	4.27	35.881 CC, ES		
1,100.0	1,100.0	1,098.3	1,098.3	2.4	2.4	-78.79	29.9	-150.8	153.8	149.1	4.71	32.617		
1,200.0	1,200.0	1,196.6	1,196.6	2.6	2.6	-78.08	32.1	-152.0	155.4	150.3	5.16	30.135		
1,300.0	1,300.0	1,294.7	1,294.6	2.8	2.8	-76.91	35.8	-154.0	158.2	152.6	5.60	28.243		
1,400.0	1,400.0	1,392.7	1,392.4	3.0	3.0	-75.36	41.0	-156.8	162.3	156.2	6.05	26.820		
1,500.0	1,500.0	1,490.4	1,489.8	3.3	3.2	-73.48	47.6	-160.4	167.7	161.1	6.50	25.775		
1,600.0	1,600.0	1,587.9	1,586.9	3.5	3.5	43.45	55.6	-164.8	173.5	166.6	6.92	25.073		
1,700.0	1,699.9	1,685.0	1,683.3	3.7	3.7	46.56	65.1	-169.9	179.1	171.8	7.33	24.427		
1,800.0	1,799.7	1,781.6	1,779.1	3.9	4.0	50.35	75.9	-175.8	185.0	177.2	7.75	23.857		
1,900.0	1,899.3	1,877.5	1,874.1	4.1	4.3	54.71	88.1	-182.4	191.6	183.4	8.18	23.406		
2,000.0	1,998.6	1,972.8	1,968.1	4.3	4.5	59.52	101.6	-189.7	199.5	190.8	8.63	23.115		
2,100.0	2,097.5	2,070.2	2,064.2	4.5	4.9	64.74	116.1	-197.6	208.6	199.5	9.10	22.919		
2,200.0	2,196.1	2,167.6	2,160.0	4.8	5.2	70.08	130.7	-205.5	218.5	208.9	9.60	22.761		
2,300.0	2,294.2	2,264.4	2,255.5	5.1	5.5	75.48	145.2	-213.4	229.7	219.6	10.14	22.658		
2,400.0	2,391.7	2,360.8	2,350.4	5.5	5.8	80.87	159.6	-221.2	242.5	231.8	10.72	22.623 SF		
2,441.2	2,431.7	2,400.3	2,389.4	5.6	6.0	83.07	165.6	-224.4	248.3	237.4	10.97	22.632		
2,500.0	2,488.7	2,456.7	2,444.9	5.9	6.2	86.23	174.0	-229.0	257.3	246.0	11.34	22.680		
2,600.0	2,585.7	2,552.5	2,539.4	6.3	6.5	91.11	188.4	-236.8	274.2	262.2	11.99	22.864		
2,700.0	2,682.7	2,648.4	2,633.8	6.7	6.8	95.43	202.7	-244.6	293.0	280.3	12.66	23.140		
2,800.0	2,779.7	2,744.2	2,728.3	7.1	7.2	99.23	217.1	-252.4	313.2	299.9	13.34	23.480		
2,900.0	2,876.6	2,840.1	2,822.7	7.6	7.5	102.58	231.4	-260.2	334.6	320.6	14.03	23.859		
3,000.0	2,973.6	2,935.9	2,917.2	8.0	7.9	105.53	245.8	-267.9	357.1	342.3	14.72	24.262		
3,100.0	3,070.6	3,031.8	3,011.6	8.5	8.2	108.13	260.1	-275.7	380.3	364.9	15.41	24.674		
3,200.0	3,167.6	3,127.6	3,106.1	9.0	8.6	110.44	274.5	-283.5	404.2	388.1	16.11	25.089		
3,300.0	3,264.6	3,223.4	3,200.5	9.5	8.9	112.50	288.8	-291.3	428.7	411.9	16.81	25.500		
3,400.0	3,361.5	3,319.3	3,294.9	10.0	9.3	114.33	303.2	-299.1	453.7	436.1	17.51	25.902		
3,500.0	3,458.5	3,415.1	3,389.4	10.5	9.7	115.98	317.5	-306.9	479.0	460.8	18.22	26.294		
3,600.0	3,555.5	3,511.0	3,483.8	10.9	10.0	117.46	331.9	-314.6	504.7	485.8	18.92	26.673		
3,700.0	3,652.5	3,606.8	3,578.3	11.4	10.4	118.80	346.2	-322.4	530.7	511.1	19.63	27.038		
3,800.0	3,749.5	3,702.7	3,672.7	12.0	10.7	120.01	360.6	-330.2	556.9	536.6	20.33	27.389		
3,900.0	3,846.4	3,798.5	3,767.2	12.5	11.1	121.12	374.9	-338.0	583.4	562.3	21.04	27.726		
4,000.0	3,943.4	3,894.4	3,861.6	13.0	11.5	122.13	389.3	-345.8	610.0	588.2	21.75	28.050		
4,100.0	4,040.4	3,990.2	3,956.1	13.5	11.8	123.06	403.6	-353.6	636.8	614.3	22.45	28.359		
4,200.0	4,137.4	4,086.1	4,050.5	14.0	12.2	123.91	418.0	-361.3	663.7	640.6	23.16	28.656		
4,300.0	4,234.4	4,181.9	4,145.0	14.5	12.5	124.70	432.3	-369.1	690.8	666.9	23.87	28.939		
4,400.0	4,331.3	4,277.8	4,239.4	15.0	12.9	125.43	446.7	-376.9	718.0	693.4	24.58	29.211		
4,500.0	4,428.3	4,373.6	4,333.8	15.5	13.3	126.10	461.0	-384.7	745.3	720.0	25.29	29.470		
4,600.0	4,525.3	4,469.4	4,428.3	16.0	13.6	126.73	475.4	-392.5	772.6	746.6	26.00	29.719		
4,700.0	4,622.3	4,565.3	4,522.7	16.6	14.0	127.32	489.7	-400.3	800.1	773.4	26.71	29.957		
4,800.0	4,719.3	4,661.1	4,617.2	17.1	14.4	127.86	504.1	-408.1	827.6	800.2	27.42	30.185		
4,900.0	4,816.2	4,757.0	4,711.6	17.6	14.7	128.37	518.4	-415.8	855.2	827.1	28.13	30.404		

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-402
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-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-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 (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	4,913.2	4,852.8	4,806.1	18.1	15.1	128.85	532.8	-423.6	882.8	854.0	28.84	30.613	
5,100.0	5,010.2	4,948.7	4,900.5	18.6	15.5	129.30	547.1	-431.4	910.5	881.0	29.55	30.814	
5,200.0	5,107.2	5,044.5	4,995.0	19.2	15.8	129.73	561.5	-439.2	938.3	908.0	30.26	31.007	
5,300.0	5,204.2	5,140.4	5,089.4	19.7	16.2	130.13	575.8	-447.0	966.1	935.1	30.97	31.193	
5,400.1	5,301.2	5,236.3	5,184.0	20.2	16.6	130.51	590.2	-454.8	994.0	962.3	31.68	31.371	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	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 #3 (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 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	-2.58	61.9	-2.8	62.0				
100.0	100.0	100.0	100.0	0.1	0.1	-2.58	61.9	-2.8	62.0	61.8	0.22	275.822	
200.0	200.0	200.0	200.0	0.3	0.3	-2.58	61.9	-2.8	62.0	61.3	0.67	91.941	
300.0	300.0	300.0	300.0	0.6	0.6	-2.58	61.9	-2.8	62.0	60.9	1.12	55.164	
400.0	400.0	400.0	400.0	0.8	0.8	-2.58	61.9	-2.8	62.0	60.4	1.57	39.403	
500.0	500.0	500.0	500.0	1.0	1.0	-2.58	61.9	-2.8	62.0	60.0	2.02	30.647	
600.0	600.0	600.0	600.0	1.2	1.2	-2.58	61.9	-2.8	62.0	59.5	2.47	25.075	
700.0	700.0	700.0	700.0	1.5	1.5	-2.58	61.9	-2.8	62.0	59.1	2.92	21.217	
800.0	800.0	800.0	800.0	1.7	1.7	-2.58	61.9	-2.8	62.0	58.6	3.37	18.388	
900.0	900.0	900.0	900.0	1.9	1.9	-2.58	61.9	-2.8	62.0	58.2	3.82	16.225	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-2.58	61.9	-2.8	62.0	57.7	4.27	14.517	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-2.58	61.9	-2.8	62.0	57.3	4.72	13.134	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-2.58	61.9	-2.8	62.0	56.8	5.17	11.992	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-2.58	61.9	-2.8	62.0	56.4	5.62	11.033	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-2.58	61.9	-2.8	62.0	55.9	6.07	10.216	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-2.58	61.9	-2.8	62.0	55.5	6.52	9.511 CC	
1,600.0	1,600.0	1,599.8	1,599.8	3.5	3.5	112.31	62.1	-3.6	62.6	55.7	6.94	9.032	
1,700.0	1,699.9	1,699.6	1,699.5	3.7	3.7	113.22	62.4	-6.2	64.6	57.3	7.33	8.815	
1,800.0	1,799.7	1,799.3	1,799.2	3.9	3.9	114.62	63.0	-10.5	67.9	60.2	7.74	8.779	
1,900.0	1,899.3	1,899.1	1,898.7	4.1	4.1	116.36	63.8	-16.5	72.6	64.4	8.16	8.901	
2,000.0	1,998.6	1,998.7	1,998.1	4.3	4.3	118.29	64.9	-24.3	78.7	70.1	8.59	9.157	
2,100.0	2,097.5	2,098.3	2,097.2	4.5	4.6	120.27	66.2	-33.7	86.3	77.2	9.06	9.526	
2,200.0	2,196.1	2,197.8	2,196.1	4.8	4.8	122.18	67.8	-44.8	95.3	85.8	9.54	9.988	
2,300.0	2,294.2	2,297.2	2,294.7	5.1	5.1	124.08	69.5	-57.4	105.9	95.8	10.06	10.525	
2,400.0	2,391.7	2,396.4	2,393.0	5.5	5.3	126.51	71.3	-70.2	118.0	107.4	10.59	11.145	
2,441.2	2,431.7	2,437.1	2,433.3	5.6	5.4	127.64	72.0	-75.5	123.6	112.8	10.82	11.425	
2,500.0	2,488.7	2,495.2	2,491.0	5.9	5.6	129.27	73.1	-83.0	131.8	120.6	11.15	11.820	
2,600.0	2,585.7	2,594.1	2,589.0	6.3	5.9	131.64	74.9	-95.8	145.9	134.2	11.72	12.447	
2,700.0	2,682.7	2,692.9	2,687.0	6.7	6.2	133.58	76.6	-108.6	160.2	147.9	12.30	13.023	
2,800.0	2,779.7	2,791.7	2,785.0	7.1	6.4	135.20	78.4	-121.3	174.7	161.8	12.89	13.550	
2,900.0	2,876.6	2,890.6	2,882.9	7.6	6.7	136.58	80.2	-134.1	189.3	175.8	13.49	14.034	
3,000.0	2,973.6	2,989.4	2,980.9	8.0	7.0	137.76	82.0	-146.9	204.0	189.9	14.09	14.478	
3,100.0	3,070.6	3,088.2	3,078.9	8.5	7.3	138.78	83.8	-159.7	218.7	204.0	14.69	14.886	
3,200.0	3,167.6	3,187.1	3,176.9	9.0	7.6	139.67	85.5	-172.4	233.5	218.2	15.30	15.262	
3,300.0	3,264.6	3,285.9	3,274.9	9.5	7.9	140.45	87.3	-185.2	248.4	232.5	15.91	15.609	
3,400.0	3,361.5	3,384.7	3,372.9	10.0	8.2	141.15	89.1	-198.0	263.3	246.8	16.53	15.930	
3,500.0	3,458.5	3,483.6	3,470.9	10.5	8.5	141.77	90.9	-210.8	278.2	261.1	17.15	16.227	
3,600.0	3,555.5	3,582.4	3,568.9	10.9	8.9	142.33	92.6	-223.5	293.2	275.4	17.77	16.503	
3,700.0	3,652.5	3,681.2	3,666.9	11.4	9.2	142.83	94.4	-236.3	308.2	289.8	18.39	16.759	
3,800.0	3,749.5	3,780.1	3,764.9	12.0	9.5	143.29	96.2	-249.1	323.2	304.2	19.01	16.999	
3,900.0	3,846.4	3,878.9	3,862.8	12.5	9.8	143.70	98.0	-261.8	338.2	318.6	19.64	17.222	
4,000.0	3,943.4	3,977.7	3,960.8	13.0	10.1	144.08	99.7	-274.6	353.3	333.0	20.27	17.431	
4,100.0	4,040.4	4,076.6	4,058.8	13.5	10.4	144.43	101.5	-287.4	368.4	347.5	20.90	17.627	
4,200.0	4,137.4	4,175.4	4,156.8	14.0	10.7	144.75	103.3	-300.2	383.4	361.9	21.53	17.811	
4,300.0	4,234.4	4,274.3	4,254.8	14.5	11.1	145.05	105.1	-312.9	398.5	376.4	22.16	17.984	
4,400.0	4,331.3	4,373.1	4,352.8	15.0	11.4	145.33	106.8	-325.7	413.6	390.8	22.79	18.147	
4,500.0	4,428.3	4,471.9	4,450.8	15.5	11.7	145.59	108.6	-338.5	428.7	405.3	23.43	18.301	
4,600.0	4,525.3	4,570.8	4,548.8	16.0	12.0	145.82	110.4	-351.3	443.8	419.8	24.06	18.446	
4,700.0	4,622.3	4,669.6	4,646.8	16.6	12.3	146.05	112.2	-364.0	458.9	434.2	24.70	18.584	
4,800.0	4,719.3	4,768.4	4,744.8	17.1	12.7	146.26	114.0	-376.8	474.1	448.7	25.33	18.714	
4,900.0	4,816.2	4,867.3	4,842.7	17.6	13.0	146.45	115.7	-389.6	489.2	463.2	25.97	18.837	

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 190-402
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 190-402	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 #3 (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							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,913.2	4,966.1	4,940.7	18.1	13.3	146.64	117.5	-402.3	504.3	477.7	26.61	18.955	
5,100.0	5,010.2	5,064.9	5,038.7	18.6	13.6	146.81	119.3	-415.1	519.5	492.2	27.25	19.066	
5,200.0	5,107.2	5,163.8	5,136.7	19.2	13.9	146.98	121.1	-427.9	534.6	506.7	27.88	19.172	
5,300.0	5,204.2	5,262.6	5,234.7	19.7	14.3	147.13	122.8	-440.7	549.8	521.2	28.52	19.274	
5,400.1	5,301.2	5,361.5	5,332.8	20.2	14.6	147.28	124.6	-453.5	564.9	535.8	29.17	19.370	
5,500.0	5,398.5	5,460.1	5,430.5	20.6	14.9	147.47	126.4	-466.2	578.6	548.8	29.83	19.398	
5,600.0	5,496.6	5,551.5	5,521.3	21.0	15.1	147.61	127.8	-476.4	590.2	559.8	30.35	19.443	
5,700.0	5,595.4	5,642.8	5,612.3	21.3	15.3	147.81	128.8	-483.8	600.1	569.3	30.79	19.489	
5,800.0	5,694.6	5,734.1	5,703.5	21.5	15.5	148.09	129.5	-488.3	608.5	577.3	31.16	19.530	
5,900.0	5,794.2	5,825.3	5,794.7	21.7	15.6	148.42	129.7	-489.9	615.3	583.9	31.45	19.565	
6,000.0	5,894.0	5,924.7	5,894.0	21.9	15.8	148.73	129.7	-489.9	620.0	588.3	31.72	19.546	
6,106.0	6,000.0	6,023.3	5,992.7	22.0	16.0	34.29	129.7	-489.7	621.8	587.5	34.25	18.155	
6,200.0	6,094.0	6,087.5	6,056.7	22.1	16.0	34.60	129.7	-485.7	625.1	590.6	34.51	18.113	
6,222.9	6,116.9	6,100.0	6,069.2	22.2	16.1	34.70	129.7	-484.3	626.6	592.1	34.57	18.124	
6,250.0	6,144.0	6,121.3	6,090.2	22.2	16.1	-54.99	129.7	-481.4	628.5	596.3	32.15	19.550	
6,300.0	6,193.9	6,150.0	6,118.6	22.2	16.1	-54.59	129.7	-476.6	631.5	599.4	32.04	19.711	
6,350.0	6,243.4	6,188.5	6,156.2	22.2	16.1	-54.21	129.7	-468.5	633.8	602.0	31.87	19.886	
6,400.0	6,292.4	6,222.1	6,188.6	22.2	16.1	-53.95	129.7	-459.9	635.6	603.9	31.67	20.066	
6,450.0	6,340.7	6,250.0	6,215.3	22.1	16.1	-53.80	129.7	-451.7	636.7	605.3	31.45	20.248	
6,500.0	6,388.0	6,289.1	6,252.1	22.0	16.0	-53.72	129.7	-438.6	637.2	606.0	31.19	20.431	
6,550.0	6,434.1	6,322.5	6,283.1	21.9	16.0	-53.74	129.7	-425.8	637.1	606.1	30.92	20.606	
6,600.0	6,478.9	6,350.0	6,308.0	21.8	16.0	-53.84	129.7	-414.4	636.3	605.7	30.64	20.766	
6,650.0	6,522.1	6,389.5	6,343.2	21.7	16.0	-54.06	129.7	-396.3	634.9	604.5	30.38	20.896	
6,700.0	6,563.6	6,423.1	6,372.3	21.6	15.9	-54.35	129.7	-379.6	632.8	602.7	30.15	20.990	
6,750.0	6,603.2	6,450.0	6,395.0	21.5	15.9	-54.69	129.7	-365.2	630.2	600.3	29.95	21.043	
6,800.0	6,640.7	6,490.4	6,428.3	21.4	15.9	-55.22	129.7	-342.2	626.9	597.1	29.84	21.008	
6,850.0	6,675.9	6,524.2	6,455.1	21.3	15.9	-55.80	129.7	-321.7	623.1	593.3	29.81	20.902	
6,900.0	6,708.8	6,558.1	6,481.0	21.3	15.9	-56.48	129.7	-299.8	618.8	588.9	29.88	20.706	
6,950.0	6,739.1	6,592.2	6,506.1	21.3	16.0	-57.25	129.7	-276.8	614.0	583.9	30.08	20.409	
7,000.0	6,766.7	6,626.4	6,530.2	21.3	16.0	-58.12	129.7	-252.6	608.7	578.2	30.42	20.005	
7,050.0	6,791.6	6,660.7	6,553.4	21.4	16.1	-59.09	129.7	-227.1	602.9	572.0	30.91	19.504	
7,100.0	6,813.6	6,700.0	6,578.3	21.6	16.2	-60.26	129.7	-196.9	596.9	565.3	31.60	18.887	
7,150.0	6,832.6	6,730.1	6,596.4	21.8	16.4	-61.33	129.7	-172.8	590.5	558.1	32.37	18.239	
7,200.0	6,848.5	6,765.1	6,616.3	22.1	16.5	-62.61	129.7	-143.9	583.8	550.5	33.34	17.512	
7,250.0	6,861.3	6,800.0	6,634.7	22.5	16.7	-63.98	129.7	-114.3	577.0	542.6	34.44	16.753	
7,300.0	6,871.0	6,836.1	6,652.3	22.9	17.0	-65.47	129.7	-82.8	570.1	534.4	35.71	15.964	
7,350.0	6,877.3	6,872.1	6,668.3	23.4	17.3	-67.06	129.7	-50.6	563.2	526.1	37.10	15.181	
7,400.0	6,880.5	6,908.4	6,683.0	24.0	17.7	-68.74	129.7	-17.4	556.3	517.8	38.59	14.418	
7,425.1	6,880.8	6,926.8	6,689.8	24.4	17.9	-69.62	129.7	-0.3	553.0	513.6	39.38	14.043	
7,500.0	6,880.6	6,983.3	6,708.1	25.4	18.6	-71.46	129.7	53.2	544.4	502.8	41.55	13.100	
7,600.0	6,880.3	7,062.9	6,727.1	27.1	19.7	-73.41	129.7	130.4	536.8	492.1	44.72	12.003	
7,700.0	6,880.0	7,145.8	6,738.3	28.9	21.1	-74.58	129.7	212.5	533.0	484.9	48.11	11.080	
7,779.9	6,879.8	7,213.3	6,740.7	30.5	22.3	-74.86	129.7	279.9	532.2	481.3	50.89	10.456	
7,800.0	6,879.7	7,233.1	6,740.5	30.9	22.6	-74.84	129.7	299.7	532.2	480.5	51.65	10.303	
7,900.0	6,879.4	7,333.1	6,739.5	33.0	24.6	-74.77	129.7	399.7	532.4	476.8	55.61	9.573	
8,000.0	6,879.1	7,433.1	6,738.5	35.3	26.7	-74.70	129.7	499.7	532.6	472.8	59.80	8.906	
8,100.0	6,878.8	7,533.1	6,737.6	37.6	29.0	-74.62	129.7	599.7	532.7	468.6	64.17	8.301	
8,200.0	6,878.5	7,633.1	6,736.6	39.9	31.3	-74.55	129.7	699.7	532.9	464.2	68.70	7.757	
8,300.0	6,878.2	7,733.1	6,735.6	42.4	33.7	-74.48	129.7	799.7	533.1	459.8	73.34	7.269	
8,400.0	6,877.9	7,833.1	6,734.6	44.8	36.1	-74.41	129.7	899.7	533.3	455.2	78.09	6.830	
8,500.0	6,877.6	7,933.1	6,733.6	47.3	38.6	-74.33	129.7	999.7	533.5	450.6	82.91	6.435	

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 190-402
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 190-402	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 #3 (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		
8,600.0	6,877.3	8,033.1	6,732.6	49.9	41.2	-74.26	129.7	1,099.6	533.7	445.9	87.80	6.079		
8,700.0	6,877.0	8,133.1	6,731.6	52.5	43.8	-74.19	129.7	1,199.6	533.9	441.1	92.74	5.757		
8,800.0	6,876.7	8,233.0	6,730.6	55.0	46.4	-74.12	129.7	1,299.6	534.1	436.3	97.72	5.465		
8,900.0	6,876.4	8,333.0	6,729.6	57.7	49.0	-74.05	129.7	1,399.6	534.3	431.5	102.75	5.200		
9,000.0	6,876.1	8,433.0	6,728.6	60.3	51.6	-73.97	129.7	1,499.6	534.4	426.6	107.80	4.958		
9,100.0	6,875.8	8,533.0	6,727.6	62.9	54.3	-73.90	129.7	1,599.6	534.6	421.8	112.89	4.736		
9,200.0	6,875.5	8,633.0	6,726.6	65.6	57.0	-73.83	129.7	1,699.6	534.8	416.8	117.99	4.533		
9,300.0	6,875.2	8,733.0	6,725.6	68.3	59.7	-73.76	129.7	1,799.6	535.0	411.9	123.12	4.346		
9,400.0	6,875.0	8,833.0	6,724.6	71.0	62.4	-73.69	129.7	1,899.6	535.2	407.0	128.26	4.173		
9,500.0	6,874.7	8,933.0	6,723.6	73.6	65.1	-73.62	129.7	1,999.6	535.4	402.0	133.42	4.013		
9,600.0	6,874.4	9,033.0	6,722.6	76.3	67.8	-73.54	129.7	2,099.6	535.6	397.0	138.59	3.865		
9,700.0	6,874.1	9,133.0	6,721.6	79.1	70.5	-73.47	129.7	2,199.6	535.8	392.0	143.77	3.727		
9,800.0	6,873.8	9,233.0	6,720.6	81.8	73.3	-73.40	129.7	2,299.6	536.0	387.1	148.96	3.598		
9,900.0	6,873.5	9,333.0	6,719.6	84.5	76.0	-73.33	129.7	2,399.5	536.2	382.1	154.16	3.478		
10,000.0	6,873.2	9,433.0	6,718.7	87.2	78.7	-73.26	129.7	2,499.5	536.4	377.1	159.36	3.366		
10,100.0	6,872.9	9,533.0	6,717.7	89.9	81.5	-73.19	129.7	2,599.5	536.6	372.0	164.57	3.261		
10,200.0	6,872.6	9,633.0	6,716.7	92.7	84.2	-73.12	129.7	2,699.5	536.8	367.0	169.79	3.162		
10,300.0	6,872.3	9,733.0	6,715.7	95.4	87.0	-73.04	129.7	2,799.5	537.0	362.0	175.00	3.069		
10,400.0	6,872.0	9,833.0	6,714.7	98.2	89.7	-72.97	129.7	2,899.5	537.2	357.0	180.22	2.981		
10,500.0	6,871.7	9,933.0	6,713.7	100.9	92.5	-72.90	129.7	2,999.5	537.4	352.0	185.45	2.898		
10,600.0	6,871.4	10,033.0	6,712.7	103.7	95.3	-72.83	129.7	3,099.5	537.6	347.0	190.67	2.820		
10,700.0	6,871.1	10,133.0	6,711.7	106.4	98.0	-72.76	129.7	3,199.5	537.8	341.9	195.90	2.746		
10,800.0	6,870.8	10,233.0	6,710.7	109.2	100.8	-72.69	129.7	3,299.5	538.1	336.9	201.13	2.675		
10,900.0	6,870.5	10,333.0	6,709.7	111.9	103.6	-72.62	129.7	3,399.5	538.3	331.9	206.36	2.608		
11,000.0	6,870.2	10,433.0	6,708.7	114.7	106.4	-72.55	129.7	3,499.5	538.5	326.9	211.58	2.545		
11,100.0	6,869.9	10,533.0	6,707.7	117.5	109.1	-72.48	129.7	3,599.5	538.7	321.9	216.81	2.485		
11,200.0	6,869.6	10,633.0	6,706.7	120.2	111.9	-72.40	129.7	3,699.5	538.9	316.8	222.04	2.427		
11,300.0	6,869.3	10,733.0	6,705.7	123.0	114.7	-72.33	129.7	3,799.4	539.1	311.8	227.27	2.372		
11,400.0	6,869.0	10,833.0	6,704.7	125.8	117.5	-72.26	129.7	3,899.4	539.3	306.8	232.49	2.320		
11,500.0	6,868.7	10,933.0	6,703.7	128.5	120.2	-72.19	129.7	3,999.4	539.5	301.8	237.72	2.270		
11,600.0	6,868.4	11,033.0	6,702.7	131.3	123.0	-72.12	129.7	4,099.4	539.7	296.8	242.94	2.222		
11,700.0	6,868.1	11,133.0	6,701.7	134.1	125.8	-72.05	129.7	4,199.4	540.0	291.8	248.17	2.176		
11,800.0	6,867.8	11,233.0	6,700.7	136.9	128.6	-71.98	129.7	4,299.4	540.2	286.8	253.39	2.132		
11,900.0	6,867.5	11,333.0	6,699.8	139.6	131.4	-71.91	129.7	4,399.4	540.4	281.8	258.60	2.090		
12,000.0	6,867.2	11,433.0	6,698.8	142.4	134.2	-71.84	129.7	4,499.4	540.6	276.8	263.82	2.049		
12,100.0	6,866.9	11,533.0	6,697.8	145.2	137.0	-71.77	129.7	4,599.4	540.8	271.8	269.04	2.010		
12,200.0	6,866.6	11,633.0	6,696.8	148.0	139.7	-71.70	129.7	4,699.4	541.0	266.8	274.25	1.973		
12,300.0	6,866.3	11,733.0	6,695.8	150.8	142.5	-71.63	129.7	4,799.4	541.3	261.8	279.46	1.937		
12,400.0	6,866.1	11,833.0	6,694.8	153.5	145.3	-71.56	129.7	4,899.4	541.5	256.8	284.66	1.902		
12,500.0	6,865.8	11,933.0	6,693.8	156.3	148.1	-71.49	129.7	4,999.4	541.7	251.8	289.87	1.869		
12,600.0	6,865.5	12,033.0	6,692.8	159.1	150.9	-71.42	129.7	5,099.4	541.9	246.9	295.07	1.837		
12,700.0	6,865.2	12,133.0	6,691.8	161.9	153.7	-71.35	129.7	5,199.3	542.1	241.9	300.27	1.806		
12,800.0	6,864.9	12,233.0	6,690.8	164.7	156.5	-71.28	129.7	5,299.3	542.4	236.9	305.46	1.776		
12,900.0	6,864.6	12,332.9	6,689.8	167.5	159.3	-71.21	129.7	5,399.3	542.6	231.9	310.66	1.747		
13,000.0	6,864.3	12,432.9	6,688.8	170.3	162.1	-71.14	129.7	5,499.3	542.8	227.0	315.84	1.719		
13,100.0	6,864.0	12,532.9	6,687.8	173.1	164.9	-71.07	129.7	5,599.3	543.0	222.0	321.03	1.692		
13,200.0	6,863.7	12,632.9	6,686.8	175.8	167.7	-71.00	129.7	5,699.3	543.3	217.1	326.21	1.665		
13,300.0	6,863.4	12,732.9	6,685.8	178.6	170.5	-70.93	129.7	5,799.3	543.5	212.1	331.39	1.640		
13,400.0	6,863.1	12,832.9	6,684.8	181.4	173.3	-70.86	129.7	5,899.3	543.7	207.2	336.57	1.616		
13,500.0	6,862.8	12,932.9	6,683.8	184.2	176.1	-70.79	129.7	5,999.3	544.0	202.2	341.74	1.592		
13,600.0	6,862.5	13,032.9	6,682.8	187.0	178.8	-70.72	129.7	6,099.3	544.2	197.3	346.91	1.569		

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 190-402
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 190-402	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 #3 (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	
13,700.0	6,862.2	13,132.9	6,681.8	189.8	181.6	-70.65	129.7	6,199.3	544.4	192.3	352.07	1.546	
13,800.0	6,861.9	13,232.9	6,680.8	192.6	184.4	-70.58	129.7	6,299.3	544.7	187.4	357.24	1.525	
13,900.0	6,861.6	13,332.9	6,679.9	195.4	187.2	-70.52	129.7	6,399.3	544.9	182.5	362.39	1.504	
14,000.0	6,861.3	13,432.9	6,678.9	198.2	190.0	-70.45	129.7	6,499.2	545.1	177.6	367.55	1.483	Level 3
14,100.0	6,861.0	13,532.9	6,677.9	201.0	192.8	-70.38	129.7	6,599.2	545.4	172.7	372.70	1.463	Level 3
14,200.0	6,860.7	13,632.9	6,676.9	203.8	195.6	-70.31	129.7	6,699.2	545.6	167.7	377.84	1.444	Level 3
14,300.0	6,860.4	13,732.9	6,675.9	206.6	198.4	-70.24	129.7	6,799.2	545.8	162.8	382.99	1.425	Level 3
14,400.0	6,860.1	13,832.9	6,674.9	209.4	201.2	-70.17	129.7	6,899.2	546.1	157.9	388.13	1.407	Level 3
14,500.0	6,859.8	13,932.9	6,673.9	212.2	204.0	-70.10	129.7	6,999.2	546.3	153.0	393.26	1.389	Level 3
14,600.0	6,859.5	14,032.9	6,672.9	215.0	206.8	-70.03	129.7	7,099.2	546.5	148.1	398.39	1.372	Level 3
14,700.0	6,859.2	14,132.9	6,671.9	217.7	209.6	-69.96	129.7	7,199.2	546.8	143.3	403.52	1.355	Level 3
14,800.0	6,858.9	14,232.9	6,670.9	220.5	212.4	-69.89	129.7	7,299.2	547.0	138.4	408.64	1.339	Level 3
14,900.0	6,858.6	14,332.9	6,669.9	223.3	215.2	-69.83	129.7	7,399.2	547.3	133.5	413.76	1.323	Level 3
15,000.0	6,858.3	14,432.9	6,668.9	226.1	218.0	-69.76	129.7	7,499.2	547.5	128.6	418.87	1.307	Level 3
15,100.0	6,858.0	14,532.9	6,667.9	228.9	220.8	-69.69	129.7	7,599.2	547.7	123.8	423.98	1.292	Level 3
15,200.0	6,857.7	14,632.9	6,666.9	231.7	223.6	-69.62	129.7	7,699.2	548.0	118.9	429.09	1.277	Level 3
15,300.0	6,857.4	14,732.9	6,665.9	234.5	226.4	-69.55	129.7	7,799.2	548.2	114.0	434.19	1.263	Level 3
15,400.0	6,857.1	14,832.9	6,664.9	237.3	229.2	-69.48	129.7	7,899.1	548.5	109.2	439.29	1.249	Level 2
15,500.0	6,856.9	14,932.9	6,663.9	240.1	232.0	-69.42	129.7	7,999.1	548.7	104.3	444.38	1.235	Level 2
15,600.0	6,856.6	15,032.9	6,662.9	242.9	234.8	-69.35	129.7	8,099.1	549.0	99.5	449.47	1.221	Level 2
15,700.0	6,856.3	15,132.9	6,661.9	245.7	237.6	-69.28	129.7	8,199.1	549.2	94.7	454.55	1.208	Level 2
15,800.0	6,856.0	15,232.9	6,661.0	248.5	240.5	-69.21	129.7	8,299.1	549.5	89.8	459.63	1.195	Level 2
15,900.0	6,855.7	15,332.9	6,660.0	251.3	243.3	-69.14	129.7	8,399.1	549.7	85.0	464.71	1.183	Level 2
16,000.0	6,855.4	15,432.9	6,659.0	254.1	246.1	-69.08	129.7	8,499.1	549.9	80.2	469.78	1.171	Level 2
16,100.0	6,855.1	15,532.9	6,658.0	256.9	248.9	-69.01	129.7	8,599.1	550.2	75.4	474.84	1.159	Level 2
16,200.0	6,854.8	15,632.9	6,657.0	259.7	251.7	-68.94	129.7	8,699.1	550.4	70.5	479.91	1.147	Level 2
16,300.0	6,854.5	15,732.9	6,656.0	262.5	254.5	-68.87	129.7	8,799.1	550.7	65.7	484.96	1.136	Level 2
16,400.0	6,854.2	15,832.9	6,655.0	265.3	257.3	-68.80	129.7	8,899.1	551.0	60.9	490.02	1.124	Level 2
16,500.0	6,853.9	15,932.9	6,654.0	268.1	260.1	-68.74	129.7	8,999.1	551.2	56.1	495.06	1.113	Level 2
16,600.0	6,853.6	16,032.9	6,653.0	270.9	262.9	-68.67	129.7	9,099.1	551.5	51.3	500.11	1.103	Level 2
16,700.0	6,853.3	16,132.9	6,652.0	273.7	265.7	-68.60	129.7	9,199.0	551.7	46.6	505.15	1.092	Level 2
16,800.0	6,853.0	16,232.9	6,651.0	276.5	268.5	-68.53	129.7	9,299.0	552.0	41.8	510.18	1.082	Level 2
16,900.0	6,852.7	16,332.9	6,650.0	279.3	271.3	-68.47	129.7	9,399.0	552.2	37.0	515.21	1.072	Level 2
17,000.0	6,852.4	16,432.8	6,649.0	282.1	274.1	-68.40	129.7	9,499.0	552.5	32.2	520.24	1.062	Level 2
17,100.0	6,852.1	16,532.8	6,648.0	284.9	276.9	-68.33	129.7	9,599.0	552.7	27.5	525.26	1.052	Level 2
17,200.0	6,851.8	16,632.8	6,647.0	287.7	279.7	-68.26	129.7	9,699.0	553.0	22.7	530.27	1.043	Level 2
17,300.0	6,851.5	16,732.8	6,646.0	290.6	282.5	-68.20	129.7	9,799.0	553.3	18.0	535.29	1.034	Level 2
17,400.0	6,851.2	16,832.8	6,645.0	293.4	285.3	-68.13	129.7	9,899.0	553.5	13.2	540.29	1.024	Level 2
17,500.0	6,850.9	16,932.8	6,644.0	296.2	288.1	-68.06	129.7	9,999.0	553.8	8.5	545.29	1.016	Level 2
17,600.0	6,850.6	17,032.8	6,643.0	299.0	290.9	-68.00	129.7	10,099.0	554.0	3.7	550.29	1.007	Level 2
17,700.0	6,850.3	17,132.8	6,642.1	301.8	293.7	-67.93	129.7	10,199.0	554.3	-1.0	555.28	0.998	Level 1
17,809.5	6,850.0	17,238.6	6,641.0	304.8	296.7	-67.86	129.7	10,304.7	554.6	-6.1	560.65	0.989	Level 1, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	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 #3 (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
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-29.1	0.0	29.1				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-29.1	0.0	29.1	28.9	0.22	129.668	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-29.1	0.0	29.1	28.5	0.67	43.223	
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-29.1	0.0	29.1	28.0	1.12	25.934	
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-29.1	0.0	29.1	27.6	1.57	18.524	
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-29.1	0.0	29.1	27.1	2.02	14.408	
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-29.1	0.0	29.1	26.7	2.47	11.788	
700.0	700.0	700.0	700.0	1.5	1.5	180.00	-29.1	0.0	29.1	26.2	2.92	9.974	
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-29.1	0.0	29.1	25.8	3.37	8.645	
900.0	900.0	900.0	900.0	1.9	1.9	180.00	-29.1	0.0	29.1	25.3	3.82	7.628	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	180.00	-29.1	0.0	29.1	24.9	4.27	6.825 CC	
1,100.0	1,100.0	1,099.6	1,099.6	2.4	2.3	-177.82	-29.8	-1.1	29.8	25.1	4.70	6.343	
1,200.0	1,200.0	1,199.1	1,199.0	2.6	2.5	-171.86	-31.7	-4.5	32.0	26.9	5.11	6.262	
1,300.0	1,300.0	1,298.3	1,298.0	2.8	2.7	-163.72	-34.8	-10.2	36.3	30.8	5.54	6.561	
1,400.0	1,400.0	1,397.1	1,396.4	3.0	2.9	-155.32	-39.2	-18.0	43.3	37.3	5.98	7.242	
1,500.0	1,500.0	1,495.4	1,494.0	3.3	3.2	-147.97	-44.8	-28.0	53.2	46.7	6.44	8.258	
1,600.0	1,600.0	1,593.2	1,590.8	3.5	3.4	-27.96	-51.5	-40.1	64.8	58.0	6.82	9.509	
1,700.0	1,699.9	1,690.6	1,686.9	3.7	3.7	-24.36	-59.5	-54.4	76.9	69.7	7.22	10.654	
1,800.0	1,799.7	1,787.8	1,782.2	3.9	4.0	-21.87	-68.6	-70.7	89.2	81.6	7.63	11.697	
1,900.0	1,899.3	1,884.7	1,876.8	4.1	4.4	-20.10	-78.8	-89.1	101.6	93.6	8.04	12.634	
2,000.0	1,998.6	1,981.2	1,970.5	4.3	4.8	-18.82	-90.2	-109.5	114.1	105.6	8.47	13.471	
2,100.0	2,097.5	2,077.5	2,063.3	4.5	5.3	-17.89	-102.7	-131.8	126.6	117.7	8.91	14.213	
2,200.0	2,196.1	2,173.4	2,155.1	4.8	5.7	-17.20	-116.3	-156.2	139.0	129.7	9.35	14.864	
2,300.0	2,294.2	2,270.5	2,247.2	5.1	6.3	-16.72	-131.0	-182.7	151.3	141.5	9.82	15.413	
2,400.0	2,391.7	2,369.9	2,341.5	5.5	6.9	-16.52	-146.4	-210.3	161.5	151.2	10.30	15.687	
2,441.2	2,431.7	2,410.9	2,380.4	5.6	7.1	-16.52	-152.8	-221.7	165.0	154.5	10.50	15.718	
2,500.0	2,488.7	2,469.6	2,436.0	5.9	7.5	-16.58	-161.8	-237.9	169.7	158.9	10.82	15.691	
2,600.0	2,585.7	2,569.3	2,530.6	6.3	8.1	-16.67	-177.3	-265.6	177.7	166.4	11.36	15.638	
2,700.0	2,682.7	2,668.9	2,625.1	6.7	8.7	-16.75	-192.7	-293.2	185.7	173.8	11.92	15.575	
2,800.0	2,779.7	2,768.6	2,719.6	7.1	9.3	-16.82	-208.1	-320.9	193.7	181.2	12.49	15.507	
2,900.0	2,876.6	2,868.3	2,814.1	7.6	10.0	-16.89	-223.5	-348.5	201.7	188.6	13.07	15.435	
3,000.0	2,973.6	2,968.0	2,908.6	8.0	10.6	-16.95	-239.0	-376.2	209.7	196.0	13.65	15.360	
3,100.0	3,070.6	3,067.7	3,003.1	8.5	11.3	-17.01	-254.4	-403.8	217.6	203.4	14.24	15.286	
3,200.0	3,167.6	3,167.3	3,097.7	9.0	11.9	-17.06	-269.8	-431.5	225.6	210.8	14.83	15.211	
3,300.0	3,264.6	3,267.0	3,192.2	9.5	12.5	-17.11	-285.2	-459.1	233.6	218.2	15.43	15.138	
3,400.0	3,361.5	3,366.7	3,286.7	10.0	13.2	-17.16	-300.6	-486.8	241.6	225.6	16.04	15.065	
3,500.0	3,458.5	3,466.4	3,381.2	10.5	13.9	-17.20	-316.1	-514.4	249.6	233.0	16.65	14.995	
3,600.0	3,555.5	3,566.1	3,475.7	10.9	14.5	-17.24	-331.5	-542.1	257.6	240.3	17.26	14.926	
3,700.0	3,652.5	3,665.7	3,570.3	11.4	15.2	-17.28	-346.9	-569.7	265.6	247.7	17.87	14.859	
3,800.0	3,749.5	3,765.4	3,664.8	12.0	15.8	-17.32	-362.3	-597.4	273.6	255.1	18.49	14.794	
3,900.0	3,846.4	3,865.1	3,759.3	12.5	16.5	-17.35	-377.7	-625.0	281.5	262.4	19.11	14.732	
4,000.0	3,943.4	3,964.8	3,853.8	13.0	17.2	-17.38	-393.2	-652.7	289.5	269.8	19.73	14.672	
4,100.0	4,040.4	4,064.5	3,948.3	13.5	17.8	-17.41	-408.6	-680.3	297.5	277.2	20.36	14.613	
4,200.0	4,137.4	4,164.2	4,042.9	14.0	18.5	-17.44	-424.0	-708.0	305.5	284.5	20.99	14.557	
4,300.0	4,234.4	4,263.8	4,137.4	14.5	19.1	-17.47	-439.4	-735.6	313.5	291.9	21.62	14.503	
4,400.0	4,331.3	4,363.5	4,231.9	15.0	19.8	-17.50	-454.9	-763.3	321.5	299.2	22.25	14.451	
4,500.0	4,428.3	4,463.2	4,326.4	15.5	20.5	-17.52	-470.3	-790.9	329.5	306.6	22.88	14.401	
4,600.0	4,525.3	4,562.9	4,420.9	16.0	21.1	-17.54	-485.7	-818.6	337.5	313.9	23.51	14.352	
4,700.0	4,622.3	4,662.6	4,515.4	16.6	21.8	-17.57	-501.1	-846.2	345.4	321.3	24.15	14.306	
4,800.0	4,719.3	4,762.2	4,610.0	17.1	22.5	-17.59	-516.5	-873.9	353.4	328.7	24.78	14.261	
4,900.0	4,816.2	4,861.9	4,704.5	17.6	23.1	-17.61	-532.0	-901.5	361.4	336.0	25.42	14.218	

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 190-402
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 190-402	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 #3 (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	
5,000.0	4,913.2	4,961.6	4,799.0	18.1	23.8	-17.63	-547.4	-929.2	369.4	343.4	26.06	14.176		
5,100.0	5,010.2	5,061.3	4,893.5	18.6	24.5	-17.65	-562.8	-956.8	377.4	350.7	26.70	14.135		
5,200.0	5,107.2	5,168.6	4,995.4	19.2	25.1	-17.69	-579.1	-986.1	384.9	357.5	27.35	14.071		
5,300.0	5,204.2	5,283.6	5,105.9	19.7	25.7	-17.86	-594.8	-1,014.1	389.0	360.9	28.02	13.881		
5,400.1	5,301.2	5,398.9	5,217.8	20.2	26.1	-18.20	-608.3	-1,038.3	389.1	360.4	28.70	13.558		
5,500.0	5,398.5	5,513.9	5,330.4	20.6	26.5	-18.59	-619.5	-1,058.5	387.1	357.7	29.35	13.189		
5,600.0	5,496.6	5,628.8	5,443.9	21.0	26.9	-18.96	-628.6	-1,074.7	384.4	354.5	29.91	12.852		
5,700.0	5,595.4	5,743.6	5,557.8	21.3	27.1	-19.31	-635.4	-1,086.9	381.2	350.8	30.41	12.537		
5,800.0	5,694.6	5,858.2	5,671.9	21.5	27.4	-19.63	-640.0	-1,095.2	377.4	346.6	30.83	12.241		
5,900.0	5,794.2	5,972.5	5,786.2	21.7	27.5	-19.94	-642.3	-1,099.4	373.1	341.9	31.19	11.961		
6,000.0	5,894.0	6,080.4	5,894.0	21.9	27.6	-20.19	-642.7	-1,100.0	368.6	337.1	31.47	11.711		
6,106.0	6,000.0	6,204.5	6,018.2	22.0	27.7	-135.06	-642.7	-1,098.1	365.9	317.6	48.27	7.580		
6,200.0	6,094.0	6,343.0	6,154.6	22.1	27.6	-137.63	-642.7	-1,076.0	355.3	307.5	47.88	7.421		
6,222.9	6,116.9	6,375.1	6,185.6	22.2	27.6	-138.69	-642.7	-1,067.3	351.1	303.5	47.67	7.366		
6,250.0	6,144.0	6,412.5	6,221.1	22.2	27.5	130.22	-642.7	-1,055.6	345.8	312.6	33.14	10.433		
6,300.0	6,193.9	6,479.4	6,283.0	22.2	27.3	128.03	-642.7	-1,030.4	335.6	302.0	33.56	10.000		
6,350.0	6,243.4	6,543.9	6,340.5	22.2	27.2	125.63	-642.7	-1,001.1	325.2	291.2	34.06	9.549		
6,400.0	6,292.4	6,606.1	6,393.3	22.2	27.0	123.00	-642.7	-968.3	315.0	280.3	34.67	9.085		
6,450.0	6,340.7	6,666.1	6,441.6	22.1	26.8	120.15	-642.7	-932.7	305.0	269.6	35.42	8.612		
6,500.0	6,388.0	6,724.1	6,485.5	22.0	26.7	117.10	-642.7	-894.8	295.5	259.2	36.30	8.141		
6,550.0	6,434.1	6,780.1	6,525.0	21.9	26.5	113.84	-642.7	-855.2	286.8	249.5	37.33	7.683		
6,600.0	6,478.9	6,834.3	6,560.4	21.8	26.4	110.40	-642.7	-814.2	279.0	240.5	38.47	7.251		
6,650.0	6,522.1	6,886.8	6,591.8	21.7	26.3	106.79	-642.7	-772.1	272.2	232.5	39.70	6.857		
6,700.0	6,563.6	6,937.8	6,619.5	21.6	26.3	103.04	-642.7	-729.3	266.7	225.8	40.97	6.511		
6,750.0	6,603.2	6,987.3	6,643.6	21.5	26.3	99.18	-642.7	-686.1	262.6	220.4	42.21	6.221		
6,800.0	6,640.7	7,035.5	6,664.3	21.4	26.3	95.25	-642.7	-642.5	259.9	216.6	43.38	5.992		
6,850.0	6,675.9	7,082.6	6,681.8	21.3	26.4	91.29	-642.7	-598.9	258.7	214.3	44.43	5.824		
6,866.3	6,686.9	7,097.7	6,686.9	21.3	26.4	90.00	-642.7	-584.7	258.7	213.9	44.73	5.782		
6,900.0	6,708.8	7,128.5	6,696.3	21.3	26.5	87.35	-642.7	-555.3	259.0	213.7	45.31	5.716		
6,950.0	6,739.1	7,173.4	6,708.0	21.3	26.7	83.47	-642.7	-511.9	260.6	214.6	45.99	5.667		
7,000.0	6,766.7	7,217.4	6,716.9	21.3	26.9	79.69	-642.7	-468.8	263.6	217.1	46.48	5.671		
7,050.0	6,791.6	7,260.6	6,723.1	21.4	27.2	76.04	-642.7	-426.2	267.7	220.9	46.77	5.723		
7,100.0	6,813.6	7,302.9	6,727.0	21.6	27.4	72.56	-642.7	-383.9	272.8	225.9	46.90	5.817		
7,150.0	6,832.6	7,344.6	6,728.5	21.8	27.8	69.27	-642.7	-342.3	278.8	231.9	46.90	5.946		
7,200.0	6,848.5	7,390.0	6,728.2	22.1	28.2	66.03	-642.7	-296.9	285.3	238.5	46.82	6.094		
7,250.0	6,861.3	7,438.3	6,727.7	22.5	28.7	63.32	-642.7	-248.7	291.1	244.3	46.84	6.216		
7,300.0	6,871.0	7,487.2	6,727.3	22.9	29.2	61.30	-642.7	-199.7	295.9	248.9	47.04	6.290		
7,350.0	6,877.3	7,536.7	6,726.8	23.4	29.9	59.93	-642.7	-150.2	299.3	251.7	47.55	6.294		
7,400.0	6,880.5	7,586.6	6,726.3	24.0	30.6	59.23	-642.7	-100.3	301.1	252.7	48.40	6.222		
7,425.1	6,880.8	7,611.7	6,726.1	24.4	30.9	59.11	-642.7	-75.2	301.4	252.4	48.96	6.156		
7,500.0	6,880.6	7,686.6	6,725.4	25.4	32.1	59.04	-642.7	-0.3	301.6	250.6	51.09	5.904		
7,600.0	6,880.3	7,786.6	6,724.5	27.1	33.9	58.94	-642.7	99.6	302.0	247.8	54.19	5.573		
7,700.0	6,880.0	7,886.6	6,723.6	28.9	35.8	58.83	-642.7	199.6	302.3	244.8	57.52	5.256		
7,800.0	6,879.7	7,986.6	6,722.6	30.9	37.9	58.73	-642.7	299.6	302.6	241.6	61.05	4.957		
7,900.0	6,879.4	8,086.6	6,721.7	33.0	40.0	58.63	-642.7	399.6	302.9	238.2	64.74	4.679		
8,000.0	6,879.1	8,186.6	6,720.8	35.3	42.3	58.53	-642.7	499.6	303.3	234.7	68.57	4.423		
8,100.0	6,878.8	8,286.6	6,719.9	37.6	44.6	58.43	-642.7	599.6	303.6	231.1	72.50	4.187		
8,200.0	6,878.5	8,386.6	6,718.9	39.9	46.9	58.33	-642.7	699.6	303.9	227.4	76.53	3.971		
8,300.0	6,878.2	8,486.6	6,718.0	42.4	49.4	58.23	-642.7	799.6	304.3	223.6	80.63	3.774		
8,400.0	6,877.9	8,586.6	6,717.1	44.8	51.8	58.13	-642.7	899.6	304.6	219.8	84.79	3.592		
8,500.0	6,877.6	8,686.6	6,716.2	47.3	54.3	58.03	-642.7	999.6	304.9	215.9	89.01	3.426		

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 190-402
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 190-402	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 #3 (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	
8,600.0	6,877.3	8,786.6	6,715.2	49.9	56.8	57.93	-642.7	1,099.6	305.3	212.0	93.27	3.273	
8,700.0	6,877.0	8,886.6	6,714.3	52.5	59.4	57.83	-642.7	1,199.6	305.6	208.0	97.57	3.132	
8,800.0	6,876.7	8,986.6	6,713.4	55.0	62.0	57.73	-642.7	1,299.6	305.9	204.0	101.89	3.002	
8,900.0	6,876.4	9,086.6	6,712.5	57.7	64.6	57.63	-642.7	1,399.6	306.3	200.0	106.25	2.883	
9,000.0	6,876.1	9,186.6	6,711.5	60.3	67.2	57.53	-642.7	1,499.6	306.6	196.0	110.62	2.772	
9,100.0	6,875.8	9,286.6	6,710.6	62.9	69.8	57.43	-642.7	1,599.6	306.9	191.9	115.01	2.669	
9,200.0	6,875.5	9,386.6	6,709.7	65.6	72.4	57.33	-642.7	1,699.5	307.3	187.9	119.41	2.573	
9,300.0	6,875.2	9,486.6	6,708.8	68.3	75.1	57.23	-642.7	1,799.5	307.6	183.8	123.83	2.484	
9,400.0	6,875.0	9,586.6	6,707.8	71.0	77.8	57.13	-642.7	1,899.5	308.0	179.7	128.26	2.401	
9,500.0	6,874.7	9,686.6	6,706.9	73.6	80.4	57.04	-642.7	1,999.5	308.3	175.6	132.69	2.323	
9,600.0	6,874.4	9,786.6	6,706.0	76.3	83.1	56.94	-642.7	2,099.5	308.6	171.5	137.13	2.251	
9,700.0	6,874.1	9,886.5	6,705.1	79.1	85.8	56.84	-642.7	2,199.5	309.0	167.4	141.57	2.183	
9,800.0	6,873.8	9,986.5	6,704.1	81.8	88.5	56.74	-642.7	2,299.5	309.3	163.3	146.02	2.118	
9,900.0	6,873.5	10,086.5	6,703.2	84.5	91.2	56.64	-642.7	2,399.5	309.7	159.2	150.47	2.058	
10,000.0	6,873.2	10,186.5	6,702.3	87.2	93.9	56.55	-642.7	2,499.5	310.0	155.1	154.92	2.001	
10,100.0	6,872.9	10,286.5	6,701.4	89.9	96.6	56.45	-642.7	2,599.5	310.4	151.0	159.36	1.948	
10,200.0	6,872.6	10,386.5	6,700.4	92.7	99.4	56.35	-642.7	2,699.5	310.7	146.9	163.81	1.897	
10,300.0	6,872.3	10,486.5	6,699.5	95.4	102.1	56.26	-642.7	2,799.5	311.1	142.8	168.26	1.849	
10,400.0	6,872.0	10,586.5	6,698.6	98.2	104.8	56.16	-642.7	2,899.5	311.4	138.7	172.70	1.803	
10,500.0	6,871.7	10,686.5	6,697.7	100.9	107.5	56.07	-642.7	2,999.5	311.8	134.6	177.14	1.760	
10,600.0	6,871.4	10,786.5	6,696.7	103.7	110.3	55.97	-642.7	3,099.5	312.1	130.5	181.58	1.719	
10,700.0	6,871.1	10,886.5	6,695.8	106.4	113.0	55.87	-642.7	3,199.5	312.5	126.4	186.02	1.680	
10,800.0	6,870.8	10,986.5	6,694.9	109.2	115.8	55.78	-642.7	3,299.4	312.8	122.4	190.45	1.643	
10,900.0	6,870.5	11,086.5	6,694.0	111.9	118.5	55.68	-642.7	3,399.4	313.2	118.3	194.87	1.607	
11,000.0	6,870.2	11,186.5	6,693.0	114.7	121.3	55.59	-642.7	3,499.4	313.5	114.2	199.29	1.573	
11,100.0	6,869.9	11,286.5	6,692.1	117.5	124.0	55.50	-642.7	3,599.4	313.9	110.2	203.70	1.541	
11,200.0	6,869.6	11,386.5	6,691.2	120.2	126.8	55.40	-642.7	3,699.4	314.2	106.1	208.11	1.510	
11,300.0	6,869.3	11,486.5	6,690.3	123.0	129.5	55.31	-642.7	3,799.4	314.6	102.1	212.52	1.480 Level 3	
11,400.0	6,869.0	11,586.5	6,689.3	125.8	132.3	55.21	-642.7	3,899.4	315.0	98.0	216.91	1.452 Level 3	
11,500.0	6,868.7	11,686.5	6,688.4	128.5	135.1	55.12	-642.7	3,999.4	315.3	94.0	221.31	1.425 Level 3	
11,600.0	6,868.4	11,786.5	6,687.5	131.3	137.8	55.03	-642.7	4,099.4	315.7	90.0	225.69	1.399 Level 3	
11,700.0	6,868.1	11,886.5	6,686.6	134.1	140.6	54.93	-642.7	4,199.4	316.0	86.0	230.07	1.374 Level 3	
11,800.0	6,867.8	11,986.5	6,685.6	136.9	143.4	54.84	-642.7	4,299.4	316.4	82.0	234.44	1.350 Level 3	
11,900.0	6,867.5	12,086.5	6,684.7	139.6	146.1	54.75	-642.7	4,399.4	316.8	78.0	238.80	1.326 Level 3	
12,000.0	6,867.2	12,186.5	6,683.8	142.4	148.9	54.65	-642.7	4,499.4	317.1	74.0	243.16	1.304 Level 3	
12,100.0	6,866.9	12,286.5	6,682.9	145.2	151.7	54.56	-642.7	4,599.4	317.5	70.0	247.51	1.283 Level 3	
12,200.0	6,866.6	12,386.5	6,681.9	148.0	154.4	54.47	-642.7	4,699.4	317.8	66.0	251.85	1.262 Level 3	
12,300.0	6,866.3	12,486.5	6,681.0	150.8	157.2	54.38	-642.7	4,799.4	318.2	62.0	256.18	1.242 Level 2	
12,400.0	6,866.1	12,586.5	6,680.1	153.5	160.0	54.28	-642.7	4,899.3	318.6	58.1	260.51	1.223 Level 2	
12,500.0	6,865.8	12,686.5	6,679.2	156.3	162.8	54.19	-642.7	4,999.3	318.9	54.1	264.83	1.204 Level 2	
12,600.0	6,865.5	12,786.5	6,678.2	159.1	165.6	54.10	-642.7	5,099.3	319.3	50.2	269.14	1.186 Level 2	
12,700.0	6,865.2	12,886.5	6,677.3	161.9	168.3	54.01	-642.7	5,199.3	319.7	46.2	273.44	1.169 Level 2	
12,800.0	6,864.9	12,986.5	6,676.4	164.7	171.1	53.92	-642.7	5,299.3	320.1	42.3	277.74	1.152 Level 2	
12,900.0	6,864.6	13,086.5	6,675.5	167.5	173.9	53.83	-642.7	5,399.3	320.4	38.4	282.03	1.136 Level 2	
13,000.0	6,864.3	13,186.5	6,674.5	170.3	176.7	53.74	-642.7	5,499.3	320.8	34.5	286.30	1.120 Level 2	
13,100.0	6,864.0	13,286.5	6,673.6	173.1	179.5	53.65	-642.7	5,599.3	321.2	30.6	290.58	1.105 Level 2	
13,200.0	6,863.7	13,386.5	6,672.7	175.8	182.2	53.56	-642.7	5,699.3	321.5	26.7	294.84	1.091 Level 2	
13,300.0	6,863.4	13,486.5	6,671.8	178.6	185.0	53.47	-642.7	5,799.3	321.9	22.8	299.09	1.076 Level 2	
13,400.0	6,863.1	13,586.5	6,670.8	181.4	187.8	53.38	-642.7	5,899.3	322.3	18.9	303.34	1.062 Level 2	
13,500.0	6,862.8	13,686.5	6,669.9	184.2	190.6	53.29	-642.7	5,999.3	322.7	15.1	307.58	1.049 Level 2	
13,600.0	6,862.5	13,786.5	6,669.0	187.0	193.4	53.20	-642.7	6,099.3	323.0	11.2	311.81	1.036 Level 2	

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 190-402
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 190-402	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 #3 (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	
13,700.0	6,862.2	13,886.5	6,668.1	189.8	196.2	53.11	-642.7	6,199.3	323.4	7.4	316.03	1.023	Level 2	
13,800.0	6,861.9	13,986.5	6,667.1	192.6	199.0	53.02	-642.7	6,299.3	323.8	3.6	320.24	1.011	Level 2	
13,900.0	6,861.6	14,086.5	6,666.2	195.4	201.7	52.93	-642.7	6,399.3	324.2	-0.3	324.44	0.999	Level 1	
14,000.0	6,861.3	14,186.5	6,665.3	198.2	204.5	52.84	-642.7	6,499.2	324.5	-4.1	328.64	0.988	Level 1	
14,100.0	6,861.0	14,286.5	6,664.4	201.0	207.3	52.76	-642.7	6,599.2	324.9	-7.9	332.82	0.976	Level 1	
14,200.0	6,860.7	14,386.5	6,663.4	203.8	210.1	52.67	-642.7	6,699.2	325.3	-11.7	337.00	0.965	Level 1	
14,300.0	6,860.4	14,486.5	6,662.5	206.6	212.9	52.58	-642.7	6,799.2	325.7	-15.5	341.17	0.955	Level 1	
14,400.0	6,860.1	14,586.5	6,661.6	209.4	215.7	52.49	-642.7	6,899.2	326.1	-19.3	345.33	0.944	Level 1	
14,500.0	6,859.8	14,686.5	6,660.7	212.2	218.5	52.40	-642.7	6,999.2	326.5	-23.0	349.49	0.934	Level 1	
14,600.0	6,859.5	14,786.5	6,659.7	215.0	221.3	52.32	-642.7	7,099.2	326.8	-26.8	353.63	0.924	Level 1	
14,700.0	6,859.2	14,886.4	6,658.8	217.7	224.1	52.23	-642.7	7,199.2	327.2	-30.5	357.76	0.915	Level 1	
14,800.0	6,858.9	14,986.4	6,657.9	220.5	226.9	52.14	-642.7	7,299.2	327.6	-34.3	361.89	0.905	Level 1	
14,900.0	6,858.6	15,086.4	6,657.0	223.3	229.7	52.06	-642.7	7,399.2	328.0	-38.0	366.01	0.896	Level 1	
15,000.0	6,858.3	15,186.4	6,656.0	226.1	232.5	51.97	-642.7	7,499.2	328.4	-41.7	370.12	0.887	Level 1	
15,100.0	6,858.0	15,286.4	6,655.1	228.9	235.2	51.88	-642.7	7,599.2	328.8	-45.4	374.22	0.879	Level 1	
15,200.0	6,857.7	15,386.4	6,654.2	231.7	238.0	51.80	-642.7	7,699.2	329.2	-49.2	378.31	0.870	Level 1	
15,300.0	6,857.4	15,486.4	6,653.3	234.5	240.8	51.71	-642.7	7,799.2	329.5	-52.8	382.39	0.862	Level 1	
15,400.0	6,857.1	15,586.4	6,652.3	237.3	243.6	51.63	-642.7	7,899.2	329.9	-56.5	386.46	0.854	Level 1	
15,500.0	6,856.9	15,686.4	6,651.4	240.1	246.4	51.54	-642.7	7,999.2	330.3	-60.2	390.53	0.846	Level 1	
15,600.0	6,856.6	15,786.4	6,650.5	242.9	249.2	51.46	-642.7	8,099.1	330.7	-63.9	394.59	0.838	Level 1	
15,700.0	6,856.3	15,886.4	6,649.6	245.7	252.0	51.37	-642.7	8,199.1	331.1	-67.5	398.63	0.831	Level 1	
15,800.0	6,856.0	15,986.4	6,648.6	248.5	254.8	51.29	-642.7	8,299.1	331.5	-71.2	402.67	0.823	Level 1	
15,900.0	6,855.7	16,086.4	6,647.7	251.3	257.6	51.20	-642.7	8,399.1	331.9	-74.8	406.70	0.816	Level 1	
16,000.0	6,855.4	16,186.4	6,646.8	254.1	260.4	51.12	-642.7	8,499.1	332.3	-78.4	410.72	0.809	Level 1	
16,100.0	6,855.1	16,286.4	6,645.9	256.9	263.2	51.03	-642.7	8,599.1	332.7	-82.1	414.74	0.802	Level 1	
16,200.0	6,854.8	16,386.4	6,644.9	259.7	266.0	50.95	-642.7	8,699.1	333.1	-85.7	418.74	0.795	Level 1	
16,300.0	6,854.5	16,486.4	6,644.0	262.5	268.8	50.86	-642.7	8,799.1	333.5	-89.3	422.73	0.789	Level 1	
16,400.0	6,854.2	16,586.4	6,643.1	265.3	271.6	50.78	-642.7	8,899.1	333.9	-92.8	426.72	0.782	Level 1	
16,500.0	6,853.9	16,686.4	6,642.2	268.1	274.4	50.70	-642.7	8,999.1	334.3	-96.4	430.70	0.776	Level 1	
16,600.0	6,853.6	16,786.4	6,641.2	270.9	277.2	50.61	-642.7	9,099.1	334.7	-100.0	434.67	0.770	Level 1	
16,700.0	6,853.3	16,886.4	6,640.3	273.7	280.0	50.53	-642.7	9,199.1	335.1	-103.6	438.63	0.764	Level 1	
16,800.0	6,853.0	16,986.4	6,639.4	276.5	282.8	50.45	-642.7	9,299.1	335.5	-107.1	442.58	0.758	Level 1	
16,900.0	6,852.7	17,086.4	6,638.5	279.3	285.6	50.37	-642.7	9,399.1	335.9	-110.6	446.52	0.752	Level 1	
17,000.0	6,852.4	17,186.4	6,637.5	282.1	288.4	50.28	-642.7	9,499.1	336.3	-114.2	450.45	0.747	Level 1	
17,100.0	6,852.1	17,286.4	6,636.6	284.9	291.2	50.20	-642.7	9,599.1	336.7	-117.7	454.38	0.741	Level 1	
17,200.0	6,851.8	17,386.4	6,635.7	287.7	294.0	50.12	-642.7	9,699.0	337.1	-121.2	458.29	0.735	Level 1	
17,300.0	6,851.5	17,486.4	6,634.8	290.6	296.8	50.04	-642.7	9,799.0	337.5	-124.7	462.20	0.730	Level 1	
17,400.0	6,851.2	17,586.4	6,633.8	293.4	299.6	49.96	-642.7	9,899.0	337.9	-128.2	466.10	0.725	Level 1	
17,500.0	6,850.9	17,686.4	6,632.9	296.2	302.4	49.87	-642.7	9,999.0	338.3	-131.7	469.99	0.720	Level 1	
17,600.0	6,850.6	17,786.4	6,632.0	299.0	305.2	49.79	-642.7	10,099.0	338.7	-135.2	473.87	0.715	Level 1	
17,700.0	6,850.3	17,886.4	6,631.1	301.8	308.0	49.71	-642.7	10,199.0	339.1	-138.6	477.74	0.710	Level 1	
17,809.5	6,850.0	17,995.9	6,630.0	304.8	311.1	49.62	-642.7	10,308.5	339.5	-142.4	481.97	0.704	Level 1, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-302 - 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
0.0	0.0	0.0	0.0	0.0	0.0	0.00	32.8	0.0	32.8				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	32.8	0.0	32.8	32.6	0.22	145.840	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	32.8	0.0	32.8	32.1	0.67	48.613	
300.0	300.0	300.0	300.0	0.6	0.6	0.00	32.8	0.0	32.8	31.7	1.12	29.168	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	32.8	0.0	32.8	31.2	1.57	20.834	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	32.8	0.0	32.8	30.8	2.02	16.204	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	32.8	0.0	32.8	30.3	2.47	13.258	
700.0	700.0	700.0	700.0	1.5	1.5	0.00	32.8	0.0	32.8	29.9	2.92	11.218	
800.0	800.0	800.0	800.0	1.7	1.7	0.00	32.8	0.0	32.8	29.4	3.37	9.723	
900.0	900.0	900.0	900.0	1.9	1.9	0.00	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	0.00	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	0.00	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	0.00	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	0.00	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	0.00	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	0.00	32.8	0.0	32.8	26.3	6.52	5.029 CC	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	116.61	32.8	0.0	33.3	26.4	6.95	4.799	
1,700.0	1,699.9	1,699.9	1,699.9	3.7	3.7	122.29	32.8	0.0	35.3	27.9	7.36	4.792	
1,800.0	1,799.7	1,799.7	1,799.7	3.9	3.9	130.35	32.8	0.0	39.2	31.4	7.78	5.036	
1,900.0	1,899.3	1,899.3	1,899.3	4.1	4.2	139.06	32.8	0.0	45.6	37.4	8.19	5.569	
2,000.0	1,998.6	1,998.6	1,998.6	4.3	4.4	147.00	32.8	0.0	55.1	46.5	8.61	6.399	
2,100.0	2,097.5	2,098.5	2,098.5	4.5	4.6	153.19	32.5	-0.8	66.9	57.9	9.00	7.435	
2,200.0	2,196.1	2,198.5	2,198.5	4.8	4.8	157.58	31.8	-3.3	80.2	70.8	9.37	8.557	
2,300.0	2,294.2	2,298.7	2,298.6	5.1	5.0	160.74	30.5	-7.5	94.7	84.9	9.74	9.719	
2,400.0	2,391.7	2,399.0	2,398.7	5.5	5.2	163.07	28.8	-13.3	110.3	100.2	10.12	10.903	
2,441.2	2,431.7	2,440.3	2,439.9	5.6	5.3	163.85	27.9	-16.2	117.0	106.8	10.27	11.393	
2,500.0	2,488.7	2,499.5	2,498.9	5.9	5.4	164.81	26.5	-20.8	126.5	116.0	10.52	12.023	
2,600.0	2,585.7	2,600.6	2,599.5	6.3	5.6	165.92	23.7	-30.1	141.4	130.5	10.96	12.904	
2,700.0	2,682.7	2,702.1	2,700.3	6.7	5.8	166.59	20.4	-41.1	154.7	143.3	11.41	13.562	
2,800.0	2,779.7	2,804.1	2,801.4	7.1	6.1	166.93	16.5	-53.9	166.4	154.6	11.87	14.018	
2,900.0	2,876.6	2,906.4	2,902.7	7.6	6.4	167.02	12.1	-68.5	176.5	164.1	12.35	14.291	
3,000.0	2,973.6	3,006.8	3,001.7	8.0	6.6	166.96	7.4	-84.0	185.3	172.5	12.83	14.441	
3,100.0	3,070.6	3,106.4	3,100.0	8.5	6.9	166.89	2.7	-99.5	194.1	180.7	13.32	14.570	
3,200.0	3,167.6	3,206.0	3,198.3	9.0	7.2	166.84	-1.9	-114.9	202.8	189.0	13.81	14.682	
3,300.0	3,264.6	3,305.7	3,296.6	9.5	7.5	166.78	-6.6	-130.4	211.6	197.3	14.32	14.781	
3,400.0	3,361.5	3,405.3	3,394.9	10.0	7.8	166.73	-11.3	-145.8	220.4	205.5	14.82	14.869	
3,500.0	3,458.5	3,504.9	3,493.2	10.5	8.2	166.69	-15.9	-161.3	229.1	213.8	15.33	14.946	
3,600.0	3,555.5	3,604.5	3,591.5	10.9	8.5	166.65	-20.6	-176.7	237.9	222.1	15.85	15.014	
3,700.0	3,652.5	3,704.1	3,689.8	11.4	8.8	166.61	-25.3	-192.2	246.7	230.3	16.36	15.074	
3,800.0	3,749.5	3,803.7	3,788.1	12.0	9.1	166.57	-30.0	-207.6	255.5	238.6	16.89	15.128	
3,900.0	3,846.4	3,903.3	3,886.4	12.5	9.5	166.54	-34.6	-223.1	264.2	246.8	17.41	15.176	
4,000.0	3,943.4	4,003.0	3,984.7	13.0	9.8	166.51	-39.3	-238.5	273.0	255.1	17.94	15.218	
4,100.0	4,040.4	4,102.6	4,083.0	13.5	10.2	166.48	-44.0	-254.0	281.8	263.3	18.47	15.256	
4,200.0	4,137.4	4,202.2	4,181.3	14.0	10.5	166.45	-48.6	-269.5	290.5	271.5	19.00	15.290	
4,300.0	4,234.4	4,301.8	4,279.6	14.5	10.9	166.43	-53.3	-284.9	299.3	279.8	19.54	15.320	
4,400.0	4,331.3	4,401.4	4,377.9	15.0	11.2	166.40	-58.0	-300.4	308.1	288.0	20.07	15.347	
4,500.0	4,428.3	4,501.0	4,476.2	15.5	11.6	166.38	-62.6	-315.8	316.9	296.2	20.61	15.371	
4,600.0	4,525.3	4,600.7	4,574.5	16.0	11.9	166.36	-67.3	-331.3	325.6	304.5	21.15	15.393	
4,700.0	4,622.3	4,700.3	4,672.8	16.6	12.3	166.33	-72.0	-346.7	334.4	312.7	21.70	15.412	
4,800.0	4,719.3	4,799.9	4,771.1	17.1	12.7	166.31	-76.6	-362.2	343.2	320.9	22.24	15.430	
4,900.0	4,816.2	4,899.5	4,869.4	17.6	13.0	166.30	-81.3	-377.6	351.9	329.2	22.79	15.446	

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 190-402
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 190-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-302 - 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	
5,000.0	4,913.2	4,999.1	4,967.7	18.1	13.4	166.28	-86.0	-393.1	360.7	337.4	23.33	15.460		
5,100.0	5,010.2	5,098.7	5,066.0	18.6	13.7	166.26	-90.6	-408.5	369.5	345.6	23.88	15.472		
5,200.0	5,107.2	5,198.3	5,164.3	19.2	14.1	166.25	-95.3	-424.0	378.3	353.8	24.43	15.484		
5,300.0	5,204.2	5,298.0	5,262.6	19.7	14.5	166.23	-100.0	-439.4	387.0	362.1	24.98	15.494		
5,400.1	5,301.2	5,394.8	5,358.1	20.2	14.8	166.22	-104.5	-454.4	395.9	370.4	25.52	15.514		
5,500.0	5,398.5	5,482.8	5,445.3	20.6	15.0	166.31	-108.0	-466.1	405.1	379.1	26.05	15.554		
5,600.0	5,496.6	5,570.7	5,532.6	21.0	15.3	166.42	-110.8	-475.2	413.9	387.4	26.51	15.612		
5,700.0	5,595.4	5,658.4	5,620.1	21.3	15.4	166.57	-112.8	-481.8	422.0	395.1	26.92	15.679		
5,800.0	5,694.6	5,745.9	5,707.5	21.5	15.6	166.74	-114.0	-485.8	429.7	402.4	27.28	15.754		
5,900.0	5,794.2	5,833.3	5,794.9	21.7	15.8	166.94	-114.4	-487.2	436.8	409.2	27.58	15.837		
6,000.0	5,894.0	5,932.5	5,894.0	21.9	15.9	167.12	-114.4	-487.2	442.1	414.2	27.87	15.861		
6,106.0	6,000.0	6,038.4	6,000.0	22.0	16.1	52.62	-114.4	-487.2	444.0	406.5	37.51	11.837		
6,200.0	6,094.0	6,109.6	6,071.2	22.1	16.2	52.74	-114.4	-485.6	445.9	408.1	37.74	11.814		
6,222.9	6,116.9	6,125.2	6,086.7	22.2	16.2	52.83	-114.4	-484.5	447.2	409.4	37.79	11.834		
6,250.0	6,144.0	6,150.0	6,111.4	22.2	16.2	-36.94	-114.4	-482.0	449.0	420.5	28.45	15.779		
6,300.0	6,193.9	6,177.5	6,138.6	22.2	16.2	-36.71	-114.4	-478.3	451.4	423.1	28.29	15.956		
6,350.0	6,243.4	6,211.4	6,172.0	22.2	16.3	-36.52	-114.4	-472.3	453.1	425.0	28.06	16.147		
6,400.0	6,292.4	6,250.0	6,209.6	22.2	16.3	-36.43	-114.4	-463.8	454.0	426.2	27.76	16.351		
6,450.0	6,340.7	6,279.0	6,237.6	22.1	16.2	-36.44	-114.4	-456.2	453.9	426.5	27.39	16.571		
6,500.0	6,388.0	6,312.9	6,269.9	22.0	16.2	-36.53	-114.4	-445.9	453.0	426.1	26.97	16.797		
6,550.0	6,434.1	6,350.0	6,304.7	21.9	16.2	-36.73	-114.4	-433.0	451.3	424.8	26.51	17.023		
6,600.0	6,478.9	6,380.6	6,332.9	21.8	16.2	-37.00	-114.4	-421.1	448.7	422.7	26.02	17.247		
6,650.0	6,522.1	6,414.6	6,363.6	21.7	16.2	-37.38	-114.4	-406.6	445.3	419.8	25.52	17.449		
6,700.0	6,563.6	6,450.0	6,394.9	21.6	16.1	-37.87	-114.4	-390.0	441.1	416.1	25.05	17.612		
6,750.0	6,603.2	6,482.8	6,423.2	21.5	16.1	-38.44	-114.4	-373.4	436.1	411.5	24.61	17.719		
6,800.0	6,640.7	6,517.0	6,451.9	21.4	16.1	-39.13	-114.4	-354.8	430.4	406.1	24.26	17.739		
6,850.0	6,675.9	6,550.0	6,478.8	21.3	16.1	-39.92	-114.4	-335.7	423.9	399.9	24.01	17.653		
6,900.0	6,708.8	6,585.9	6,507.0	21.3	16.1	-40.87	-114.4	-313.5	416.7	392.8	23.93	17.413		
6,950.0	6,739.1	6,620.6	6,533.4	21.3	16.1	-41.94	-114.4	-290.9	408.9	384.8	24.02	17.020		
7,000.0	6,766.7	6,650.0	6,554.8	21.3	16.1	-43.01	-114.4	-270.8	400.5	376.2	24.26	16.508		
7,050.0	6,791.6	6,690.7	6,583.2	21.4	16.2	-44.49	-114.4	-241.7	391.4	366.6	24.86	15.746		
7,100.0	6,813.6	6,726.0	6,606.6	21.6	16.3	-46.01	-114.4	-215.2	382.0	356.3	25.65	14.894		
7,150.0	6,832.6	6,761.7	6,628.9	21.8	16.4	-47.70	-114.4	-187.3	372.1	345.4	26.68	13.946		
7,200.0	6,848.5	6,800.0	6,651.4	22.1	16.5	-49.66	-114.4	-156.4	361.9	333.9	28.01	12.923		
7,250.0	6,861.3	6,834.0	6,670.0	22.5	16.7	-51.65	-114.4	-127.9	351.5	322.0	29.48	11.924		
7,300.0	6,871.0	6,870.7	6,688.7	22.9	17.0	-53.95	-114.4	-96.4	341.0	309.8	31.21	10.927		
7,350.0	6,877.3	6,907.8	6,706.0	23.4	17.2	-56.47	-114.4	-63.6	330.6	297.5	33.12	9.981		
7,400.0	6,880.5	6,945.4	6,721.9	24.0	17.6	-59.23	-114.4	-29.5	320.4	285.2	35.19	9.102		
7,425.1	6,880.8	6,964.4	6,729.4	24.4	17.8	-60.70	-114.4	-12.0	315.3	279.1	36.29	8.690		
7,500.0	6,880.6	7,023.1	6,749.4	25.4	18.5	-64.08	-114.4	43.2	302.7	263.7	39.09	7.745		
7,600.0	6,880.3	7,106.3	6,770.5	27.1	19.6	-67.85	-114.4	123.6	292.0	249.0	42.93	6.801		
7,700.0	6,880.0	7,193.3	6,783.1	28.9	21.0	-70.23	-114.4	209.6	286.6	239.9	46.74	6.133		
7,784.6	6,879.7	7,268.7	6,786.0	30.6	22.4	-70.82	-114.4	285.0	285.4	235.6	49.82	5.730		
7,800.0	6,879.7	7,284.1	6,785.9	30.9	22.6	-70.81	-114.4	300.4	285.5	235.1	50.38	5.666		
7,900.0	6,879.4	7,384.1	6,785.1	33.0	24.6	-70.72	-114.4	400.4	285.6	231.3	54.27	5.263		
8,000.0	6,879.1	7,484.1	6,784.3	35.3	26.7	-70.63	-114.4	500.4	285.8	227.4	58.37	4.896		
8,100.0	6,878.8	7,584.1	6,783.5	37.6	29.0	-70.54	-114.4	600.4	285.9	223.3	62.66	4.563		
8,200.0	6,878.5	7,684.1	6,782.8	39.9	31.3	-70.45	-114.4	700.4	286.1	219.0	67.09	4.264		
8,300.0	6,878.2	7,784.1	6,782.0	42.4	33.7	-70.36	-114.4	800.3	286.2	214.6	71.63	3.996		
8,400.0	6,877.9	7,884.1	6,781.2	44.8	36.2	-70.27	-114.4	900.3	286.4	210.1	76.27	3.755		
8,500.0	6,877.6	7,984.1	6,780.5	47.3	38.7	-70.18	-114.4	1,000.3	286.6	205.6	80.98	3.539		

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 190-402
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 190-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-302 - 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						
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
8,600.0	6,877.3	8,084.1	6,779.7	49.9	41.2	-70.09	-114.4	1,100.3	286.7	201.0	85.75	3.344	
8,700.0	6,877.0	8,184.1	6,778.9	52.5	43.8	-70.01	-114.4	1,200.3	286.9	196.3	90.58	3.167	
8,800.0	6,876.7	8,284.1	6,778.2	55.0	46.4	-69.92	-114.4	1,300.3	287.0	191.6	95.44	3.007	
8,900.0	6,876.4	8,384.1	6,777.4	57.7	49.1	-69.83	-114.4	1,400.3	287.2	186.9	100.34	2.862	
9,000.0	6,876.1	8,484.1	6,776.6	60.3	51.7	-69.74	-114.4	1,500.3	287.4	182.1	105.28	2.730	
9,100.0	6,875.8	8,584.1	6,775.9	62.9	54.4	-69.65	-114.4	1,600.3	287.5	177.3	110.23	2.608	
9,200.0	6,875.5	8,684.1	6,775.1	65.6	57.0	-69.57	-114.4	1,700.3	287.7	172.5	115.20	2.497	
9,300.0	6,875.2	8,784.1	6,774.3	68.3	59.7	-69.48	-114.4	1,800.3	287.9	167.7	120.20	2.395	
9,400.0	6,875.0	8,884.1	6,773.6	71.0	62.4	-69.39	-114.4	1,900.3	288.0	162.8	125.20	2.300	
9,500.0	6,874.7	8,984.1	6,772.8	73.6	65.1	-69.30	-114.4	2,000.3	288.2	158.0	130.22	2.213	
9,600.0	6,874.4	9,084.1	6,772.0	76.3	67.9	-69.21	-114.4	2,100.3	288.4	153.1	135.25	2.132	
9,700.0	6,874.1	9,184.1	6,771.3	79.1	70.6	-69.13	-114.4	2,200.3	288.5	148.2	140.28	2.057	
9,800.0	6,873.8	9,284.1	6,770.5	81.8	73.3	-69.04	-114.4	2,300.3	288.7	143.4	145.33	1.987	
9,900.0	6,873.5	9,384.1	6,769.7	84.5	76.1	-68.95	-114.4	2,400.3	288.9	138.5	150.37	1.921	
10,000.0	6,873.2	9,484.1	6,769.0	87.2	78.8	-68.86	-114.4	2,500.3	289.0	133.6	155.43	1.860	
10,100.0	6,872.9	9,584.1	6,768.2	89.9	81.5	-68.78	-114.4	2,600.3	289.2	128.7	160.48	1.802	
10,200.0	6,872.6	9,684.1	6,767.4	92.7	84.3	-68.69	-114.4	2,700.3	289.4	123.8	165.54	1.748	
10,300.0	6,872.3	9,784.1	6,766.7	95.4	87.1	-68.60	-114.4	2,800.3	289.5	118.9	170.60	1.697	
10,400.0	6,872.0	9,884.1	6,765.9	98.2	89.8	-68.52	-114.4	2,900.3	289.7	114.1	175.66	1.649	
10,500.0	6,871.7	9,984.1	6,765.1	100.9	92.6	-68.43	-114.4	3,000.3	289.9	109.2	180.72	1.604	
10,600.0	6,871.4	10,084.1	6,764.3	103.7	95.3	-68.34	-114.4	3,100.3	290.1	104.3	185.78	1.561	
10,700.0	6,871.1	10,184.1	6,763.6	106.4	98.1	-68.26	-114.4	3,200.3	290.2	99.4	190.84	1.521	
10,800.0	6,870.8	10,284.1	6,762.8	109.2	100.9	-68.17	-114.4	3,300.2	290.4	94.5	195.90	1.482 Level 3	
10,900.0	6,870.5	10,384.1	6,762.0	111.9	103.6	-68.08	-114.4	3,400.2	290.6	89.6	200.95	1.446 Level 3	
11,000.0	6,870.2	10,484.1	6,761.3	114.7	106.4	-68.00	-114.4	3,500.2	290.8	84.8	206.01	1.411 Level 3	
11,100.0	6,869.9	10,584.1	6,760.5	117.5	109.2	-67.91	-114.4	3,600.2	290.9	79.9	211.06	1.378 Level 3	
11,200.0	6,869.6	10,684.1	6,759.7	120.2	112.0	-67.83	-114.4	3,700.2	291.1	75.0	216.11	1.347 Level 3	
11,300.0	6,869.3	10,784.1	6,759.0	123.0	114.7	-67.74	-114.4	3,800.2	291.3	70.1	221.16	1.317 Level 3	
11,400.0	6,869.0	10,884.1	6,758.2	125.8	117.5	-67.66	-114.4	3,900.2	291.5	65.3	226.20	1.289 Level 3	
11,500.0	6,868.7	10,984.1	6,757.4	128.5	120.3	-67.57	-114.4	4,000.2	291.7	60.4	231.24	1.261 Level 3	
11,600.0	6,868.4	11,084.1	6,756.7	131.3	123.1	-67.48	-114.4	4,100.2	291.8	55.6	236.28	1.235 Level 2	
11,700.0	6,868.1	11,184.1	6,755.9	134.1	125.9	-67.40	-114.4	4,200.2	292.0	50.7	241.31	1.210 Level 2	
11,800.0	6,867.8	11,284.1	6,755.1	136.9	128.7	-67.31	-114.4	4,300.2	292.2	45.9	246.34	1.186 Level 2	
11,900.0	6,867.5	11,384.1	6,754.4	139.6	131.4	-67.23	-114.4	4,400.2	292.4	41.0	251.37	1.163 Level 2	
12,000.0	6,867.2	11,484.1	6,753.6	142.4	134.2	-67.14	-114.4	4,500.2	292.6	36.2	256.39	1.141 Level 2	
12,100.0	6,866.9	11,584.1	6,752.8	145.2	137.0	-67.06	-114.4	4,600.2	292.7	31.3	261.40	1.120 Level 2	
12,200.0	6,866.6	11,684.1	6,752.1	148.0	139.8	-66.97	-114.4	4,700.2	292.9	26.5	266.42	1.100 Level 2	
12,300.0	6,866.3	11,784.1	6,751.3	150.8	142.6	-66.89	-114.4	4,800.2	293.1	21.7	271.42	1.080 Level 2	
12,400.0	6,866.1	11,884.1	6,750.5	153.5	145.4	-66.80	-114.4	4,900.2	293.3	16.9	276.43	1.061 Level 2	
12,500.0	6,865.8	11,984.1	6,749.8	156.3	148.2	-66.72	-114.4	5,000.2	293.5	12.1	281.43	1.043 Level 2	
12,600.0	6,865.5	12,084.1	6,749.0	159.1	151.0	-66.63	-114.4	5,100.2	293.7	7.3	286.42	1.025 Level 2	
12,700.0	6,865.2	12,184.1	6,748.2	161.9	153.8	-66.55	-114.4	5,200.2	293.9	2.5	291.41	1.008 Level 2	
12,800.0	6,864.9	12,284.1	6,747.5	164.7	156.6	-66.47	-114.4	5,300.2	294.0	-2.3	296.39	0.992 Level 1	
12,900.0	6,864.6	12,384.1	6,746.7	167.5	159.4	-66.38	-114.4	5,400.2	294.2	-7.1	301.37	0.976 Level 1	
13,000.0	6,864.3	12,484.1	6,745.9	170.3	162.1	-66.30	-114.4	5,500.2	294.4	-11.9	306.34	0.961 Level 1	
13,100.0	6,864.0	12,584.0	6,745.2	173.1	164.9	-66.21	-114.4	5,600.2	294.6	-16.7	311.31	0.946 Level 1	
13,200.0	6,863.7	12,684.0	6,744.4	175.8	167.7	-66.13	-114.4	5,700.1	294.8	-21.5	316.27	0.932 Level 1	
13,300.0	6,863.4	12,784.0	6,743.6	178.6	170.5	-66.05	-114.4	5,800.1	295.0	-26.2	321.23	0.918 Level 1	
13,400.0	6,863.1	12,884.0	6,742.8	181.4	173.3	-65.96	-114.4	5,900.1	295.2	-31.0	326.18	0.905 Level 1	
13,500.0	6,862.8	12,984.0	6,742.1	184.2	176.1	-65.88	-114.4	6,000.1	295.4	-35.7	331.13	0.892 Level 1	
13,600.0	6,862.5	13,084.0	6,741.3	187.0	178.9	-65.80	-114.4	6,100.1	295.6	-40.5	336.07	0.880 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 190-402
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 190-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-302 - 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	
13,700.0	6,862.2	13,184.0	6,740.5	189.8	181.7	-65.71	-114.4	6,200.1	295.8	-45.2	341.00	0.867	Level 1	
13,800.0	6,861.9	13,284.0	6,739.8	192.6	184.5	-65.63	-114.4	6,300.1	296.0	-50.0	345.93	0.856	Level 1	
13,900.0	6,861.6	13,384.0	6,739.0	195.4	187.3	-65.55	-114.4	6,400.1	296.2	-54.7	350.85	0.844	Level 1	
14,000.0	6,861.3	13,484.0	6,738.2	198.2	190.1	-65.46	-114.4	6,500.1	296.4	-59.4	355.77	0.833	Level 1	
14,100.0	6,861.0	13,584.0	6,737.5	201.0	192.9	-65.38	-114.4	6,600.1	296.5	-64.1	360.68	0.822	Level 1	
14,200.0	6,860.7	13,684.0	6,736.7	203.8	195.7	-65.30	-114.4	6,700.1	296.7	-68.8	365.59	0.812	Level 1	
14,300.0	6,860.4	13,784.0	6,735.9	206.6	198.5	-65.22	-114.4	6,800.1	296.9	-73.5	370.49	0.801	Level 1	
14,400.0	6,860.1	13,884.0	6,735.2	209.4	201.3	-65.13	-114.4	6,900.1	297.1	-78.2	375.38	0.792	Level 1	
14,500.0	6,859.8	13,984.0	6,734.4	212.2	204.1	-65.05	-114.4	7,000.1	297.3	-82.9	380.27	0.782	Level 1	
14,600.0	6,859.5	14,084.0	6,733.6	215.0	206.9	-64.97	-114.4	7,100.1	297.5	-87.6	385.15	0.773	Level 1	
14,700.0	6,859.2	14,184.0	6,732.9	217.7	209.7	-64.89	-114.4	7,200.1	297.7	-92.3	390.02	0.763	Level 1	
14,800.0	6,858.9	14,284.0	6,732.1	220.5	212.5	-64.80	-114.4	7,300.1	297.9	-97.0	394.89	0.754	Level 1	
14,900.0	6,858.6	14,384.0	6,731.3	223.3	215.3	-64.72	-114.4	7,400.1	298.1	-101.6	399.75	0.746	Level 1	
15,000.0	6,858.3	14,484.0	6,730.6	226.1	218.1	-64.64	-114.4	7,500.1	298.3	-106.3	404.61	0.737	Level 1	
15,100.0	6,858.0	14,584.0	6,729.8	228.9	220.9	-64.56	-114.4	7,600.1	298.5	-110.9	409.46	0.729	Level 1	
15,200.0	6,857.7	14,684.0	6,729.0	231.7	223.7	-64.48	-114.4	7,700.1	298.7	-115.6	414.30	0.721	Level 1	
15,300.0	6,857.4	14,784.0	6,728.3	234.5	226.5	-64.40	-114.4	7,800.1	298.9	-120.2	419.14	0.713	Level 1	
15,400.0	6,857.1	14,884.0	6,727.5	237.3	229.3	-64.31	-114.4	7,900.1	299.2	-124.8	423.97	0.706	Level 1	
15,500.0	6,856.9	14,984.0	6,726.7	240.1	232.1	-64.23	-114.4	8,000.1	299.4	-129.4	428.80	0.698	Level 1	
15,600.0	6,856.6	15,084.0	6,726.0	242.9	234.9	-64.15	-114.4	8,100.1	299.6	-134.1	433.62	0.691	Level 1	
15,700.0	6,856.3	15,184.0	6,725.2	245.7	237.7	-64.07	-114.4	8,200.0	299.8	-138.7	438.43	0.684	Level 1	
15,800.0	6,856.0	15,284.0	6,724.4	248.5	240.5	-63.99	-114.4	8,300.0	300.0	-143.3	443.23	0.677	Level 1	
15,900.0	6,855.7	15,384.0	6,723.6	251.3	243.3	-63.91	-114.4	8,400.0	300.2	-147.9	448.03	0.670	Level 1	
16,000.0	6,855.4	15,484.0	6,722.9	254.1	246.1	-63.83	-114.4	8,500.0	300.4	-152.4	452.83	0.663	Level 1	
16,100.0	6,855.1	15,584.0	6,722.1	256.9	248.9	-63.75	-114.4	8,600.0	300.6	-157.0	457.61	0.657	Level 1	
16,200.0	6,854.8	15,684.0	6,721.3	259.7	251.7	-63.67	-114.4	8,700.0	300.8	-161.6	462.39	0.651	Level 1	
16,300.0	6,854.5	15,784.0	6,720.6	262.5	254.5	-63.59	-114.4	8,800.0	301.0	-166.2	467.16	0.644	Level 1	
16,400.0	6,854.2	15,884.0	6,719.8	265.3	257.3	-63.51	-114.4	8,900.0	301.2	-170.7	471.93	0.638	Level 1	
16,500.0	6,853.9	15,984.0	6,719.0	268.1	260.1	-63.43	-114.4	9,000.0	301.4	-175.3	476.69	0.632	Level 1	
16,600.0	6,853.6	16,084.0	6,718.3	270.9	263.0	-63.35	-114.4	9,100.0	301.6	-179.8	481.44	0.627	Level 1	
16,700.0	6,853.3	16,184.0	6,717.5	273.7	265.8	-63.27	-114.4	9,200.0	301.9	-184.3	486.19	0.621	Level 1	
16,800.0	6,853.0	16,284.0	6,716.7	276.5	268.6	-63.19	-114.4	9,300.0	302.1	-188.9	490.93	0.615	Level 1	
16,900.0	6,852.7	16,384.0	6,716.0	279.3	271.4	-63.11	-114.4	9,400.0	302.3	-193.4	495.67	0.610	Level 1	
17,000.0	6,852.4	16,484.0	6,715.2	282.1	274.2	-63.03	-114.4	9,500.0	302.5	-197.9	500.39	0.605	Level 1	
17,100.0	6,852.1	16,584.0	6,714.4	284.9	277.0	-62.95	-114.4	9,600.0	302.7	-202.4	505.11	0.599	Level 1	
17,200.0	6,851.8	16,684.0	6,713.7	287.7	279.8	-62.87	-114.4	9,700.0	302.9	-206.9	509.83	0.594	Level 1	
17,300.0	6,851.5	16,784.0	6,712.9	290.6	282.6	-62.79	-114.4	9,800.0	303.1	-211.4	514.53	0.589	Level 1	
17,400.0	6,851.2	16,884.0	6,712.1	293.4	285.4	-62.71	-114.4	9,900.0	303.4	-215.9	519.23	0.584	Level 1	
17,500.0	6,850.9	16,984.0	6,711.4	296.2	288.2	-62.63	-114.4	10,000.0	303.6	-220.4	523.93	0.579	Level 1	
17,600.0	6,850.6	17,084.0	6,710.6	299.0	291.0	-62.55	-114.4	10,100.0	303.8	-224.8	528.61	0.575	Level 1	
17,700.0	6,850.3	17,184.0	6,709.8	301.8	293.8	-62.47	-114.4	10,200.0	304.0	-229.3	533.29	0.570	Level 1	
17,809.5	6,850.0	17,291.6	6,709.0	304.8	296.8	-62.39	-114.4	10,307.6	304.2	-234.1	538.37	0.565	Level 1, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	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 #3 (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	
Reference		Offset		Semi Major Axis			Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning			
0.0	0.0	0.0	0.0	0.0	0.0	-100.97	-29.2	-150.4	153.2							
100.0	100.0	100.0	100.0	0.1	0.1	-100.97	-29.2	-150.4	153.2	153.0	0.22	681.754	CC, ES			
200.0	200.0	200.0	200.0	0.3	0.3	-100.97	-29.2	-150.4	153.2	152.6	0.67	227.251				
300.0	300.0	296.8	296.8	0.6	0.5	-101.24	-30.1	-151.3	154.3	153.2	1.10	140.480				
400.0	400.0	393.5	393.5	0.8	0.7	-102.02	-32.7	-153.8	157.4	155.8	1.52	103.268				
500.0	500.0	490.0	489.7	1.0	1.0	-103.25	-37.2	-158.0	162.6	160.6	1.96	82.795				
600.0	600.0	586.1	585.4	1.2	1.2	-104.84	-43.4	-163.8	170.0	167.6	2.42	70.392				
700.0	700.0	681.7	680.4	1.5	1.5	-106.68	-51.3	-171.2	179.8	176.9	2.88	62.400				
800.0	800.0	776.7	774.5	1.7	1.8	-108.66	-60.8	-180.2	191.9	188.5	3.36	57.050				
900.0	900.0	871.0	867.5	1.9	2.1	-110.70	-72.0	-190.7	206.4	202.5	3.87	53.383				
1,000.0	1,000.0	964.4	959.3	2.1	2.5	-112.70	-84.8	-202.6	223.3	219.0	4.39	50.837				
1,100.0	1,100.0	1,057.0	1,049.8	2.4	2.9	-114.62	-99.0	-215.9	242.8	237.8	4.95	49.062				
1,200.0	1,200.0	1,148.5	1,138.8	2.6	3.3	-116.43	-114.6	-230.6	264.7	259.1	5.53	47.836				
1,300.0	1,300.0	1,239.0	1,226.2	2.8	3.8	-118.09	-131.6	-246.5	289.0	282.9	6.15	47.006				
1,400.0	1,400.0	1,328.2	1,311.9	3.0	4.3	-119.61	-149.8	-263.6	315.7	308.9	6.79	46.473				
1,500.0	1,500.0	1,416.2	1,395.8	3.3	4.8	-120.98	-169.2	-281.8	344.8	337.3	7.47	46.171				
1,600.0	1,600.0	1,511.0	1,485.8	3.5	5.4	-7.68	-190.9	-302.2	374.0	366.8	7.18	52.080				
1,700.0	1,699.9	1,607.0	1,576.9	3.7	6.0	-8.82	-212.9	-322.9	400.9	393.3	7.65	52.423				
1,800.0	1,799.7	1,703.6	1,668.6	3.9	6.6	-9.87	-235.1	-343.6	425.5	417.3	8.12	52.394				
1,900.0	1,899.3	1,800.8	1,760.9	4.1	7.2	-10.87	-257.4	-364.6	447.6	439.0	8.60	52.062				
2,000.0	1,998.6	1,898.5	1,853.6	4.3	7.9	-11.83	-279.8	-385.6	467.4	458.4	9.08	51.480				
2,100.0	2,097.5	1,996.6	1,946.7	4.5	8.5	-12.78	-302.3	-406.7	484.9	475.3	9.57	50.688				
2,200.0	2,196.1	2,095.1	2,040.2	4.8	9.1	-13.74	-324.9	-427.9	499.9	489.9	10.06	49.717				
2,300.0	2,294.2	2,193.9	2,134.0	5.1	9.8	-14.71	-347.5	-449.1	512.6	502.1	10.55	48.590				
2,400.0	2,391.7	2,292.9	2,228.0	5.5	10.4	-15.72	-370.2	-470.4	523.0	511.9	11.05	47.323				
2,441.2	2,431.7	2,333.7	2,266.7	5.6	10.7	-16.15	-379.6	-479.2	526.6	515.3	11.26	46.763				
2,500.0	2,488.7	2,392.0	2,322.1	5.9	11.1	-16.78	-393.0	-491.8	531.4	519.9	11.58	45.908				
2,600.0	2,585.7	2,491.2	2,416.2	6.3	11.7	-17.83	-415.7	-513.1	539.9	527.7	12.12	44.531				
2,700.0	2,682.7	2,590.4	2,510.3	6.7	12.4	-18.85	-438.4	-534.4	548.5	535.8	12.68	43.243				
2,800.0	2,779.7	2,689.5	2,604.5	7.1	13.0	-19.84	-461.2	-555.8	557.2	544.0	13.26	42.034				
2,900.0	2,876.6	2,788.7	2,698.6	7.6	13.6	-20.79	-483.9	-577.1	566.2	552.3	13.84	40.897				
3,000.0	2,973.6	2,887.8	2,792.7	8.0	14.3	-21.72	-506.7	-598.4	575.3	560.8	14.44	39.825				
3,100.0	3,070.6	2,987.0	2,886.9	8.5	14.9	-22.62	-529.4	-619.8	584.5	569.4	15.06	38.813				
3,200.0	3,167.6	3,086.2	2,981.0	9.0	15.6	-23.49	-552.1	-641.1	593.9	578.2	15.69	37.856				
3,300.0	3,264.6	3,185.3	3,075.1	9.5	16.2	-24.33	-574.9	-662.5	603.4	587.0	16.33	36.950				
3,400.0	3,361.5	3,284.5	3,169.2	10.0	16.9	-25.14	-597.6	-683.8	613.0	596.0	16.98	36.091				
3,500.0	3,458.5	3,383.6	3,263.4	10.5	17.5	-25.94	-620.4	-705.1	622.7	605.1	17.65	35.276				
3,600.0	3,555.5	3,482.8	3,357.5	10.9	18.2	-26.70	-643.1	-726.5	632.6	614.3	18.33	34.503				
3,700.0	3,652.5	3,581.9	3,451.6	11.4	18.8	-27.45	-665.8	-747.8	642.6	623.5	19.03	33.768				
3,800.0	3,749.5	3,681.1	3,545.8	12.0	19.5	-28.17	-688.6	-769.1	652.6	632.9	19.74	33.069				
3,900.0	3,846.4	3,780.3	3,639.9	12.5	20.1	-28.86	-711.3	-790.5	662.8	642.4	20.45	32.405				
4,000.0	3,943.4	3,879.4	3,734.0	13.0	20.8	-29.54	-734.1	-811.8	673.1	651.9	21.18	31.772				
4,100.0	4,040.4	3,978.6	3,828.1	13.5	21.4	-30.20	-756.8	-833.1	683.5	661.5	21.93	31.170				
4,200.0	4,137.4	4,077.7	3,922.3	14.0	22.1	-30.84	-779.5	-854.5	693.9	671.2	22.68	30.597				
4,300.0	4,234.4	4,176.9	4,016.4	14.5	22.7	-31.46	-802.3	-875.8	704.4	681.0	23.44	30.050				
4,400.0	4,331.3	4,276.1	4,110.5	15.0	23.4	-32.06	-825.0	-897.1	715.0	690.8	24.21	29.529				
4,500.0	4,428.3	4,375.2	4,204.7	15.5	24.1	-32.64	-847.8	-918.5	725.7	700.7	25.00	29.032				
4,600.0	4,525.3	4,474.4	4,298.8	16.0	24.7	-33.21	-870.5	-939.8	736.5	710.7	25.79	28.558				
4,700.0	4,622.3	4,573.5	4,392.9	16.6	25.4	-33.75	-893.3	-961.2	747.3	720.7	26.59	28.105				
4,800.0	4,719.3	4,672.7	4,487.0	17.1	26.0	-34.29	-916.0	-982.5	758.2	730.8	27.40	27.673				
4,900.0	4,816.2	4,771.8	4,581.2	17.6	26.7	-34.81	-938.7	-1,003.8	769.2	741.0	28.22	27.260				

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-402
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-402	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 #3 (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-202 - Wellbore #1 - Plan #3 (7-15-15)												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
5,000.0	4,913.2	4,871.0	4,675.3	18.1	27.3	-35.31	-961.5	-1,025.2	780.2	751.1	29.04	26.865	
5,100.0	5,010.2	4,970.2	4,769.4	18.6	28.0	-35.80	-984.2	-1,046.5	791.3	761.4	29.87	26.487	
5,200.0	5,107.2	5,069.3	4,863.5	19.2	28.6	-36.28	-1,007.0	-1,067.8	802.4	771.7	30.71	26.125	
5,300.0	5,204.2	5,168.5	4,957.7	19.7	29.3	-36.74	-1,029.7	-1,089.2	813.6	782.0	31.56	25.779	
5,400.1	5,301.2	5,267.7	5,051.9	20.2	29.9	-37.20	-1,052.5	-1,110.5	824.8	792.4	32.41	25.447	
5,500.0	5,398.5	5,366.7	5,145.8	20.6	30.6	-37.72	-1,075.1	-1,131.8	837.5	804.3	33.20	25.225	
5,600.0	5,496.6	5,465.4	5,239.6	21.0	31.2	-38.12	-1,097.8	-1,153.1	852.9	819.0	33.88	25.172	
5,700.0	5,595.4	5,563.8	5,332.9	21.3	31.9	-38.40	-1,120.3	-1,174.2	871.0	836.5	34.49	25.255	
5,800.0	5,694.6	5,661.6	5,425.8	21.5	32.5	-38.58	-1,142.8	-1,195.3	891.8	856.8	35.02	25.467	
5,900.0	5,794.2	5,758.7	5,518.0	21.7	33.1	-38.66	-1,165.1	-1,216.2	915.3	879.8	35.47	25.803	
6,000.0	5,894.0	5,855.1	5,609.4	21.9	33.8	-38.66	-1,187.2	-1,236.9	941.4	905.6	35.85	26.260	
6,106.0	6,000.0	5,956.2	5,705.5	22.0	34.4	-153.13	-1,210.4	-1,258.7	972.1	919.2	52.88	18.383 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	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 #3 (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)	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	-90.00	0.0	-150.4	150.4				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-150.4	150.4	150.2	0.22	669.295	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-150.4	150.4	149.8	0.67	223.098	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	0.0	-150.4	150.4	149.3	1.12	133.859	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-150.4	150.4	148.9	1.57	95.614 CC, ES	
500.0	500.0	497.3	497.3	1.0	1.0	-90.33	-0.9	-151.3	151.3	149.3	2.00	75.828	
600.0	600.0	594.5	594.4	1.2	1.2	-91.32	-3.5	-153.9	154.0	151.6	2.41	63.885	
700.0	700.0	691.4	691.1	1.5	1.4	-92.88	-8.0	-158.2	158.6	155.8	2.84	55.885	
800.0	800.0	788.0	787.3	1.7	1.6	-94.91	-14.1	-164.2	165.3	162.0	3.28	50.442	
900.0	900.0	884.0	882.7	1.9	1.9	-97.28	-22.0	-171.8	174.0	170.3	3.72	46.724	
1,000.0	1,000.0	979.5	977.3	2.1	2.2	-99.86	-31.4	-181.0	185.1	180.9	4.19	44.210	
1,100.0	1,100.0	1,074.2	1,070.7	2.4	2.5	-102.51	-42.5	-191.8	198.6	194.0	4.67	42.552	
1,200.0	1,200.0	1,168.1	1,162.9	2.6	2.8	-105.13	-55.2	-204.1	214.6	209.5	5.17	41.508	
1,300.0	1,300.0	1,261.1	1,253.8	2.8	3.2	-107.64	-69.3	-217.8	233.2	227.5	5.70	40.904	
1,400.0	1,400.0	1,353.0	1,343.1	3.0	3.6	-110.00	-84.8	-232.9	254.3	248.0	6.26	40.618	
1,500.0	1,500.0	1,443.8	1,430.9	3.3	4.1	-112.18	-101.6	-249.2	277.9	271.0	6.85	40.571	
1,600.0	1,600.0	1,539.0	1,522.4	3.5	4.6	0.34	-120.3	-267.4	302.1	295.0	7.07	42.737	
1,700.0	1,699.9	1,636.1	1,615.8	3.7	5.1	-1.43	-139.4	-286.0	324.1	316.6	7.52	43.071	
1,800.0	1,799.7	1,733.7	1,709.7	3.9	5.6	-2.99	-158.7	-304.7	343.8	335.8	7.98	43.056	
1,900.0	1,899.3	1,831.8	1,804.0	4.1	6.2	-4.40	-178.0	-323.5	361.2	352.7	8.45	42.751	
2,000.0	1,998.6	1,930.3	1,898.7	4.3	6.7	-5.72	-197.4	-342.4	376.2	367.2	8.91	42.204	
2,100.0	2,097.5	2,029.2	1,993.7	4.5	7.3	-6.99	-216.8	-361.3	388.8	379.4	9.38	41.452	
2,200.0	2,196.1	2,128.3	2,089.0	4.8	7.9	-8.22	-236.3	-380.3	399.0	389.1	9.85	40.526	
2,300.0	2,294.2	2,227.6	2,184.5	5.1	8.4	-9.46	-255.9	-399.3	406.8	396.5	10.31	39.448	
2,400.0	2,391.7	2,327.0	2,280.1	5.5	9.0	-10.72	-275.5	-418.3	412.3	401.5	10.78	38.236	
2,441.2	2,431.7	2,367.9	2,319.5	5.6	9.2	-11.25	-283.5	-426.1	413.8	402.9	10.98	37.700	
2,500.0	2,488.7	2,426.5	2,375.8	5.9	9.6	-12.01	-295.0	-437.4	415.8	404.5	11.28	36.877	
2,600.0	2,585.7	2,526.0	2,471.4	6.3	10.1	-13.30	-314.6	-456.4	419.3	407.6	11.79	35.565	
2,700.0	2,682.7	2,625.5	2,567.1	6.7	10.7	-14.56	-334.2	-475.5	423.1	410.8	12.32	34.349	
2,800.0	2,779.7	2,725.0	2,662.8	7.1	11.3	-15.80	-353.8	-494.5	427.0	414.2	12.86	33.217	
2,900.0	2,876.6	2,824.5	2,758.4	7.6	11.9	-17.02	-373.4	-513.6	431.2	417.8	13.41	32.161	
3,000.0	2,973.6	2,924.0	2,854.1	8.0	12.4	-18.21	-393.0	-532.6	435.5	421.5	13.97	31.171	
3,100.0	3,070.6	3,023.4	2,949.8	8.5	13.0	-19.38	-412.6	-551.6	440.0	425.5	14.55	30.240	
3,200.0	3,167.6	3,122.9	3,045.5	9.0	13.6	-20.53	-432.2	-570.7	444.7	429.6	15.15	29.362	
3,300.0	3,264.6	3,222.4	3,141.1	9.5	14.2	-21.65	-451.7	-589.7	449.6	433.9	15.76	28.533	
3,400.0	3,361.5	3,321.9	3,236.8	10.0	14.7	-22.75	-471.3	-608.8	454.7	438.3	16.39	27.748	
3,500.0	3,458.5	3,421.4	3,332.5	10.5	15.3	-23.82	-490.9	-627.8	459.9	442.8	17.03	27.004	
3,600.0	3,555.5	3,520.9	3,428.1	10.9	15.9	-24.87	-510.5	-646.9	465.2	447.5	17.69	26.299	
3,700.0	3,652.5	3,620.4	3,523.8	11.4	16.5	-25.89	-530.1	-665.9	470.8	452.4	18.37	25.629	
3,800.0	3,749.5	3,719.9	3,619.5	12.0	17.0	-26.89	-549.7	-685.0	476.4	457.4	19.06	24.992	
3,900.0	3,846.4	3,819.4	3,715.1	12.5	17.6	-27.87	-569.3	-704.0	482.2	462.5	19.78	24.386	
4,000.0	3,943.4	3,918.9	3,810.8	13.0	18.2	-28.82	-588.9	-723.1	488.2	467.7	20.50	23.810	
4,100.0	4,040.4	4,018.4	3,906.5	13.5	18.8	-29.75	-608.5	-742.1	494.3	473.0	21.25	23.262	
4,200.0	4,137.4	4,117.9	4,002.1	14.0	19.4	-30.66	-628.0	-761.2	500.5	478.5	22.01	22.741	
4,300.0	4,234.4	4,217.4	4,097.8	14.5	19.9	-31.55	-647.6	-780.2	506.8	484.0	22.78	22.245	
4,400.0	4,331.3	4,316.9	4,193.5	15.0	20.5	-32.41	-667.2	-799.3	513.3	489.7	23.57	21.772	
4,500.0	4,428.3	4,416.4	4,289.2	15.5	21.1	-33.25	-686.8	-818.3	519.8	495.4	24.38	21.323	
4,600.0	4,525.3	4,515.9	4,384.8	16.0	21.7	-34.07	-706.4	-837.4	526.5	501.3	25.20	20.895	
4,700.0	4,622.3	4,615.4	4,480.5	16.6	22.2	-34.87	-726.0	-856.4	533.3	507.2	26.03	20.488	
4,800.0	4,719.3	4,714.9	4,576.2	17.1	22.8	-35.65	-745.6	-875.5	540.2	513.3	26.87	20.100	
4,900.0	4,816.2	4,814.4	4,671.8	17.6	23.4	-36.41	-765.2	-894.5	547.1	519.4	27.73	19.730	

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 190-402
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 190-402	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 #3 (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	
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)	(°)								
5,000.0	4,913.2	4,913.8	4,767.5	18.1	24.0	-37.16	-784.7	-913.6	554.2	525.6	28.60	19.379		
5,100.0	5,010.2	5,013.3	4,863.2	18.6	24.6	-37.88	-804.3	-932.6	561.4	531.9	29.48	19.043		
5,200.0	5,107.2	5,112.8	4,958.8	19.2	25.1	-38.58	-823.9	-951.7	568.6	538.2	30.37	18.724		
5,300.0	5,204.2	5,212.3	5,054.5	19.7	25.7	-39.27	-843.5	-970.7	575.9	544.7	31.27	18.419		
5,400.1	5,301.2	5,311.9	5,150.3	20.2	26.3	-39.94	-863.1	-989.8	583.4	551.2	32.18	18.129		
5,500.0	5,398.5	5,411.3	5,245.8	20.6	26.9	-40.60	-882.7	-1,008.8	592.2	559.2	33.02	17.935		
5,600.0	5,496.6	5,510.6	5,341.3	21.0	27.5	-41.06	-902.2	-1,027.8	603.7	569.9	33.73	17.896		
5,700.0	5,595.4	5,609.6	5,436.5	21.3	28.0	-41.33	-921.7	-1,046.8	617.8	583.4	34.35	17.985		
5,800.0	5,694.6	5,708.1	5,531.3	21.5	28.6	-41.42	-941.1	-1,065.7	634.4	599.6	34.87	18.195		
5,900.0	5,794.2	5,806.2	5,625.5	21.7	29.2	-41.35	-960.4	-1,084.4	653.7	618.4	35.29	18.522		
6,000.0	5,894.0	5,903.6	5,719.2	21.9	29.8	-41.13	-979.6	-1,103.1	675.6	640.0	35.63	18.963		
6,106.0	6,000.0	6,006.0	5,817.6	22.0	30.3	-155.34	-999.8	-1,122.7	701.7	653.4	48.31	14.525		
6,200.0	6,094.0	6,096.4	5,904.6	22.1	30.9	-154.66	-1,017.6	-1,140.0	726.1	677.0	49.11	14.786		
6,222.9	6,116.9	6,126.8	5,933.9	22.2	31.0	-154.47	-1,023.6	-1,145.5	732.0	682.7	49.34	14.837		
6,250.0	6,144.0	6,171.1	5,976.9	22.2	31.2	115.26	-1,032.4	-1,151.5	738.7	702.4	36.31	20.342		
6,300.0	6,193.9	6,254.0	6,057.9	22.2	31.5	114.60	-1,049.0	-1,155.9	750.3	713.7	36.59	20.506		
6,350.0	6,243.4	6,338.2	6,140.2	22.2	31.6	113.76	-1,065.9	-1,151.2	761.0	724.2	36.85	20.653		
6,400.0	6,292.4	6,423.1	6,222.2	22.2	31.7	112.74	-1,082.7	-1,137.1	770.7	733.6	37.10	20.773		
6,450.0	6,340.7	6,508.3	6,302.4	22.1	31.8	111.55	-1,099.2	-1,113.6	779.3	742.0	37.36	20.859		
6,500.0	6,388.0	6,593.2	6,379.3	22.0	31.7	110.21	-1,115.0	-1,081.4	786.9	749.3	37.64	20.904		
6,550.0	6,434.1	6,677.1	6,451.4	21.9	31.6	108.73	-1,129.9	-1,041.2	793.5	755.5	37.97	20.899		
6,600.0	6,478.9	6,759.6	6,517.6	21.8	31.5	107.14	-1,143.6	-994.0	799.1	760.8	38.36	20.835		
6,650.0	6,522.1	6,840.3	6,577.2	21.7	31.3	105.46	-1,155.9	-941.1	803.8	765.0	38.82	20.705		
6,700.0	6,563.6	6,918.7	6,629.5	21.6	31.1	103.72	-1,166.7	-883.8	807.7	768.3	39.38	20.507		
6,750.0	6,603.2	6,994.7	6,674.5	21.5	30.9	101.93	-1,176.1	-823.3	810.8	770.8	40.05	20.248		
6,800.0	6,640.7	7,068.2	6,712.2	21.4	30.7	100.11	-1,183.9	-760.8	813.3	772.5	40.82	19.926		
6,850.0	6,675.9	7,138.9	6,742.8	21.3	30.5	98.29	-1,190.3	-697.3	815.3	773.6	41.68	19.561		
6,900.0	6,708.8	7,207.0	6,766.7	21.3	30.3	96.48	-1,195.3	-633.7	816.8	774.2	42.62	19.163		
6,950.0	6,739.1	7,272.5	6,784.3	21.3	30.1	94.68	-1,199.0	-570.8	817.9	774.3	43.65	18.739		
7,000.0	6,766.7	7,335.5	6,796.2	21.3	29.9	92.91	-1,201.6	-509.0	818.7	774.0	44.72	18.308		
7,050.0	6,791.6	7,396.1	6,803.0	21.4	29.8	91.18	-1,203.1	-448.8	819.3	773.5	45.83	17.876		
7,100.0	6,813.6	7,454.5	6,805.0	21.6	29.7	89.49	-1,203.6	-390.5	819.7	772.7	46.98	17.448		
7,150.0	6,832.6	7,501.6	6,804.6	21.8	29.7	88.17	-1,203.6	-343.4	820.1	772.1	48.01	17.081		
7,200.0	6,848.5	7,548.8	6,804.2	22.1	29.7	87.04	-1,203.6	-296.2	820.8	771.7	49.14	16.705		
7,250.0	6,861.3	7,597.0	6,803.8	22.5	29.8	86.09	-1,203.6	-248.0	821.6	771.4	50.29	16.337		
7,300.0	6,871.0	7,646.0	6,803.3	22.9	30.0	85.35	-1,203.6	-199.0	822.4	770.8	51.59	15.941		
7,350.0	6,877.3	7,695.5	6,802.9	23.4	30.3	84.84	-1,203.6	-149.5	823.0	770.1	52.95	15.543		
7,400.0	6,880.5	7,745.4	6,802.5	24.0	30.8	84.57	-1,203.6	-99.6	823.3	768.9	54.44	15.123		
7,425.1	6,880.8	7,770.5	6,802.2	24.4	31.1	84.52	-1,203.6	-74.5	823.4	768.2	55.22	14.911		
7,500.0	6,880.6	7,845.4	6,801.6	25.4	32.3	84.49	-1,203.6	0.4	823.4	765.7	57.72	14.265		
7,600.0	6,880.3	7,945.4	6,800.7	27.1	34.2	84.45	-1,203.6	100.4	823.5	762.1	61.36	13.421		
7,700.0	6,880.0	8,045.4	6,799.8	28.9	36.3	84.41	-1,203.6	200.4	823.5	758.3	65.27	12.617		
7,800.0	6,879.7	8,145.4	6,798.9	30.9	38.5	84.37	-1,203.6	300.4	823.6	754.2	69.42	11.863		
7,900.0	6,879.4	8,245.4	6,798.0	33.0	40.7	84.33	-1,203.6	400.4	823.7	749.9	73.77	11.165		
8,000.0	6,879.1	8,345.4	6,797.1	35.3	43.1	84.29	-1,203.6	500.4	823.7	745.4	78.27	10.524		
8,100.0	6,878.8	8,445.4	6,796.3	37.6	45.5	84.25	-1,203.6	600.4	823.8	740.9	82.91	9.936		
8,200.0	6,878.5	8,545.4	6,795.4	39.9	48.0	84.21	-1,203.6	700.3	823.8	736.2	87.66	9.398		
8,300.0	6,878.2	8,645.4	6,794.5	42.4	50.4	84.17	-1,203.6	800.3	823.9	731.4	92.51	8.906		
8,400.0	6,877.9	8,745.4	6,793.6	44.8	52.9	84.13	-1,203.6	900.3	824.0	726.5	97.43	8.457		
8,500.0	6,877.6	8,845.4	6,792.7	47.3	55.5	84.09	-1,203.6	1,000.3	824.0	721.6	102.43	8.045		
8,600.0	6,877.3	8,945.4	6,791.8	49.9	58.1	84.04	-1,203.6	1,100.3	824.1	716.6	107.48	7.668		

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 190-402
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 190-402	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 #3 (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
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
8,700.0	6,877.0	9,045.4	6,790.9	52.5	60.6	84.00	-1,203.6	1,200.3	824.1	711.6	112.58	7.321	
8,800.0	6,876.7	9,145.4	6,790.0	55.0	63.2	83.96	-1,203.6	1,300.3	824.2	706.5	117.72	7.001	
8,900.0	6,876.4	9,245.4	6,789.2	57.7	65.9	83.92	-1,203.6	1,400.3	824.3	701.4	122.90	6.707	
9,000.0	6,876.1	9,345.4	6,788.3	60.3	68.5	83.88	-1,203.6	1,500.3	824.3	696.2	128.12	6.434	
9,100.0	6,875.8	9,445.4	6,787.4	62.9	71.1	83.84	-1,203.6	1,600.3	824.4	691.0	133.36	6.182	
9,200.0	6,875.5	9,545.4	6,786.5	65.6	73.8	83.80	-1,203.6	1,700.3	824.5	685.8	138.63	5.947	
9,300.0	6,875.2	9,645.4	6,785.6	68.3	76.4	83.76	-1,203.6	1,800.3	824.5	680.6	143.92	5.729	
9,400.0	6,875.0	9,745.3	6,784.7	71.0	79.1	83.72	-1,203.6	1,900.3	824.6	675.4	149.23	5.526	
9,500.0	6,874.7	9,845.3	6,783.8	73.6	81.8	83.68	-1,203.6	2,000.3	824.7	670.1	154.56	5.335	
9,600.0	6,874.4	9,945.3	6,782.9	76.3	84.5	83.64	-1,203.6	2,100.3	824.7	664.8	159.91	5.157	
9,700.0	6,874.1	10,045.3	6,782.1	79.1	87.2	83.60	-1,203.6	2,200.3	824.8	659.5	165.27	4.991	
9,800.0	6,873.8	10,145.3	6,781.2	81.8	89.9	83.55	-1,203.6	2,300.3	824.9	654.2	170.64	4.834	
9,900.0	6,873.5	10,245.3	6,780.3	84.5	92.6	83.51	-1,203.6	2,400.2	824.9	648.9	176.03	4.686	
10,000.0	6,873.2	10,345.3	6,779.4	87.2	95.3	83.47	-1,203.6	2,500.2	825.0	643.6	181.43	4.547	
10,100.0	6,872.9	10,445.3	6,778.5	89.9	98.0	83.43	-1,203.6	2,600.2	825.1	638.2	186.83	4.416	
10,200.0	6,872.6	10,545.3	6,777.6	92.7	100.8	83.39	-1,203.6	2,700.2	825.1	632.9	192.24	4.292	
10,300.0	6,872.3	10,645.3	6,776.7	95.4	103.5	83.35	-1,203.6	2,800.2	825.2	627.5	197.67	4.175	
10,400.0	6,872.0	10,745.3	6,775.8	98.2	106.2	83.31	-1,203.6	2,900.2	825.3	622.2	203.09	4.063	
10,500.0	6,871.7	10,845.3	6,775.0	100.9	109.0	83.27	-1,203.6	3,000.2	825.3	616.8	208.53	3.958	
10,600.0	6,871.4	10,945.3	6,774.1	103.7	111.7	83.23	-1,203.6	3,100.2	825.4	611.4	213.97	3.858	
10,700.0	6,871.1	11,045.3	6,773.2	106.4	114.4	83.19	-1,203.6	3,200.2	825.5	606.1	219.42	3.762	
10,800.0	6,870.8	11,145.3	6,772.3	109.2	117.2	83.15	-1,203.6	3,300.2	825.5	600.7	224.87	3.671	
10,900.0	6,870.5	11,245.3	6,771.4	111.9	119.9	83.11	-1,203.7	3,400.2	825.6	595.3	230.32	3.585	
11,000.0	6,870.2	11,345.3	6,770.5	114.7	122.7	83.07	-1,203.7	3,500.2	825.7	589.9	235.78	3.502	
11,100.0	6,869.9	11,445.3	6,769.6	117.5	125.4	83.03	-1,203.7	3,600.2	825.8	584.5	241.25	3.423	
11,200.0	6,869.6	11,545.3	6,768.8	120.2	128.2	82.98	-1,203.7	3,700.2	825.8	579.1	246.72	3.347	
11,300.0	6,869.3	11,645.3	6,767.9	123.0	130.9	82.94	-1,203.7	3,800.2	825.9	573.7	252.19	3.275	
11,400.0	6,869.0	11,745.3	6,767.0	125.8	133.7	82.90	-1,203.7	3,900.2	826.0	568.3	257.66	3.206	
11,500.0	6,868.7	11,845.3	6,766.1	128.5	136.5	82.86	-1,203.7	4,000.2	826.1	562.9	263.13	3.139	
11,600.0	6,868.4	11,945.3	6,765.2	131.3	139.2	82.82	-1,203.7	4,100.2	826.1	557.5	268.61	3.076	
11,700.0	6,868.1	12,045.3	6,764.3	134.1	142.0	82.78	-1,203.7	4,200.1	826.2	552.1	274.09	3.014	
11,800.0	6,867.8	12,145.3	6,763.4	136.9	144.8	82.74	-1,203.7	4,300.1	826.3	546.7	279.57	2.956	
11,900.0	6,867.5	12,245.3	6,762.5	139.6	147.5	82.70	-1,203.7	4,400.1	826.4	541.3	285.06	2.899	
12,000.0	6,867.2	12,345.3	6,761.7	142.4	150.3	82.66	-1,203.7	4,500.1	826.4	535.9	290.54	2.844	
12,100.0	6,866.9	12,445.3	6,760.8	145.2	153.1	82.62	-1,203.7	4,600.1	826.5	530.5	296.03	2.792	
12,200.0	6,866.6	12,545.3	6,759.9	148.0	155.8	82.58	-1,203.7	4,700.1	826.6	525.1	301.52	2.741	
12,300.0	6,866.3	12,645.3	6,759.0	150.8	158.6	82.54	-1,203.7	4,800.1	826.7	519.7	307.01	2.693	
12,400.0	6,866.1	12,745.3	6,758.1	153.5	161.4	82.50	-1,203.7	4,900.1	826.7	514.2	312.50	2.646	
12,500.0	6,865.8	12,845.3	6,757.2	156.3	164.2	82.46	-1,203.7	5,000.1	826.8	508.8	317.99	2.600	
12,600.0	6,865.5	12,945.3	6,756.3	159.1	166.9	82.42	-1,203.7	5,100.1	826.9	503.4	323.48	2.556	
12,700.0	6,865.2	13,045.3	6,755.4	161.9	169.7	82.38	-1,203.7	5,200.1	827.0	498.0	328.97	2.514	
12,800.0	6,864.9	13,145.3	6,754.6	164.7	172.5	82.34	-1,203.7	5,300.1	827.1	492.6	334.47	2.473	
12,900.0	6,864.6	13,245.3	6,753.7	167.5	175.3	82.29	-1,203.7	5,400.1	827.1	487.2	339.96	2.433	
13,000.0	6,864.3	13,345.3	6,752.8	170.3	178.1	82.25	-1,203.7	5,500.1	827.2	481.8	345.45	2.395	
13,100.0	6,864.0	13,445.3	6,751.9	173.1	180.8	82.21	-1,203.7	5,600.1	827.3	476.3	350.95	2.357	
13,200.0	6,863.7	13,545.3	6,751.0	175.8	183.6	82.17	-1,203.7	5,700.1	827.4	470.9	356.44	2.321	
13,300.0	6,863.4	13,645.3	6,750.1	178.6	186.4	82.13	-1,203.7	5,800.1	827.5	465.5	361.94	2.286	
13,400.0	6,863.1	13,745.3	6,749.2	181.4	189.2	82.09	-1,203.7	5,900.0	827.5	460.1	367.43	2.252	
13,500.0	6,862.8	13,845.3	6,748.3	184.2	192.0	82.05	-1,203.7	6,000.0	827.6	454.7	372.93	2.219	
13,600.0	6,862.5	13,945.3	6,747.5	187.0	194.8	82.01	-1,203.7	6,100.0	827.7	449.3	378.42	2.187	
13,700.0	6,862.2	14,045.3	6,746.6	189.8	197.5	81.97	-1,203.7	6,200.0	827.8	443.9	383.92	2.156	

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 190-402
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 190-402	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 #3 (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	
13,800.0	6,861.9	14,145.3	6,745.7	192.6	200.3	81.93	-1,203.7	6,300.0	827.9	438.5	389.41	2.126	
13,900.0	6,861.6	14,245.3	6,744.8	195.4	203.1	81.89	-1,203.7	6,400.0	828.0	433.0	394.91	2.097	
14,000.0	6,861.3	14,345.3	6,743.9	198.2	205.9	81.85	-1,203.7	6,500.0	828.0	427.6	400.40	2.068	
14,100.0	6,861.0	14,445.3	6,743.0	201.0	208.7	81.81	-1,203.7	6,600.0	828.1	422.2	405.90	2.040	
14,200.0	6,860.7	14,545.3	6,742.1	203.8	211.5	81.77	-1,203.7	6,700.0	828.2	416.8	411.39	2.013	
14,300.0	6,860.4	14,645.3	6,741.2	206.6	214.3	81.73	-1,203.7	6,800.0	828.3	411.4	416.89	1.987	
14,400.0	6,860.1	14,745.3	6,740.4	209.4	217.1	81.69	-1,203.7	6,900.0	828.4	406.0	422.38	1.961	
14,500.0	6,859.8	14,845.3	6,739.5	212.2	219.9	81.65	-1,203.7	7,000.0	828.5	400.6	427.87	1.936	
14,600.0	6,859.5	14,945.3	6,738.6	215.0	222.6	81.61	-1,203.7	7,100.0	828.5	395.2	433.36	1.912	
14,700.0	6,859.2	15,045.3	6,737.7	217.7	225.4	81.57	-1,203.7	7,200.0	828.6	389.8	438.85	1.888	
14,800.0	6,858.9	15,145.3	6,736.8	220.5	228.2	81.53	-1,203.7	7,300.0	828.7	384.4	444.35	1.865	
14,900.0	6,858.6	15,245.3	6,735.9	223.3	231.0	81.49	-1,203.7	7,400.0	828.8	379.0	449.84	1.842	
15,000.0	6,858.3	15,345.3	6,735.0	226.1	233.8	81.45	-1,203.7	7,500.0	828.9	373.6	455.33	1.820	
15,100.0	6,858.0	15,445.2	6,734.2	228.9	236.6	81.41	-1,203.7	7,600.0	829.0	368.2	460.82	1.799	
15,200.0	6,857.7	15,545.2	6,733.3	231.7	239.4	81.36	-1,203.7	7,699.9	829.1	362.8	466.30	1.778	
15,300.0	6,857.4	15,645.2	6,732.4	234.5	242.2	81.32	-1,203.7	7,799.9	829.2	357.4	471.79	1.757	
15,400.0	6,857.1	15,745.2	6,731.5	237.3	245.0	81.28	-1,203.7	7,899.9	829.3	352.0	477.28	1.737	
15,500.0	6,856.9	15,845.2	6,730.6	240.1	247.8	81.24	-1,203.7	7,999.9	829.3	346.6	482.77	1.718	
15,600.0	6,856.6	15,945.2	6,729.7	242.9	250.6	81.20	-1,203.7	8,099.9	829.4	341.2	488.25	1.699	
15,700.0	6,856.3	16,045.2	6,728.8	245.7	253.4	81.16	-1,203.7	8,199.9	829.5	335.8	493.74	1.680	
15,800.0	6,856.0	16,145.2	6,727.9	248.5	256.2	81.12	-1,203.7	8,299.9	829.6	330.4	499.22	1.662	
15,900.0	6,855.7	16,245.2	6,727.1	251.3	259.0	81.08	-1,203.7	8,399.9	829.7	325.0	504.70	1.644	
16,000.0	6,855.4	16,345.2	6,726.2	254.1	261.8	81.04	-1,203.7	8,499.9	829.8	319.6	510.19	1.626	
16,100.0	6,855.1	16,445.2	6,725.3	256.9	264.6	81.00	-1,203.7	8,599.9	829.9	314.2	515.67	1.609	
16,200.0	6,854.8	16,545.2	6,724.4	259.7	267.4	80.96	-1,203.7	8,699.9	830.0	308.8	521.15	1.593	
16,300.0	6,854.5	16,645.2	6,723.5	262.5	270.1	80.92	-1,203.7	8,799.9	830.1	303.5	526.63	1.576	
16,400.0	6,854.2	16,745.2	6,722.6	265.3	272.9	80.88	-1,203.7	8,899.9	830.2	298.1	532.10	1.560	
16,500.0	6,853.9	16,845.2	6,721.7	268.1	275.7	80.84	-1,203.7	8,999.9	830.3	292.7	537.58	1.544	
16,600.0	6,853.6	16,945.2	6,720.8	270.9	278.5	80.80	-1,203.7	9,099.9	830.4	287.3	543.06	1.529	
16,700.0	6,853.3	17,045.2	6,720.0	273.7	281.3	80.76	-1,203.7	9,199.9	830.5	281.9	548.53	1.514	
16,800.0	6,853.0	17,145.2	6,719.1	276.5	284.1	80.72	-1,203.7	9,299.9	830.6	276.6	554.01	1.499 Level 3	
16,900.0	6,852.7	17,245.2	6,718.2	279.3	286.9	80.68	-1,203.7	9,399.9	830.7	271.2	559.48	1.485 Level 3	
17,000.0	6,852.4	17,345.2	6,717.3	282.1	289.7	80.64	-1,203.7	9,499.8	830.8	265.8	564.95	1.470 Level 3	
17,100.0	6,852.1	17,445.2	6,716.4	284.9	292.5	80.60	-1,203.7	9,599.8	830.8	260.4	570.42	1.457 Level 3	
17,200.0	6,851.8	17,545.2	6,715.5	287.7	295.3	80.56	-1,203.7	9,699.8	830.9	255.1	575.89	1.443 Level 3	
17,300.0	6,851.5	17,645.2	6,714.6	290.6	298.1	80.52	-1,203.7	9,799.8	831.0	249.7	581.36	1.429 Level 3	
17,400.0	6,851.2	17,745.2	6,713.7	293.4	300.9	80.48	-1,203.7	9,899.8	831.1	244.3	586.83	1.416 Level 3	
17,500.0	6,850.9	17,845.2	6,712.9	296.2	303.7	80.44	-1,203.7	9,999.8	831.2	238.9	592.30	1.403 Level 3	
17,600.0	6,850.6	17,945.2	6,712.0	299.0	306.5	80.40	-1,203.7	10,099.8	831.3	233.6	597.76	1.391 Level 3	
17,700.0	6,850.3	18,045.2	6,711.1	301.8	309.3	80.36	-1,203.7	10,199.8	831.4	228.2	603.22	1.378 Level 3	
17,809.5	6,850.0	18,154.7	6,710.1	304.8	312.4	80.32	-1,203.7	10,309.3	831.5	222.3	609.20	1.365 Level 3, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 146-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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
6,000.0	5,894.0	11,018.0	6,717.7	21.9	125.1	-25.35	-701.0	-1,122.6	916.9	804.0	112.86	8.124		
6,106.0	6,000.0	11,018.0	6,717.7	22.0	125.1	-138.28	-701.0	-1,122.6	823.6	719.8	103.89	7.928		
6,200.0	6,094.0	11,018.0	6,717.7	22.1	125.1	-138.28	-701.0	-1,122.6	744.7	640.7	104.01	7.160		
6,222.9	6,116.9	11,018.0	6,717.7	22.2	125.1	-138.28	-701.0	-1,122.6	726.0	622.0	104.04	6.978		
6,250.0	6,144.0	11,018.0	6,717.7	22.2	125.1	133.69	-701.0	-1,122.6	704.4	596.7	107.69	6.541		
6,300.0	6,193.9	11,018.0	6,717.7	22.2	125.1	136.72	-701.0	-1,122.6	666.7	564.0	102.80	6.486		
6,350.0	6,243.4	11,018.0	6,717.7	22.2	125.1	139.08	-701.0	-1,122.6	632.6	533.8	98.81	6.402		
6,400.0	6,292.4	11,018.0	6,717.7	22.2	125.1	140.89	-701.0	-1,122.6	602.6	507.0	95.64	6.301		
6,450.0	6,340.7	11,018.0	6,717.7	22.1	125.1	142.23	-701.0	-1,122.6	577.7	484.5	93.19	6.198		
6,500.0	6,388.0	11,018.0	6,717.7	22.0	125.1	143.18	-701.0	-1,122.6	558.5	467.1	91.41	6.110		
6,550.0	6,434.1	11,018.0	6,717.7	21.9	125.1	143.77	-701.0	-1,122.6	545.8	455.6	90.23	6.049		
6,600.0	6,478.9	11,018.0	6,717.7	21.8	125.1	144.02	-701.0	-1,122.6	540.1	450.5	89.63	6.026 SF		
6,614.4	6,491.5	11,018.0	6,717.7	21.8	125.1	144.03	-701.0	-1,122.6	539.8	450.2	89.57	6.027 CC, ES		
6,650.0	6,522.1	11,018.0	6,717.7	21.7	125.1	143.95	-701.0	-1,122.6	541.7	452.1	89.60	6.045		
6,700.0	6,563.6	11,018.0	6,717.7	21.6	125.1	143.56	-701.0	-1,122.6	550.4	460.2	90.14	6.106		
6,750.0	6,603.2	11,018.0	6,717.7	21.5	125.1	142.82	-701.0	-1,122.6	565.9	474.6	91.30	6.198		
6,800.0	6,640.7	11,018.0	6,717.7	21.4	125.1	141.71	-701.0	-1,122.6	587.6	494.5	93.14	6.309		
6,850.0	6,675.9	11,018.0	6,717.7	21.3	125.1	140.18	-701.0	-1,122.6	614.8	519.1	95.74	6.422		
6,900.0	6,708.8	11,018.0	6,717.7	21.3	125.1	138.15	-701.0	-1,122.6	646.7	547.5	99.20	6.518		
6,950.0	6,739.1	11,018.0	6,717.7	21.3	125.1	135.52	-701.0	-1,122.6	682.4	578.7	103.66	6.583		
7,000.0	6,766.7	11,018.0	6,717.7	21.3	125.1	132.16	-701.0	-1,122.6	721.3	612.1	109.19	6.606		
7,050.0	6,791.6	11,018.0	6,717.7	21.4	125.1	127.91	-701.0	-1,122.6	762.7	646.9	115.85	6.583		
7,100.0	6,813.6	11,018.0	6,717.7	21.6	125.1	122.54	-701.0	-1,122.6	806.1	682.6	123.53	6.526		
7,150.0	6,832.6	11,018.0	6,717.7	21.8	125.1	115.85	-701.0	-1,122.6	851.0	719.2	131.77	6.458		
7,200.0	6,848.5	11,018.0	6,717.7	22.1	125.1	107.67	-701.0	-1,122.6	897.0	757.4	139.64	6.424		
7,250.0	6,861.3	11,018.0	6,717.7	22.5	125.1	98.02	-701.0	-1,122.6	943.8	798.3	145.52	6.486		
7,300.0	6,871.0	11,018.0	6,717.7	22.9	125.1	87.26	-701.0	-1,122.6	991.0	843.5	147.53	6.717		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 140-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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
6,106.0	6,000.0	11,254.0	6,921.4	22.0	127.8	-105.97	-438.6	-1,030.8	930.8	785.8	144.95	6.422		
6,200.0	6,094.0	11,254.0	6,921.4	22.1	127.8	-105.97	-438.6	-1,030.8	839.2	694.1	145.06	5.785		
6,222.9	6,116.9	11,254.0	6,921.4	22.2	127.8	-105.97	-438.6	-1,030.8	817.0	671.9	145.09	5.631 SF		
6,250.0	6,144.0	11,254.0	6,921.4	22.2	127.8	165.96	-438.6	-1,030.8	790.8	742.1	48.73	16.229		
6,300.0	6,193.9	11,254.0	6,921.4	22.2	127.8	168.39	-438.6	-1,030.8	743.5	699.1	44.37	16.755		
6,350.0	6,243.4	11,254.0	6,921.4	22.2	127.8	169.97	-438.6	-1,030.8	697.9	656.1	41.81	16.692		
6,400.0	6,292.4	11,254.0	6,921.4	22.2	127.8	171.06	-438.6	-1,030.8	654.4	614.1	40.29	16.240		
6,450.0	6,340.7	11,254.0	6,921.4	22.1	127.8	171.84	-438.6	-1,030.8	613.8	574.3	39.45	15.557		
6,500.0	6,388.0	11,254.0	6,921.4	22.0	127.8	172.41	-438.6	-1,030.8	576.8	537.7	39.06	14.769		
6,550.0	6,434.1	11,254.0	6,921.4	21.9	127.8	172.82	-438.6	-1,030.8	544.4	505.4	38.95	13.975		
6,600.0	6,478.9	11,254.0	6,921.4	21.8	127.8	173.12	-438.6	-1,030.8	517.5	478.5	39.04	13.255		
6,650.0	6,522.1	11,254.0	6,921.4	21.7	127.8	173.31	-438.6	-1,030.8	497.3	458.0	39.26	12.668		
6,700.0	6,563.6	11,254.0	6,921.4	21.6	127.8	173.43	-438.6	-1,030.8	484.5	445.0	39.54	12.255		
6,750.0	6,603.2	11,254.0	6,921.4	21.5	127.8	173.47	-438.6	-1,030.8	480.0	440.1	39.86	12.043		
6,752.1	6,604.8	11,254.0	6,921.4	21.5	127.8	173.47	-438.6	-1,030.8	480.0	440.1	39.87	12.039 CC, ES		
6,800.0	6,640.7	11,254.0	6,921.4	21.4	127.8	173.43	-438.6	-1,030.8	483.8	443.6	40.19	12.039		
6,850.0	6,675.9	11,254.0	6,921.4	21.3	127.8	173.33	-438.6	-1,030.8	495.9	455.4	40.53	12.236		
6,900.0	6,708.8	11,254.0	6,921.4	21.3	127.8	173.14	-438.6	-1,030.8	515.5	474.7	40.87	12.613		
6,950.0	6,739.1	11,254.0	6,921.4	21.3	127.8	172.85	-438.6	-1,030.8	541.9	500.6	41.26	13.134		
7,000.0	6,766.7	11,254.0	6,921.4	21.3	127.8	172.45	-438.6	-1,030.8	573.8	532.1	41.71	13.758		
7,050.0	6,791.6	11,254.0	6,921.4	21.4	127.8	171.90	-438.6	-1,030.8	610.5	568.1	42.32	14.425		
7,100.0	6,813.6	11,254.0	6,921.4	21.6	127.8	171.14	-438.6	-1,030.8	650.8	607.6	43.22	15.059		
7,150.0	6,832.6	11,254.0	6,921.4	21.8	127.8	170.08	-438.6	-1,030.8	694.1	649.4	44.64	15.549		
7,200.0	6,848.5	11,254.0	6,921.4	22.1	127.8	168.55	-438.6	-1,030.8	739.6	692.6	46.97	15.746		
7,250.0	6,861.3	11,254.0	6,921.4	22.5	127.8	166.21	-438.6	-1,030.8	786.7	735.8	50.95	15.442		
7,300.0	6,871.0	11,254.0	6,921.4	22.9	127.8	162.31	-438.6	-1,030.8	835.1	776.9	58.18	14.354		
7,350.0	6,877.3	11,254.0	6,921.4	23.4	127.8	154.76	-438.6	-1,030.8	884.3	811.2	73.04	12.106		
7,400.0	6,880.5	11,254.0	6,921.4	24.0	127.8	136.11	-438.6	-1,030.8	933.9	825.3	108.64	8.596		
7,425.1	6,880.8	11,254.0	6,921.4	24.4	127.8	115.22	-438.6	-1,030.8	959.0	820.6	138.37	6.931		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-402
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 190-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design													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	171.95	-867.0	122.6	875.8					
100.0	100.0	93.0	93.0	0.1	0.1	171.89	-866.6	123.5	875.4	875.1	0.24	3,703.411		
200.0	200.0	193.5	193.5	0.3	0.4	171.79	-865.7	124.9	874.6	873.9	0.71	1,225.378		
279.4	279.4	266.5	266.4	0.5	0.6	171.75	-865.3	125.5	874.3	873.2	1.07	816.491		
300.0	300.0	285.2	285.2	0.6	0.6	171.73	-865.3	125.7	874.3	873.2	1.16	752.057		
400.0	400.0	377.5	377.4	0.8	0.8	171.65	-865.7	127.0	875.0	873.4	1.59	548.791		
500.0	500.0	482.1	482.1	1.0	1.1	171.56	-866.5	128.6	876.0	873.9	2.06	424.331		
600.0	600.0	583.9	583.8	1.2	1.3	171.48	-866.7	129.9	876.4	873.8	2.55	343.819		
700.0	700.0	680.3	680.2	1.5	1.6	171.40	-867.0	131.1	876.9	873.9	3.02	290.101		
800.0	800.0	784.1	784.0	1.7	1.8	171.30	-867.5	132.7	877.6	874.1	3.52	249.419		
900.0	900.0	878.9	878.8	1.9	2.1	171.23	-867.8	133.9	878.1	874.1	3.99	220.121		
1,000.0	1,000.0	983.1	983.0	2.1	2.4	171.12	-868.4	135.7	879.0	874.5	4.48	195.992		
1,100.0	1,100.0	1,084.0	1,083.9	2.4	2.6	171.03	-868.5	137.1	879.3	874.3	4.98	176.741		
1,200.0	1,200.0	1,179.1	1,179.0	2.6	2.9	170.97	-868.9	138.2	879.9	874.4	5.45	161.566		
1,300.0	1,300.0	1,284.2	1,284.1	2.8	3.1	170.89	-869.5	139.4	880.7	874.7	5.94	148.176		
1,400.0	1,400.0	1,380.2	1,380.1	3.0	3.4	170.83	-869.8	140.3	881.1	874.7	6.42	137.260		
1,500.0	1,500.0	1,486.1	1,485.9	3.3	3.7	170.74	-870.2	141.9	881.7	874.8	6.92	127.441		
1,600.0	1,600.0	1,583.2	1,583.0	3.5	3.9	-74.84	-870.2	142.9	881.6	874.2	7.38	119.530		
1,700.0	1,699.9	1,681.4	1,681.3	3.7	4.2	-75.14	-870.7	143.8	881.1	873.3	7.82	112.696		
1,800.0	1,799.7	1,789.0	1,788.9	3.9	4.4	-75.68	-870.8	144.9	879.8	871.5	8.28	106.240		
1,900.0	1,899.3	1,886.1	1,885.9	4.1	4.7	-76.34	-870.4	145.9	877.4	868.6	8.73	100.541		
2,000.0	1,998.6	1,982.1	1,981.9	4.3	4.9	-77.17	-870.4	147.1	874.9	865.7	9.20	95.081		
2,100.0	2,097.5	2,079.2	2,079.0	4.5	5.2	-78.19	-870.7	148.5	872.3	862.6	9.71	89.883		
2,200.0	2,196.1	2,183.0	2,182.8	4.8	5.4	-79.48	-870.7	150.4	869.4	859.2	10.25	84.829		
2,300.0	2,294.2	2,282.4	2,282.2	5.1	5.7	-80.90	-870.1	152.0	866.0	855.2	10.81	80.115		
2,400.0	2,391.7	2,381.2	2,380.9	5.5	5.9	-82.49	-869.5	153.5	862.5	851.1	11.39	75.721		
2,441.2	2,431.7	2,423.0	2,422.8	5.6	6.0	-83.19	-869.3	153.7	861.1	849.5	11.64	74.007		
2,500.0	2,488.7	2,484.1	2,483.8	5.9	6.1	-84.21	-868.7	154.0	859.1	847.1	11.99	71.662		
2,600.0	2,585.7	2,576.2	2,575.9	6.3	6.3	-85.76	-867.8	154.6	856.1	843.5	12.59	68.009		
2,700.0	2,682.7	2,672.9	2,672.7	6.7	6.6	-87.38	-867.3	155.2	854.3	841.1	13.24	64.535		
2,800.0	2,779.7	2,769.4	2,769.2	7.1	6.8	-89.04	-866.5	156.2	853.1	839.2	13.91	61.334		
2,890.9	2,867.9	2,857.1	2,856.9	7.5	7.0	-90.55	-865.9	157.1	852.8	838.3	14.53	58.682		
2,900.0	2,876.6	2,865.9	2,865.6	7.6	7.0	-90.70	-865.8	157.2	852.8	838.2	14.60	58.432		
3,000.0	2,973.6	2,968.3	2,968.1	8.0	7.2	-92.46	-864.8	158.1	853.1	837.8	15.29	55.811		
3,100.0	3,070.6	3,069.4	3,069.1	8.5	7.4	-94.20	-863.2	158.7	853.3	837.4	15.94	53.542		
3,200.0	3,167.6	3,161.7	3,161.4	9.0	7.6	-95.76	-861.8	158.8	854.3	837.7	16.56	51.575		
3,300.0	3,264.6	3,261.6	3,261.3	9.5	7.8	-97.41	-861.0	158.9	856.4	839.2	17.19	49.830		
3,400.0	3,361.5	3,356.9	3,356.6	10.0	7.9	-98.96	-859.8	158.4	858.7	840.9	17.78	48.302		
3,500.0	3,458.5	3,453.3	3,453.0	10.5	8.0	-100.51	-859.2	158.1	862.2	843.9	18.34	47.013		
3,600.0	3,555.5	3,553.7	3,553.4	10.9	8.0	-102.08	-858.5	157.1	865.9	847.1	18.87	45.887		
3,700.0	3,652.5	3,651.1	3,650.7	11.4	8.1	-103.59	-857.7	156.1	870.2	850.8	19.39	44.871		
3,800.0	3,749.5	3,746.4	3,746.0	12.0	8.2	-105.06	-856.8	155.3	875.1	855.2	19.93	43.910		
3,900.0	3,846.4	3,844.1	3,843.8	12.5	8.3	-106.56	-856.1	154.7	881.0	860.5	20.47	43.030		
4,000.0	3,943.4	3,946.6	3,946.2	13.0	8.4	-108.10	-855.1	153.5	886.9	865.9	21.01	42.221		
4,100.0	4,040.4	4,043.7	4,043.3	13.5	8.4	-109.50	-854.3	151.6	893.0	871.5	21.51	41.515		
4,200.0	4,137.4	4,137.0	4,136.6	14.0	8.5	-110.79	-854.1	149.8	900.1	878.1	22.00	40.920		
4,300.0	4,234.4	4,232.8	4,232.4	14.5	8.5	-112.09	-854.3	148.0	908.0	885.5	22.47	40.407		
4,400.0	4,331.3	4,337.1	4,336.6	15.0	8.6	-113.49	-854.2	146.0	916.2	893.2	22.95	39.919		
4,500.0	4,428.3	4,442.8	4,442.3	15.5	8.7	-114.87	-853.5	142.9	923.8	900.3	23.44	39.412		
4,600.0	4,525.3	4,542.2	4,541.7	16.0	8.8	-116.10	-853.2	139.3	931.4	907.5	23.92	38.933		
4,700.0	4,622.3	4,638.7	4,638.1	16.6	8.9	-117.21	-853.7	135.0	939.4	915.0	24.40	38.493		

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-402
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-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Austin 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	
4,800.0	4,719.3	4,735.7	4,734.9	17.1	8.9	-118.26	-855.0	130.4	948.0	923.2	24.88	38.101	
4,900.0	4,816.2	4,835.5	4,834.6	17.6	9.0	-119.35	-855.8	125.7	956.7	931.3	25.36	37.723	
5,000.0	4,913.2	4,927.6	4,926.7	18.1	9.1	-120.35	-856.6	121.9	966.1	940.3	25.84	37.391	
5,100.0	5,010.2	5,021.1	5,020.1	18.6	9.2	-121.36	-857.3	118.4	976.2	949.9	26.31	37.102	
5,200.0	5,107.2	5,108.6	5,107.5	19.2	9.3	-122.34	-857.6	116.3	987.5	960.7	26.78	36.874	
5,300.0	5,204.2	5,200.0	5,198.9	19.7	9.4	-123.39	-857.7	115.1	1,000.0	972.7	27.25	36.700	
6,600.0	6,478.9	6,453.8	6,452.7	21.8	11.7	31.66	-861.4	123.4	994.4	965.2	29.15	34.109	
6,650.0	6,522.1	6,496.8	6,495.6	21.7	11.8	33.38	-862.1	123.7	973.0	944.2	28.84	33.743	
6,700.0	6,563.6	6,538.5	6,537.3	21.6	11.8	35.44	-862.7	124.0	949.4	920.9	28.56	33.241	
6,750.0	6,603.2	6,578.3	6,577.1	21.5	11.9	37.84	-863.4	124.3	923.7	895.4	28.37	32.562	
6,800.0	6,640.7	6,616.0	6,614.8	21.4	12.0	40.62	-864.0	124.5	896.2	867.9	28.29	31.673	
6,850.0	6,675.9	6,651.4	6,650.2	21.3	12.0	43.81	-864.6	124.8	867.0	838.6	28.38	30.550	
6,900.0	6,708.8	6,684.5	6,683.3	21.3	12.1	47.42	-865.1	125.0	836.4	807.7	28.65	29.192	
6,950.0	6,739.1	6,715.1	6,713.9	21.3	12.2	51.45	-865.6	125.2	804.6	775.5	29.12	27.630	
7,000.0	6,766.7	6,743.1	6,741.8	21.3	12.2	55.84	-866.1	125.4	772.1	742.3	29.78	25.927	
7,050.0	6,791.6	6,768.2	6,767.0	21.4	12.3	60.52	-866.5	125.5	739.1	708.6	30.59	24.165	
7,100.0	6,813.6	6,790.5	6,789.3	21.6	12.3	65.35	-866.9	125.7	706.1	674.6	31.48	22.429	
7,150.0	6,832.6	6,809.8	6,808.6	21.8	12.3	70.17	-867.2	125.8	673.4	641.0	32.39	20.788	
7,200.0	6,848.5	6,826.1	6,824.8	22.1	12.4	74.78	-867.4	125.9	641.6	608.3	33.27	19.283	
7,250.0	6,861.3	6,839.2	6,838.0	22.5	12.4	79.01	-867.7	126.0	611.1	577.1	34.09	17.928	
7,300.0	6,871.0	6,849.1	6,847.9	22.9	12.4	82.71	-867.8	126.1	582.6	547.8	34.84	16.724	
7,350.0	6,877.3	6,855.8	6,854.6	23.4	12.4	85.76	-867.9	126.1	556.6	521.1	35.54	15.661	
7,400.0	6,880.5	6,859.3	6,858.1	24.0	12.4	88.09	-868.0	126.1	533.8	497.6	36.23	14.732	
7,425.1	6,880.8	6,859.8	6,858.6	24.4	12.4	88.98	-868.0	126.1	523.7	487.2	36.59	14.315	
7,500.0	6,880.6	6,860.1	6,858.9	25.4	12.4	89.01	-868.0	126.1	500.0	462.2	37.73	13.253	
7,600.0	6,880.3	6,860.5	6,859.2	27.1	12.4	89.05	-868.0	126.2	484.7	445.3	39.43	12.294	
7,625.1	6,880.2	6,860.6	6,859.3	27.5	12.4	89.07	-868.0	126.2	484.1	444.2	39.90	12.132 CC, ES	
7,700.0	6,880.0	6,860.8	6,859.6	28.9	12.4	89.10	-868.0	126.2	489.8	448.5	41.30	11.859 SF	
7,800.0	6,879.7	6,861.2	6,860.0	30.9	12.4	89.14	-868.0	126.2	514.7	471.4	43.32	11.881	
7,900.0	6,879.4	6,861.6	6,860.4	33.0	12.4	89.19	-868.0	126.2	556.7	511.2	45.46	12.247	
8,000.0	6,879.1	6,862.0	6,860.7	35.3	12.4	89.23	-868.0	126.2	612.3	564.6	47.69	12.840	
8,100.0	6,878.8	6,862.3	6,861.1	37.6	12.4	89.28	-868.0	126.2	678.1	628.1	49.99	13.565	
8,200.0	6,878.5	6,862.7	6,861.5	39.9	12.4	89.32	-868.0	126.2	751.6	699.2	52.36	14.353	
8,300.0	6,878.2	6,863.1	6,861.8	42.4	12.4	89.36	-868.0	126.2	830.6	775.8	54.79	15.159	
8,400.0	6,877.9	6,863.5	6,862.2	44.8	12.4	89.41	-868.0	126.2	913.7	856.4	57.26	15.957	
8,500.0	6,877.6	6,863.8	6,862.6	47.3	12.4	89.45	-868.1	126.2	999.9	940.1	59.77	16.730	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-402
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-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Danley 33-20 (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
12,000.0	6,867.2	7,150.0	7,007.9	142.4	17.5	103.61	-892.0	5,286.8	943.4	788.6	154.80	6.095	
12,100.0	6,866.9	7,145.9	7,003.9	145.2	17.5	103.18	-892.2	5,287.4	861.9	704.2	157.75	5.464	
12,200.0	6,866.6	7,133.0	6,991.0	148.0	17.5	101.78	-892.9	5,289.0	784.6	623.4	161.19	4.867	
12,300.0	6,866.3	7,120.0	6,978.2	150.8	17.4	100.37	-893.7	5,290.6	712.7	548.1	164.58	4.330	
12,400.0	6,866.1	7,107.1	6,965.4	153.5	17.4	98.96	-894.4	5,292.3	648.0	480.1	167.91	3.859	
12,500.0	6,865.8	7,094.1	6,952.5	156.3	17.4	97.54	-895.1	5,293.9	592.9	421.7	171.16	3.464	
12,600.0	6,865.5	7,081.1	6,939.7	159.1	17.3	96.11	-895.9	5,295.6	550.3	375.9	174.34	3.156	
12,700.0	6,865.2	7,068.2	6,926.9	161.9	17.3	94.68	-896.6	5,297.2	523.2	345.8	177.43	2.949	
12,797.7	6,864.9	7,055.5	6,914.3	164.6	17.2	93.28	-897.3	5,298.8	514.2	333.8	180.36	2.851 CC	
12,800.0	6,864.9	7,055.2	6,914.0	164.7	17.2	93.25	-897.4	5,298.9	514.2	333.8	180.43	2.850 ES, SF	
12,900.0	6,864.6	7,042.3	6,901.2	167.5	17.2	91.82	-898.1	5,300.5	524.1	340.8	183.33	2.859	
13,000.0	6,864.3	7,029.3	6,888.3	170.3	17.2	90.39	-898.8	5,302.1	551.9	365.8	186.14	2.965	
13,100.0	6,864.0	7,016.3	6,875.5	173.1	17.1	88.96	-899.6	5,303.8	595.2	406.4	188.83	3.152	
13,200.0	6,863.7	7,003.4	6,862.7	175.8	17.1	87.54	-900.3	5,305.4	650.8	459.4	191.42	3.400	
13,300.0	6,863.4	6,990.4	6,849.8	178.6	17.1	86.13	-901.0	5,307.1	715.9	522.0	193.90	3.692	
13,400.0	6,863.1	6,977.4	6,837.0	181.4	17.0	84.72	-901.8	5,308.7	788.1	591.8	196.26	4.016	
13,500.0	6,862.8	6,964.5	6,824.2	184.2	17.0	83.33	-902.5	5,310.3	865.7	667.2	198.51	4.361	
13,600.0	6,862.5	6,951.5	6,811.3	187.0	17.0	81.94	-903.2	5,312.0	947.3	746.6	200.64	4.721	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-402
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-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Danley 43-20 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 453-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)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,400.0	6,863.1	7,070.8	6,889.3	181.4	18.5	91.71	-685.1	6,844.7	990.5	792.7	197.84	5.007	
13,500.0	6,862.8	7,068.8	6,887.3	184.2	18.5	91.33	-685.1	6,844.7	895.8	695.1	200.65	4.464	
13,600.0	6,862.5	7,066.8	6,885.3	187.0	18.5	90.95	-685.0	6,844.8	802.3	598.9	203.45	3.943	
13,700.0	6,862.2	7,064.8	6,883.3	189.8	18.5	90.57	-684.9	6,844.8	710.6	504.4	206.25	3.445	
13,800.0	6,861.9	7,062.8	6,881.2	192.6	18.5	90.18	-684.8	6,844.8	621.5	412.4	209.03	2.973	
13,900.0	6,861.6	7,060.7	6,879.2	195.4	18.5	89.79	-684.8	6,844.9	536.1	324.3	211.81	2.531	
14,000.0	6,861.3	7,058.7	6,877.2	198.2	18.5	89.41	-684.7	6,844.9	456.8	242.2	214.58	2.129	
14,100.0	6,861.0	7,056.7	6,875.1	201.0	18.5	89.02	-684.6	6,845.0	387.2	169.8	217.35	1.781	
14,200.0	6,860.7	7,054.6	6,873.1	203.8	18.5	88.63	-684.6	6,845.0	333.3	113.2	220.10	1.515	
14,300.0	6,860.4	7,052.6	6,871.0	206.6	18.5	88.24	-684.5	6,845.0	303.8	81.0	222.84	1.364	Level 3
14,344.0	6,860.3	7,051.7	6,870.1	207.8	18.5	88.07	-684.5	6,845.0	300.6	76.6	224.04	1.342	Level 3, CC, ES, SF
14,400.0	6,860.1	7,050.5	6,869.0	209.4	18.5	87.85	-684.4	6,845.1	305.8	80.2	225.57	1.356	Level 3
14,500.0	6,859.8	7,048.5	6,866.9	212.2	18.5	87.45	-684.4	6,845.1	338.7	110.4	228.29	1.484	Level 3
14,600.0	6,859.5	7,046.4	6,864.9	215.0	18.5	87.06	-684.3	6,845.1	394.8	163.8	231.00	1.709	
14,700.0	6,859.2	7,044.3	6,862.8	217.7	18.5	86.67	-684.2	6,845.2	465.9	232.2	233.70	1.994	
14,800.0	6,858.9	7,042.3	6,860.7	220.5	18.5	86.27	-684.2	6,845.2	546.1	309.7	236.38	2.310	
14,900.0	6,858.6	7,040.2	6,858.7	223.3	18.5	85.88	-684.1	6,845.3	632.0	392.9	239.05	2.644	
15,000.0	6,858.3	7,038.1	6,856.6	226.1	18.5	85.48	-684.0	6,845.3	721.5	479.8	241.71	2.985	
15,100.0	6,858.0	7,036.0	6,854.5	228.9	18.5	85.09	-684.0	6,845.3	813.4	569.1	244.36	3.329	
15,200.0	6,857.7	7,033.9	6,852.4	231.7	18.5	84.69	-683.9	6,845.4	907.1	660.1	246.99	3.673	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-402
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-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Evert 20-1 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-UNKNOWN													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)			
10,700.0	6,871.1	6,860.2	6,858.2	106.4	94.5	89.29	-825.3	4,010.3	921.8	721.0	200.83	4.590		
10,800.0	6,870.8	6,861.1	6,859.1	109.2	94.4	89.40	-825.3	4,010.4	835.4	631.8	203.56	4.104		
10,900.0	6,870.5	6,862.0	6,860.0	111.9	94.4	89.52	-825.3	4,010.4	752.3	546.0	206.28	3.647		
11,000.0	6,870.2	6,862.9	6,860.9	114.7	94.4	89.64	-825.3	4,010.4	673.9	464.9	209.01	3.224		
11,100.0	6,869.9	6,863.8	6,861.8	117.5	94.3	89.75	-825.3	4,010.4	601.9	390.1	211.74	2.843		
11,200.0	6,869.6	6,864.7	6,862.7	120.2	94.3	89.87	-825.3	4,010.4	538.9	324.4	214.47	2.513		
11,300.0	6,869.3	6,865.6	6,863.6	123.0	94.3	89.98	-825.3	4,010.4	488.4	271.2	217.21	2.249		
11,400.0	6,869.0	6,866.5	6,864.5	125.8	94.2	90.10	-825.3	4,010.4	454.6	234.7	219.94	2.067		
11,500.0	6,868.7	6,867.4	6,865.4	128.5	94.2	90.22	-825.2	4,010.4	441.4	218.7	222.67	1.982		
11,509.4	6,868.7	6,867.5	6,865.4	128.8	94.2	90.23	-825.2	4,010.4	441.3	218.3	222.93	1.979	CC, ES, SF	
11,600.0	6,868.4	6,868.3	6,866.3	131.3	94.2	90.33	-825.2	4,010.4	450.5	225.1	225.41	1.998		
11,700.0	6,868.1	6,869.2	6,867.2	134.1	94.1	90.45	-825.2	4,010.5	480.7	252.5	228.15	2.107		
11,800.0	6,867.8	6,870.1	6,868.0	136.9	94.1	90.57	-825.2	4,010.5	528.4	297.5	230.88	2.288		
11,900.0	6,867.5	6,871.0	6,868.9	139.6	94.1	90.68	-825.2	4,010.5	589.3	355.7	233.62	2.523		
12,000.0	6,867.2	6,871.9	6,869.8	142.4	94.0	90.80	-825.2	4,010.5	659.9	423.5	236.36	2.792		
12,100.0	6,866.9	6,872.7	6,870.7	145.2	94.0	90.91	-825.2	4,010.5	737.2	498.2	239.09	3.084		
12,200.0	6,866.6	6,873.6	6,871.6	148.0	94.0	91.03	-825.2	4,010.5	819.5	577.7	241.83	3.389		
12,300.0	6,866.3	6,874.5	6,872.5	150.8	93.9	91.15	-825.2	4,010.5	905.4	660.8	244.57	3.702		
12,400.0	6,866.1	6,875.4	6,873.4	153.5	93.9	91.26	-825.2	4,010.5	993.9	746.6	247.30	4.019		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-402
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-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Mowery 19-1 (Exist) - Wellbore #1 - Wellbore #1														
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)			
8,100.0	6,878.8	6,854.2	6,853.5	37.6	12.2	89.07	-873.8	1,391.4	929.9	880.1	49.79	18.678		
8,200.0	6,878.5	6,854.6	6,853.9	39.9	12.2	89.11	-873.8	1,391.5	846.5	794.4	52.16	16.230		
8,300.0	6,878.2	6,854.9	6,854.2	42.4	12.2	89.15	-873.8	1,391.5	767.1	712.6	54.58	14.055		
8,400.0	6,877.9	6,855.3	6,854.6	44.8	12.2	89.19	-873.8	1,391.5	693.1	636.1	57.05	12.149		
8,500.0	6,877.6	6,855.7	6,854.9	47.3	12.2	89.23	-873.8	1,391.5	626.4	566.8	59.56	10.517		
8,600.0	6,877.3	6,856.0	6,855.3	49.9	12.2	89.28	-873.8	1,391.5	569.4	507.3	62.10	9.170		
8,700.0	6,877.0	6,856.4	6,855.6	52.5	12.2	89.32	-873.8	1,391.5	525.5	460.9	64.67	8.127		
8,800.0	6,876.7	6,856.7	6,856.0	55.0	12.2	89.36	-873.8	1,391.5	498.1	430.8	67.26	7.406		
8,890.4	6,876.5	6,857.0	6,856.3	57.4	12.2	89.40	-873.8	1,391.5	489.8	420.2	69.62	7.036 CC		
8,900.0	6,876.4	6,857.1	6,856.3	57.7	12.2	89.40	-873.8	1,391.5	489.9	420.1	69.87	7.012 ES		
9,000.0	6,876.1	6,857.4	6,856.7	60.3	12.2	89.44	-873.8	1,391.5	501.9	429.4	72.50	6.923 SF		
9,100.0	6,875.8	6,857.8	6,857.0	62.9	12.2	89.48	-873.8	1,391.5	532.8	457.6	75.15	7.090		
9,200.0	6,875.5	6,858.1	6,857.4	65.6	12.2	89.52	-873.8	1,391.5	579.5	501.7	77.80	7.448		
9,300.0	6,875.2	6,858.5	6,857.7	68.3	12.2	89.56	-873.8	1,391.5	638.5	558.0	80.48	7.934		
9,400.0	6,875.0	6,858.8	6,858.1	71.0	12.2	89.61	-873.8	1,391.5	706.8	623.7	83.16	8.500		
9,500.0	6,874.7	6,859.2	6,858.4	73.6	12.2	89.65	-873.8	1,391.5	782.0	696.2	85.85	9.109		
9,600.0	6,874.4	6,859.5	6,858.8	76.3	12.2	89.69	-873.8	1,391.5	862.2	773.7	88.55	9.737		
9,700.0	6,874.1	6,859.9	6,859.1	79.1	12.2	89.73	-873.8	1,391.5	946.2	855.0	91.26	10.369		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-402
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-402	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 #3 (7-15-15)	Offset TVD Reference:	Offset Datum

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

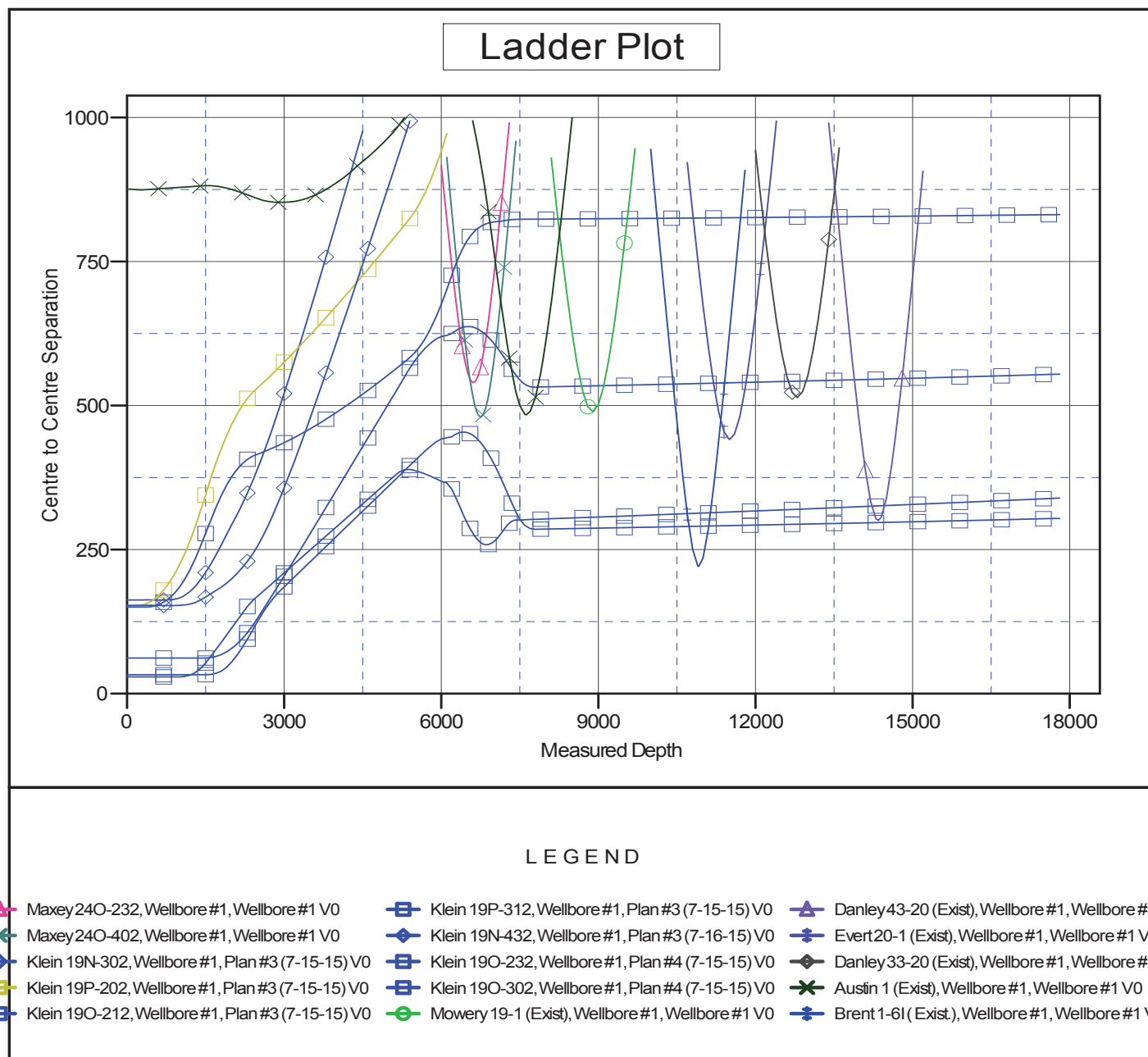
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Klein 19O-402

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-402
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
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Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

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