

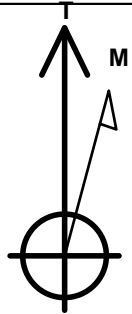
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Klein 190-432**

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 0.0 +E/-W 0.0 Northing 1384452.55 Easting 3253261.47 Latitude 40.385160 Longitude -104.590840
 Slot
 RKB - 15' WELL @ 4641.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2448'FNL & 2100'FEL, Sec.19	1.0	0.0	0.0	Point
BHL 2231'FSL & 500'FEL, Sec.20	6847.0	-555.3	6884.0	Point



Azimuths to True North
 Magnetic North: 8.40°

Magnetic Field
 Strength: 52854.9nT
 Dip Angle: 66.97°
 Date: 3/11/2014
 Model: IGRF2010

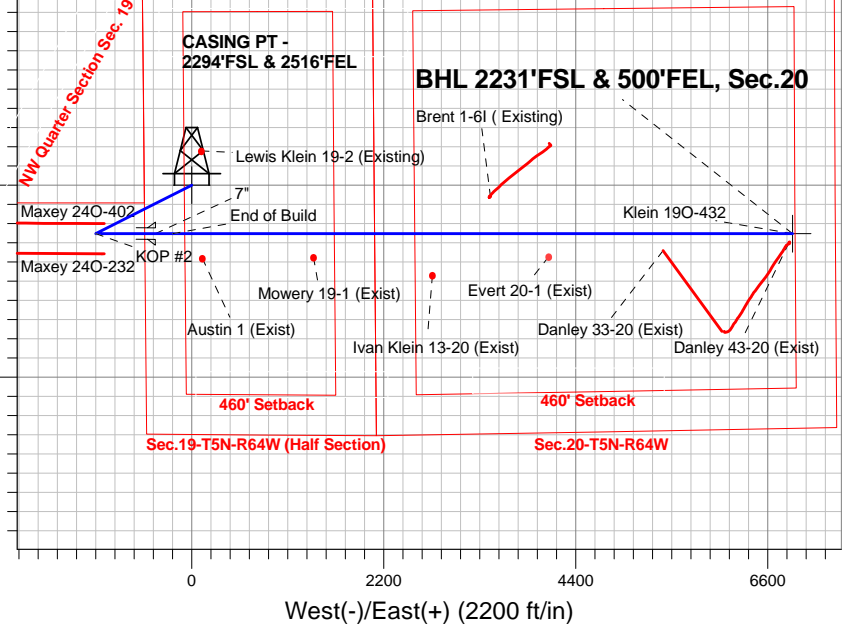
Klein 190-HZ Pad Sec.19-T5N-R64W
 Klein 190-432
 Plan #2 (3-11-14)
 11:00, March 14 2014

ANNOTATIONS

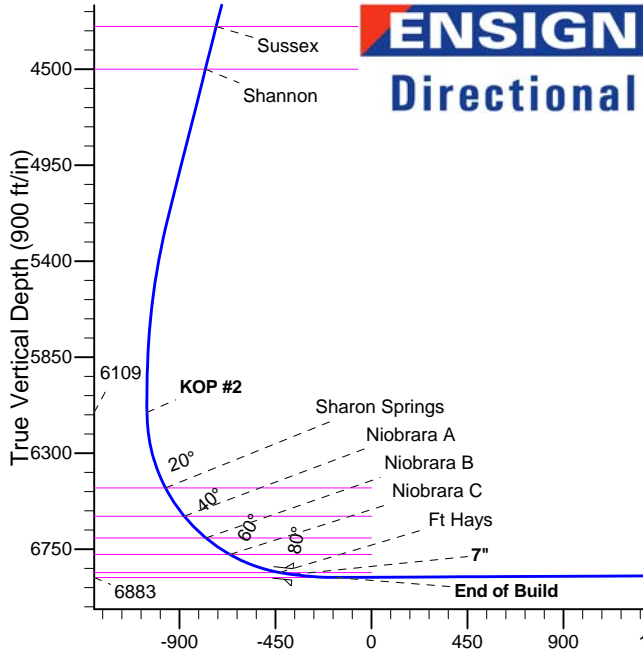
TVD	MD	Annotation
1000.0	1000.0	KOP #1
6109.2	6276.0	KOP #2
6882.9	7595.8	End of Build

South(-)/North(+) (2200 ft/in)

SHL 2448'FNL & 2100'FEL, Sec.19



West(-)/East(+) (2200 ft/in)



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1822.8	16.46	243.21	1811.6	-52.9	-104.8	2.00	243.21	-100.2	
4	5343.9	16.46	243.21	5188.4	-502.4	-995.2	0.00	0.00	-951.6	
5	6166.8	0.00	0.00	6000.0	-555.3	-1100.0	2.00	180.00	-1051.8	
6	6276.0	0.00	0.00	6109.2	-555.3	-1100.0	0.00	0.00	-1051.8	
7	7396.0	84.00	90.00	6868.9	-555.3	-415.9	7.50	90.00	-369.9	
8	7470.0	84.00	90.00	6876.7	-555.3	-342.3	0.00	0.00	-296.6	
9	7595.8	90.29	90.00	6882.9	-555.3	-216.7	5.00	0.00	-171.4	
10	14696.6	90.29	90.00	6847.0	-555.3	6884.0	0.00	0.00	6906.4	BHL 2231'FSL & 500'FEL, Sec.20

BHL 2231'FSL & 500'FEL, Sec.20

Vertical Section at 94.61° (900 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

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

Klein 19O-432

Wellbore #1

Plan: Plan #2 (3-11-14)

Standard Planning Report

14 March, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Klein 19O-432
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-11-14)		

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 19O-HZ Pad Sec.19-T5N-R64W		
Site Position:		Northing:	1,384,542.09 ft
From:	Lat/Long	Easting:	3,253,110.11 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.385410
		Longitude:	-104.591380
		Grid Convergence:	0.59 °

Well	Klein 19O-432		
Well Position	+N/-S	-91.1 ft	Northing:
	+E/-W	150.4 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			ft
			Latitude:
			40.385160
			Longitude:
			-104.590840
			Ground Level:
			4,626.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/11/2014	8.40	66.97	52,855

Design	Plan #2 (3-11-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	94.61

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,822.8	16.46	243.21	1,811.6	-52.9	-104.8	2.00	2.00	0.00	243.21	
5,343.9	16.46	243.21	5,188.4	-502.4	-995.2	0.00	0.00	0.00	0.00	
6,166.8	0.00	0.00	6,000.0	-555.3	-1,100.0	2.00	-2.00	0.00	180.00	
6,276.0	0.00	0.00	6,109.2	-555.3	-1,100.0	0.00	0.00	0.00	0.00	
7,396.0	84.00	90.00	6,868.9	-555.3	-415.9	7.50	7.50	0.00	90.00	
7,470.0	84.00	90.00	6,876.7	-555.3	-342.3	0.00	0.00	0.00	0.00	
7,595.8	90.29	90.00	6,882.9	-555.3	-216.7	5.00	5.00	0.00	0.00	
14,696.6	90.29	90.00	6,847.0	-555.3	6,884.0	0.00	0.00	0.00	0.00	BHL 2231'FSL & 5C

Database:	landmark	Local Co-ordinate Reference:	Well Klein 19O-432
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-11-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 2448'FNL & 2100'FEL, Sec.19									
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
KOP #1									
1,100.0	2.00	243.21	1,100.0	-0.8	-1.6	-1.5	2.00	2.00	0.00
1,200.0	4.00	243.21	1,199.8	-3.1	-6.2	-6.0	2.00	2.00	0.00
1,300.0	6.00	243.21	1,299.5	-7.1	-14.0	-13.4	2.00	2.00	0.00
1,400.0	8.00	243.21	1,398.7	-12.6	-24.9	-23.8	2.00	2.00	0.00
1,500.0	10.00	243.21	1,497.5	-19.6	-38.9	-37.1	2.00	2.00	0.00
1,600.0	12.00	243.21	1,595.6	-28.2	-55.9	-53.4	2.00	2.00	0.00
1,700.0	14.00	243.21	1,693.1	-38.3	-76.0	-72.6	2.00	2.00	0.00
1,800.0	16.00	243.21	1,789.6	-50.0	-99.1	-94.7	2.00	2.00	0.00
1,822.8	16.46	243.21	1,811.6	-52.9	-104.8	-100.2	2.00	2.00	0.00
1,900.0	16.46	243.21	1,885.6	-62.7	-124.3	-118.8	0.00	0.00	0.00
2,000.0	16.46	243.21	1,981.5	-75.5	-149.6	-143.0	0.00	0.00	0.00
2,100.0	16.46	243.21	2,077.4	-88.3	-174.9	-167.2	0.00	0.00	0.00
2,200.0	16.46	243.21	2,173.3	-101.0	-200.1	-191.4	0.00	0.00	0.00
2,300.0	16.46	243.21	2,269.2	-113.8	-225.4	-215.6	0.00	0.00	0.00
2,400.0	16.46	243.21	2,365.1	-126.6	-250.7	-239.7	0.00	0.00	0.00
2,500.0	16.46	243.21	2,461.0	-139.3	-276.0	-263.9	0.00	0.00	0.00
2,600.0	16.46	243.21	2,556.9	-152.1	-301.3	-288.1	0.00	0.00	0.00
2,700.0	16.46	243.21	2,652.8	-164.9	-326.6	-312.3	0.00	0.00	0.00
2,800.0	16.46	243.21	2,748.7	-177.6	-351.9	-336.5	0.00	0.00	0.00
2,900.0	16.46	243.21	2,844.6	-190.4	-377.2	-360.6	0.00	0.00	0.00
3,000.0	16.46	243.21	2,940.5	-203.2	-402.5	-384.8	0.00	0.00	0.00
3,100.0	16.46	243.21	3,036.4	-215.9	-427.8	-409.0	0.00	0.00	0.00
3,200.0	16.46	243.21	3,132.3	-228.7	-453.0	-433.2	0.00	0.00	0.00
3,300.0	16.46	243.21	3,228.2	-241.5	-478.3	-457.4	0.00	0.00	0.00
3,400.0	16.46	243.21	3,324.1	-254.2	-503.6	-481.5	0.00	0.00	0.00
3,500.0	16.46	243.21	3,420.0	-267.0	-528.9	-505.7	0.00	0.00	0.00
3,600.0	16.46	243.21	3,515.9	-279.8	-554.2	-529.9	0.00	0.00	0.00
3,635.5	16.46	243.21	3,550.0	-284.3	-563.2	-538.5	0.00	0.00	0.00
Parkman									
3,700.0	16.46	243.21	3,611.8	-292.5	-579.5	-554.1	0.00	0.00	0.00
3,800.0	16.46	243.21	3,707.7	-305.3	-604.8	-578.3	0.00	0.00	0.00
3,900.0	16.46	243.21	3,803.6	-318.1	-630.1	-602.5	0.00	0.00	0.00
4,000.0	16.46	243.21	3,899.5	-330.8	-655.4	-626.6	0.00	0.00	0.00
4,100.0	16.46	243.21	3,995.4	-343.6	-680.6	-650.8	0.00	0.00	0.00
4,200.0	16.46	243.21	4,091.3	-356.4	-705.9	-675.0	0.00	0.00	0.00
4,300.0	16.46	243.21	4,187.3	-369.1	-731.2	-699.2	0.00	0.00	0.00
4,400.0	16.46	243.21	4,283.2	-381.9	-756.5	-723.4	0.00	0.00	0.00
4,417.6	16.46	243.21	4,300.0	-384.1	-761.0	-727.6	0.00	0.00	0.00
Sussex									

Database:	landmark	Local Co-ordinate Reference:	Well Klein 19O-432
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-11-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	16.46	243.21	4,379.1	-394.7	-781.8	-747.5	0.00	0.00	0.00
4,600.0	16.46	243.21	4,475.0	-407.4	-807.1	-771.7	0.00	0.00	0.00
4,626.1	16.46	243.21	4,500.0	-410.8	-813.7	-778.0	0.00	0.00	0.00
Shannon									
4,700.0	16.46	243.21	4,570.9	-420.2	-832.4	-795.9	0.00	0.00	0.00
4,800.0	16.46	243.21	4,666.8	-433.0	-857.7	-820.1	0.00	0.00	0.00
4,900.0	16.46	243.21	4,762.7	-445.7	-883.0	-844.3	0.00	0.00	0.00
5,000.0	16.46	243.21	4,858.6	-458.5	-908.3	-868.4	0.00	0.00	0.00
5,100.0	16.46	243.21	4,954.5	-471.3	-933.5	-892.6	0.00	0.00	0.00
5,200.0	16.46	243.21	5,050.4	-484.0	-958.8	-916.8	0.00	0.00	0.00
5,300.0	16.46	243.21	5,146.3	-496.8	-984.1	-941.0	0.00	0.00	0.00
5,343.9	16.46	243.21	5,188.4	-502.4	-995.2	-951.6	0.00	0.00	0.00
5,400.0	15.34	243.21	5,242.3	-509.3	-1,008.9	-964.7	2.00	-2.00	0.00
5,500.0	13.34	243.21	5,339.2	-520.5	-1,031.0	-985.9	2.00	-2.00	0.00
5,600.0	11.34	243.21	5,436.9	-530.1	-1,050.1	-1,004.1	2.00	-2.00	0.00
5,700.0	9.34	243.21	5,535.3	-538.2	-1,066.1	-1,019.4	2.00	-2.00	0.00
5,800.0	7.34	243.21	5,634.2	-544.7	-1,079.1	-1,031.8	2.00	-2.00	0.00
5,900.0	5.34	243.21	5,733.6	-549.7	-1,088.9	-1,041.2	2.00	-2.00	0.00
6,000.0	3.34	243.21	5,833.3	-553.1	-1,095.7	-1,047.6	2.00	-2.00	0.00
6,100.0	1.34	243.21	5,933.2	-554.9	-1,099.3	-1,051.1	2.00	-2.00	0.00
6,166.8	0.00	0.00	6,000.0	-555.3	-1,100.0	-1,051.8	2.00	-2.00	0.00
6,200.0	0.00	0.00	6,033.2	-555.3	-1,100.0	-1,051.8	0.00	0.00	0.00
6,276.0	0.00	0.00	6,109.2	-555.3	-1,100.0	-1,051.8	0.00	0.00	0.00
KOP #2									
6,300.0	1.80	90.00	6,133.2	-555.3	-1,099.6	-1,051.4	7.51	7.51	0.00
6,400.0	9.30	90.00	6,232.7	-555.3	-1,090.0	-1,041.8	7.50	7.50	0.00
6,500.0	16.80	90.00	6,330.0	-555.3	-1,067.4	-1,019.3	7.50	7.50	0.00
6,600.0	24.30	90.00	6,423.6	-555.3	-1,032.3	-984.3	7.50	7.50	0.00
6,643.8	27.59	90.00	6,463.0	-555.3	-1,013.1	-965.2	7.50	7.50	0.00
Sharon Springs									
6,700.0	31.80	90.00	6,511.8	-555.3	-985.3	-937.5	7.50	7.50	0.00
6,800.0	39.30	90.00	6,593.1	-555.3	-927.2	-879.6	7.50	7.50	0.00
6,803.8	39.59	90.00	6,596.0	-555.3	-924.8	-877.2	7.50	7.50	0.00
Niobrara A									
6,900.0	46.80	90.00	6,666.1	-555.3	-859.0	-811.6	7.50	7.50	0.00
6,948.3	50.42	90.00	6,698.0	-555.3	-822.8	-775.5	7.50	7.50	0.00
Niobrara B									
7,000.0	54.30	90.00	6,729.6	-555.3	-781.8	-734.6	7.50	7.50	0.00
7,084.5	60.64	90.00	6,775.0	-555.3	-710.6	-663.7	7.50	7.50	0.00
Niobrara C									
7,100.0	61.80	90.00	6,782.5	-555.3	-697.0	-650.1	7.50	7.50	0.00
7,200.0	69.30	90.00	6,823.8	-555.3	-606.1	-559.4	7.50	7.50	0.00
7,300.0	76.80	90.00	6,853.0	-555.3	-510.5	-464.2	7.50	7.50	0.00
7,334.1	79.36	90.00	6,860.0	-555.3	-477.1	-430.9	7.50	7.50	0.00
Ft Hays									
7,396.0	84.00	90.00	6,868.9	-555.3	-415.9	-369.9	7.50	7.50	0.00
7"									
7,400.0	84.00	90.00	6,869.4	-555.3	-411.9	-365.9	0.00	0.00	0.00
7,470.0	84.00	90.00	6,876.7	-555.3	-342.3	-296.6	0.00	0.00	0.00
7,500.0	85.50	90.00	6,879.4	-555.3	-312.4	-266.7	5.00	5.00	0.00
7,595.8	90.29	90.00	6,882.9	-555.3	-216.7	-171.3	5.00	5.00	0.00
End of Build									

Database:	landmark	Local Co-ordinate Reference:	Well Klein 19O-432
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-11-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,600.0	90.29	90.00	6,882.9	-555.3	-212.5	-167.2	0.00	0.00	0.00
7,700.0	90.29	90.00	6,882.4	-555.3	-112.5	-67.5	0.00	0.00	0.00
7,800.0	90.29	90.00	6,881.9	-555.3	-12.5	32.2	0.00	0.00	0.00
7,900.0	90.29	90.00	6,881.4	-555.3	87.5	131.9	0.00	0.00	0.00
8,000.0	90.29	90.00	6,880.9	-555.3	187.5	231.5	0.00	0.00	0.00
8,100.0	90.29	90.00	6,880.4	-555.3	287.5	331.2	0.00	0.00	0.00
8,200.0	90.29	90.00	6,879.9	-555.3	387.5	430.9	0.00	0.00	0.00
8,300.0	90.29	90.00	6,879.4	-555.3	487.5	530.6	0.00	0.00	0.00
8,400.0	90.29	90.00	6,878.9	-555.3	587.5	630.2	0.00	0.00	0.00
8,500.0	90.29	90.00	6,878.4	-555.3	687.5	729.9	0.00	0.00	0.00
8,600.0	90.29	90.00	6,877.9	-555.3	787.5	829.6	0.00	0.00	0.00
8,700.0	90.29	90.00	6,877.4	-555.3	887.5	929.3	0.00	0.00	0.00
8,800.0	90.29	90.00	6,876.8	-555.3	987.5	1,028.9	0.00	0.00	0.00
8,900.0	90.29	90.00	6,876.3	-555.3	1,087.5	1,128.6	0.00	0.00	0.00
9,000.0	90.29	90.00	6,875.8	-555.3	1,187.5	1,228.3	0.00	0.00	0.00
9,100.0	90.29	90.00	6,875.3	-555.3	1,287.5	1,328.0	0.00	0.00	0.00
9,200.0	90.29	90.00	6,874.8	-555.3	1,387.5	1,427.6	0.00	0.00	0.00
9,300.0	90.29	90.00	6,874.3	-555.3	1,487.5	1,527.3	0.00	0.00	0.00
9,400.0	90.29	90.00	6,873.8	-555.3	1,587.5	1,627.0	0.00	0.00	0.00
9,500.0	90.29	90.00	6,873.3	-555.3	1,687.5	1,726.7	0.00	0.00	0.00
9,600.0	90.29	90.00	6,872.8	-555.3	1,787.5	1,826.3	0.00	0.00	0.00
9,700.0	90.29	90.00	6,872.3	-555.3	1,887.5	1,926.0	0.00	0.00	0.00
9,800.0	90.29	90.00	6,871.8	-555.3	1,987.5	2,025.7	0.00	0.00	0.00
9,900.0	90.29	90.00	6,871.3	-555.3	2,087.5	2,125.4	0.00	0.00	0.00
10,000.0	90.29	90.00	6,870.8	-555.3	2,187.5	2,225.0	0.00	0.00	0.00
10,100.0	90.29	90.00	6,870.3	-555.3	2,287.5	2,324.7	0.00	0.00	0.00
10,200.0	90.29	90.00	6,869.8	-555.3	2,387.5	2,424.4	0.00	0.00	0.00
10,300.0	90.29	90.00	6,869.3	-555.3	2,487.5	2,524.1	0.00	0.00	0.00
10,400.0	90.29	90.00	6,868.7	-555.3	2,587.5	2,623.7	0.00	0.00	0.00
10,500.0	90.29	90.00	6,868.2	-555.3	2,687.5	2,723.4	0.00	0.00	0.00
10,600.0	90.29	90.00	6,867.7	-555.3	2,787.5	2,823.1	0.00	0.00	0.00
10,700.0	90.29	90.00	6,867.2	-555.3	2,887.5	2,922.8	0.00	0.00	0.00
10,800.0	90.29	90.00	6,866.7	-555.3	2,987.5	3,022.4	0.00	0.00	0.00
10,900.0	90.29	90.00	6,866.2	-555.3	3,087.5	3,122.1	0.00	0.00	0.00
11,000.0	90.29	90.00	6,865.7	-555.3	3,187.5	3,221.8	0.00	0.00	0.00
11,100.0	90.29	90.00	6,865.2	-555.3	3,287.5	3,321.5	0.00	0.00	0.00
11,200.0	90.29	90.00	6,864.7	-555.3	3,387.5	3,421.1	0.00	0.00	0.00
11,300.0	90.29	90.00	6,864.2	-555.3	3,487.5	3,520.8	0.00	0.00	0.00
11,400.0	90.29	90.00	6,863.7	-555.3	3,587.5	3,620.5	0.00	0.00	0.00
11,500.0	90.29	90.00	6,863.2	-555.3	3,687.5	3,720.2	0.00	0.00	0.00
11,600.0	90.29	90.00	6,862.7	-555.3	3,787.5	3,819.8	0.00	0.00	0.00
11,700.0	90.29	90.00	6,862.2	-555.3	3,887.4	3,919.5	0.00	0.00	0.00
11,800.0	90.29	90.00	6,861.7	-555.3	3,987.4	4,019.2	0.00	0.00	0.00
11,900.0	90.29	90.00	6,861.2	-555.3	4,087.4	4,118.9	0.00	0.00	0.00
12,000.0	90.29	90.00	6,860.6	-555.3	4,187.4	4,218.5	0.00	0.00	0.00
12,100.0	90.29	90.00	6,860.1	-555.3	4,287.4	4,318.2	0.00	0.00	0.00
12,200.0	90.29	90.00	6,859.6	-555.3	4,387.4	4,417.9	0.00	0.00	0.00
12,300.0	90.29	90.00	6,859.1	-555.3	4,487.4	4,517.6	0.00	0.00	0.00
12,400.0	90.29	90.00	6,858.6	-555.3	4,587.4	4,617.2	0.00	0.00	0.00
12,500.0	90.29	90.00	6,858.1	-555.3	4,687.4	4,716.9	0.00	0.00	0.00
12,600.0	90.29	90.00	6,857.6	-555.3	4,787.4	4,816.6	0.00	0.00	0.00
12,700.0	90.29	90.00	6,857.1	-555.3	4,887.4	4,916.3	0.00	0.00	0.00
12,800.0	90.29	90.00	6,856.6	-555.3	4,987.4	5,015.9	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Klein 19O-432
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-11-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,900.0	90.29	90.00	6,856.1	-555.3	5,087.4	5,115.6	0.00	0.00	0.00
13,000.0	90.29	90.00	6,855.6	-555.3	5,187.4	5,215.3	0.00	0.00	0.00
13,100.0	90.29	90.00	6,855.1	-555.3	5,287.4	5,315.0	0.00	0.00	0.00
13,200.0	90.29	90.00	6,854.6	-555.3	5,387.4	5,414.6	0.00	0.00	0.00
13,300.0	90.29	90.00	6,854.1	-555.3	5,487.4	5,514.3	0.00	0.00	0.00
13,400.0	90.29	90.00	6,853.6	-555.3	5,587.4	5,614.0	0.00	0.00	0.00
13,500.0	90.29	90.00	6,853.1	-555.3	5,687.4	5,713.7	0.00	0.00	0.00
13,600.0	90.29	90.00	6,852.6	-555.3	5,787.4	5,813.3	0.00	0.00	0.00
13,700.0	90.29	90.00	6,852.0	-555.3	5,887.4	5,913.0	0.00	0.00	0.00
13,800.0	90.29	90.00	6,851.5	-555.3	5,987.4	6,012.7	0.00	0.00	0.00
13,900.0	90.29	90.00	6,851.0	-555.3	6,087.4	6,112.4	0.00	0.00	0.00
14,000.0	90.29	90.00	6,850.5	-555.3	6,187.4	6,212.0	0.00	0.00	0.00
14,100.0	90.29	90.00	6,850.0	-555.3	6,287.4	6,311.7	0.00	0.00	0.00
14,200.0	90.29	90.00	6,849.5	-555.3	6,387.4	6,411.4	0.00	0.00	0.00
14,300.0	90.29	90.00	6,849.0	-555.3	6,487.4	6,511.1	0.00	0.00	0.00
14,400.0	90.29	90.00	6,848.5	-555.3	6,587.4	6,610.7	0.00	0.00	0.00
14,500.0	90.29	90.00	6,848.0	-555.3	6,687.4	6,710.4	0.00	0.00	0.00
14,600.0	90.29	90.00	6,847.5	-555.3	6,787.4	6,810.1	0.00	0.00	0.00
14,696.6	90.29	90.00	6,847.0	-555.3	6,884.0	6,906.4	0.00	0.00	0.00
BHL 2231'FSL & 500'FEL, Sec.20									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,396.0	6,868.9	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,635.5	3,550.0	Parkman		0.00	
4,417.6	4,300.0	Sussex		0.00	
4,626.1	4,500.0	Shannon		0.00	
6,643.8	6,463.0	Sharon Springs		0.00	
6,803.8	6,596.0	Niobrara A		0.00	
6,948.3	6,698.0	Niobrara B		0.00	
7,084.5	6,775.0	Niobrara C		0.00	
7,334.1	6,860.0	Ft Hays		0.00	
	6,883.0	Codell		0.00	

Database:	landmark	Local Co-ordinate Reference:	Well Klein 19O-432
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-11-14)		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000.0	1,000.0	0.0	0.0	KOP #1
6,276.0	6,109.2	-555.3	-1,100.0	KOP #2
7,595.8	6,882.9	-555.3	-216.7	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

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

Klein 19O-432

Wellbore #1

Plan #2 (3-11-14)

Anticollision Report

14 March, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (3-11-14)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	3/11/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	14,696.6	Plan #2 (3-11-14) (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 (Existing) - Wellbore #1 - Wellbore #1	11,232.2	6,981.2	421.4	130.3	1.448	Level 3, CC, ES, SF
Lewis Klein 19-2 (Existing) - Wellbore #1 - Wellbore #1	1,000.0	984.0	408.9	387.1	18.745	CC
Lewis Klein 19-2 (Existing) - Wellbore #1 - Wellbore #1	1,100.0	1,084.0	410.1	386.1	17.078	ES
Lewis Klein 19-2 (Existing) - Wellbore #1 - Wellbore #1	8,000.0	6,864.9	951.8	779.1	5.512	SF
Klein 19O-HZ Pad Sec.19-T5N-R64W						
Klein 19N-202 - Wellbore #1 - Plan #1 (3-05-14)	800.0	800.0	175.9	172.5	52.159	CC, ES
Klein 19N-202 - Wellbore #1 - Plan #1 (3-05-14)	1,700.0	1,643.4	271.4	263.8	35.741	SF
Klein 19N-432 - Wellbore #1 - Plan #1 (3-05-14)	1,000.0	1,000.0	161.3	157.1	37.778	CC
Klein 19N-432 - Wellbore #1 - Plan #1 (3-05-14)	1,100.0	1,095.9	161.4	156.7	34.436	ES
Klein 19N-432 - Wellbore #1 - Plan #1 (3-05-14)	1,900.0	1,856.5	226.1	217.2	25.340	SF
Klein 19O-232 - Wellbore #1 - Plan #1 (3-05-14)	1,000.0	1,000.0	29.1	24.9	6.825	CC
Klein 19O-232 - Wellbore #1 - Plan #1 (3-05-14)	14,696.6	14,291.9	242.5	-43.9	0.847	Level 1, ES, SF
Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)	1,000.0	1,000.0	91.1	86.8	21.337	CC, ES
Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)	14,696.6	13,907.1	854.6	442.0	2.071	SF
Klein 19O-412 - Wellbore #1 - Plan #1 (3-05-14)	1,000.0	1,000.0	61.9	57.7	14.501	CC, ES
Klein 19O-412 - Wellbore #1 - Plan #1 (3-05-14)	14,696.6	13,949.3	680.2	264.7	1.637	SF
Klein 19P-312 - Wellbore #1 - Plan #1 (3-05-14)	400.0	400.0	153.2	151.7	97.391	CC, ES
Klein 19P-312 - Wellbore #1 - Plan #1 (3-05-14)	14,696.6	14,753.4	588.0	164.6	1.389	Level 3, SF
Klein 19P-402 - Wellbore #1 - Plan #1 (3-05-14)	200.0	200.0	150.4	149.8	223.099	CC, ES
Klein 19P-402 - Wellbore #1 - Plan #1 (3-05-14)	14,696.6	14,942.8	835.4	402.9	1.932	SF
Maxey 24O-HZ Pad Sec.24-T5N-R65W						
Maxey 24O-232 - Wellbore #1 - Plan #2 (8-9-13)	6,839.7	11,137.6	268.7	137.8	2.052	CC, ES, SF
Maxey 24O-402 - Wellbore #1 - Plan #2 (8-9-13)	6,941.5	11,295.6	295.8	222.0	4.009	CC, ES, SF
Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W						
Austin 1 (Exist) - Wellbore #1 - Wellbore #1	7,935.1	6,866.2	282.6	111.2	1.648	CC, ES, SF
Danley 33-20 (Exist) - Wellbore #1 - Wellbore #1	13,213.8	7,023.1	194.7	1.7	1.009	Level 2, CC, ES, SF
Danley 43-20 (Exist) - Wellbore #1 - Wellbore #1	14,658.0	7,043.4	100.0	-130.2	0.434	Level 1, CC, ES, SF
Evert 20-1 (Exist) - Wellbore #1 - Wellbore #1	11,902.3	6,854.1	264.1	-10.3	0.962	Level 1, CC, ES, SF
Ivan Klein 13-20 (Exist) - Wellbore #1 - Wellbore #1	10,570.6	6,850.9	475.5	237.8	2.000	CC, ES
Ivan Klein 13-20 (Exist) - Wellbore #1 - Wellbore #1	10,600.0	6,850.7	476.4	237.9	1.997	SF
Mowery 19-1 (Exist) - Wellbore #1 - Wellbore #1	9,208.3	6,857.8	271.6	70.2	1.348	Level 3, CC, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Brent 1-6I (Existing) - 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)	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
10,400.0	6,868.7	6,969.2	6,833.5	96.1	187.2	-88.22	-133.9	3,419.4	932.7	665.3	267.40	3.488	
10,500.0	6,868.2	6,970.6	6,834.9	98.8	187.2	-88.41	-133.9	3,419.4	844.7	574.5	270.24	3.126	
10,600.0	6,867.7	6,972.1	6,836.3	101.5	187.2	-88.60	-133.9	3,419.5	759.7	486.6	273.08	2.782	
10,700.0	6,867.2	6,973.5	6,837.7	104.3	187.2	-88.80	-133.9	3,419.5	678.8	402.9	275.92	2.460	
10,800.0	6,866.7	6,974.9	6,839.1	107.0	187.2	-88.99	-133.9	3,419.5	603.6	324.8	278.76	2.165	
10,900.0	6,866.2	6,976.3	6,840.6	109.7	187.2	-89.19	-133.9	3,419.5	536.6	255.0	281.61	1.905	
11,000.0	6,865.7	6,977.8	6,842.0	112.5	187.1	-89.38	-133.9	3,419.6	481.1	196.7	284.46	1.691	
11,100.0	6,865.2	6,979.3	6,843.5	115.2	187.1	-89.58	-133.9	3,419.6	441.7	154.3	287.31	1.537	
11,200.0	6,864.7	6,980.7	6,844.9	118.0	187.1	-89.78	-133.9	3,419.6	422.6	132.5	290.16	1.457 Level 3	
11,232.2	6,864.5	6,981.2	6,845.4	118.9	187.1	-89.85	-133.9	3,419.6	421.4	130.3	291.08	1.448 Level 3, CC, ES, SF	
11,300.0	6,864.2	6,982.2	6,846.4	120.7	187.1	-89.99	-133.9	3,419.7	426.8	133.8	293.01	1.457 Level 3	
11,400.0	6,863.7	6,983.7	6,847.9	123.5	187.1	-90.19	-133.9	3,419.7	453.6	157.7	295.86	1.533	
11,500.0	6,863.2	6,985.2	6,849.4	126.2	187.0	-90.39	-133.9	3,419.7	499.3	200.6	298.71	1.671	
11,600.0	6,862.7	6,986.7	6,851.0	129.0	187.0	-90.60	-133.9	3,419.7	559.3	257.8	301.56	1.855	
11,700.0	6,862.2	6,988.3	6,852.5	131.7	187.0	-90.81	-133.9	3,419.8	629.6	325.2	304.41	2.068	
11,800.0	6,861.7	6,989.8	6,854.0	134.5	187.0	-91.02	-133.9	3,419.8	707.1	399.8	307.26	2.301	
11,900.0	6,861.2	6,991.4	6,855.6	137.3	187.0	-91.23	-133.9	3,419.8	789.6	479.5	310.10	2.546	
12,000.0	6,860.6	6,993.0	6,857.2	140.0	186.9	-91.45	-133.9	3,419.9	875.8	562.8	312.95	2.798	
12,100.0	6,860.1	6,994.6	6,858.8	142.8	186.9	-91.66	-133.9	3,419.9	964.6	648.8	315.79	3.055	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Lewis Klein 19-2 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7082-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	15.81		393.4	111.4	409.2				
100.0	100.0	84.0	84.0	0.1	1.7	15.81		393.4	111.4	408.9	407.1	1.79	228.120	
200.0	200.0	184.0	184.0	0.3	3.7	15.81		393.4	111.4	408.9	404.9	4.02	101.790	
300.0	300.0	284.0	284.0	0.6	5.7	15.81		393.4	111.4	408.9	402.7	6.24	65.510	
400.0	400.0	384.0	384.0	0.8	7.7	15.81		393.4	111.4	408.9	400.5	8.47	48.297	
500.0	500.0	484.0	484.0	1.0	9.7	15.81		393.4	111.4	408.9	398.2	10.69	38.247	
600.0	600.0	584.0	584.0	1.2	11.7	15.81		393.4	111.4	408.9	396.0	12.92	31.659	
700.0	700.0	684.0	684.0	1.5	13.7	15.81		393.4	111.4	408.9	393.8	15.14	27.007	
800.0	800.0	784.0	784.0	1.7	15.7	15.81		393.4	111.4	408.9	391.6	17.37	23.547	
900.0	900.0	884.0	884.0	1.9	17.7	15.81		393.4	111.4	408.9	389.3	19.59	20.873	
1,000.0	1,000.0	984.0	984.0	2.1	19.7	15.81		393.4	111.4	408.9	387.1	21.82	18.745 CC	
1,100.0	1,100.0	1,084.0	1,084.0	2.3	21.7	132.76		393.4	111.4	410.1	386.1	24.01	17.078 ES	
1,200.0	1,199.8	1,183.8	1,183.8	2.5	23.7	133.24		393.4	111.4	413.7	387.5	26.18	15.801	
1,300.0	1,299.5	1,283.5	1,283.5	2.7	25.7	134.02		393.4	111.4	419.7	391.4	28.33	14.813	
1,400.0	1,398.7	1,382.7	1,382.7	3.0	27.7	135.06		393.4	111.4	428.3	397.8	30.47	14.058	
1,500.0	1,497.5	1,481.5	1,481.5	3.2	29.6	136.34		393.4	111.4	439.6	407.0	32.57	13.495	
1,600.0	1,595.6	1,579.6	1,579.6	3.6	31.6	137.80		393.4	111.4	453.6	419.0	34.64	13.096	
1,700.0	1,693.1	1,677.1	1,677.1	3.9	33.5	139.39		393.4	111.4	470.7	434.0	36.66	12.839	
1,800.0	1,789.6	1,773.6	1,773.6	4.3	35.5	141.08		393.4	111.4	490.9	452.3	38.63	12.707	
1,900.0	1,885.6	1,869.6	1,869.6	4.8	37.4	142.97		393.4	111.4	513.5	472.8	40.72	12.611	
2,000.0	1,981.5	1,965.5	1,965.5	5.3	39.3	144.76		393.4	111.4	536.7	493.8	42.86	12.522	
2,100.0	2,077.4	2,061.4	2,061.4	5.9	41.2	146.41		393.4	111.4	560.4	515.4	45.00	12.453	
2,200.0	2,173.3	2,157.3	2,157.3	6.4	43.1	147.93		393.4	111.4	584.5	537.3	47.14	12.399	
2,300.0	2,269.2	2,253.2	2,253.2	6.9	45.1	149.33		393.4	111.4	608.9	559.6	49.27	12.358	
2,400.0	2,365.1	2,349.1	2,349.1	7.5	47.0	150.63		393.4	111.4	633.7	582.3	51.41	12.327	
2,500.0	2,461.0	2,445.0	2,445.0	8.1	48.9	151.82		393.4	111.4	658.8	605.2	53.54	12.304	
2,600.0	2,556.9	2,540.9	2,540.9	8.6	50.8	152.94		393.4	111.4	684.1	628.4	55.67	12.288	
2,700.0	2,652.8	2,636.8	2,636.8	9.2	52.7	153.97		393.4	111.4	709.6	651.8	57.80	12.277	
2,800.0	2,748.7	2,732.7	2,732.7	9.8	54.7	154.93		393.4	111.4	735.4	675.5	59.93	12.271	
2,900.0	2,844.6	2,828.6	2,828.6	10.4	56.6	155.83		393.4	111.4	761.3	699.3	62.06	12.268	
3,000.0	2,940.5	2,924.5	2,924.5	11.0	58.5	156.67		393.4	111.4	787.4	723.2	64.18	12.269	
3,100.0	3,036.4	3,020.4	3,020.4	11.6	60.4	157.45		393.4	111.4	813.7	747.4	66.30	12.272	
3,200.0	3,132.3	3,116.3	3,116.3	12.2	62.3	158.19		393.4	111.4	840.1	771.6	68.43	12.277	
3,300.0	3,228.2	3,212.2	3,212.2	12.7	64.2	158.88		393.4	111.4	866.6	796.0	70.55	12.283	
3,400.0	3,324.1	3,308.1	3,308.1	13.3	66.2	159.53		393.4	111.4	893.2	820.5	72.67	12.291	
3,500.0	3,420.0	3,404.0	3,404.0	13.9	68.1	160.15		393.4	111.4	919.9	845.1	74.79	12.299	
3,600.0	3,515.9	3,499.9	3,499.9	14.5	70.0	160.73		393.4	111.4	946.7	869.8	76.92	12.309	
3,700.0	3,611.8	3,595.8	3,595.8	15.1	71.9	161.27		393.4	111.4	973.6	894.6	79.04	12.319	
7,700.0	6,882.4	6,866.4	6,866.4	30.3	137.3	-90.07		393.4	111.4	974.8	807.6	167.23	5.829	
7,800.0	6,881.9	6,865.9	6,865.9	31.8	137.3	-90.04		393.4	111.4	956.8	787.9	168.91	5.665	
7,900.0	6,881.4	6,865.4	6,865.4	33.6	137.3	-90.01		393.4	111.4	949.1	778.3	170.73	5.559	
7,923.9	6,881.3	6,865.3	6,865.3	34.0	137.3	-90.00		393.4	111.4	948.7	777.5	171.20	5.542	
8,000.0	6,880.9	6,864.9	6,864.9	35.5	137.3	-89.98		393.4	111.4	951.8	779.1	172.69	5.512 SF	
8,100.0	6,880.4	6,864.4	6,864.4	37.5	137.3	-89.95		393.4	111.4	964.9	790.2	174.75	5.522	
8,200.0	6,879.9	6,863.9	6,863.9	39.7	137.3	-89.92		393.4	111.4	988.1	811.2	176.90	5.586	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19N-202 - Wellbore #1 - Plan #1 (3-05-14)													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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-58.81	91.1	-150.4	175.9					
100.0	100.0	100.0	100.0	0.1	0.1	-58.81	91.1	-150.4	175.9	175.6	0.22	782.392		
200.0	200.0	200.0	200.0	0.3	0.3	-58.81	91.1	-150.4	175.9	175.2	0.67	260.797		
300.0	300.0	300.0	300.0	0.6	0.6	-58.81	91.1	-150.4	175.9	174.7	1.12	156.478		
400.0	400.0	400.0	400.0	0.8	0.8	-58.81	91.1	-150.4	175.9	174.3	1.57	111.770		
500.0	500.0	500.0	500.0	1.0	1.0	-58.81	91.1	-150.4	175.9	173.8	2.02	86.932		
600.0	600.0	600.0	600.0	1.2	1.2	-58.81	91.1	-150.4	175.9	173.4	2.47	71.127		
700.0	700.0	700.0	700.0	1.5	1.5	-58.81	91.1	-150.4	175.9	172.9	2.92	60.184		
800.0	800.0	800.0	800.0	1.7	1.7	-58.81	91.1	-150.4	175.9	172.5	3.37	52.159 CC, ES		
900.0	900.0	895.4	895.4	1.9	1.9	-58.48	92.6	-151.0	177.1	173.3	3.81	46.498		
1,000.0	1,000.0	990.7	990.5	2.1	2.1	-57.53	97.1	-152.5	181.0	176.8	4.25	42.612		
1,100.0	1,100.0	1,085.4	1,085.0	2.3	2.3	61.09	104.5	-155.1	186.8	182.1	4.67	40.008		
1,200.0	1,199.8	1,179.4	1,178.3	2.5	2.6	64.15	114.8	-158.7	194.0	188.9	5.08	38.188		
1,300.0	1,299.5	1,272.2	1,270.1	2.7	2.8	68.17	127.7	-163.3	203.2	197.7	5.51	36.899		
1,400.0	1,398.7	1,363.6	1,359.9	3.0	3.1	72.83	143.2	-168.7	215.5	209.6	5.96	36.137		
1,500.0	1,497.5	1,453.9	1,448.2	3.2	3.4	77.84	161.2	-175.0	231.6	225.1	6.46	35.868		
1,600.0	1,595.6	1,549.0	1,541.0	3.6	3.8	83.18	181.2	-182.0	250.5	243.5	7.00	35.767		
1,700.0	1,693.1	1,643.4	1,632.9	3.9	4.1	88.33	201.0	-188.9	271.4	263.8	7.59	35.741 SF		
1,800.0	1,789.6	1,736.8	1,724.0	4.3	4.5	93.24	220.6	-195.8	294.8	286.6	8.24	35.783		
1,900.0	1,885.6	1,829.5	1,814.4	4.8	4.9	98.13	240.1	-202.6	320.8	311.9	8.93	35.933		
2,000.0	1,981.5	1,922.1	1,904.7	5.3	5.3	102.43	259.6	-209.4	348.9	339.3	9.64	36.213		
2,100.0	2,077.4	2,014.8	1,995.1	5.9	5.7	106.10	279.1	-216.2	378.7	368.4	10.36	36.571		
2,200.0	2,173.3	2,107.5	2,085.4	6.4	6.1	109.26	298.5	-223.0	409.8	398.7	11.08	36.969		
2,300.0	2,269.2	2,200.2	2,175.8	6.9	6.5	111.98	318.0	-229.9	441.8	430.0	11.82	37.384		
2,400.0	2,365.1	2,292.8	2,266.1	7.5	6.9	114.34	337.5	-236.7	474.7	462.1	12.56	37.799		
2,500.0	2,461.0	2,385.5	2,356.5	8.1	7.4	116.41	357.0	-243.5	508.2	494.9	13.30	38.206		
2,600.0	2,556.9	2,478.2	2,446.8	8.6	7.8	118.22	376.4	-250.3	542.3	528.2	14.05	38.598		
2,700.0	2,652.8	2,570.9	2,537.2	9.2	8.2	119.83	395.9	-257.1	576.8	562.0	14.80	38.973		
2,800.0	2,748.7	2,663.5	2,627.5	9.8	8.6	121.26	415.4	-263.9	611.6	596.1	15.55	39.328		
2,900.0	2,844.6	2,756.2	2,717.9	10.4	9.1	122.53	434.9	-270.7	646.8	630.5	16.31	39.665		
3,000.0	2,940.5	2,848.9	2,808.2	11.0	9.5	123.68	454.3	-277.6	682.2	665.2	17.06	39.983		
3,100.0	3,036.4	2,941.5	2,898.5	11.6	9.9	124.71	473.8	-284.4	717.9	700.0	17.82	40.283		
3,200.0	3,132.3	3,034.2	2,988.9	12.2	10.3	125.65	493.3	-291.2	753.7	735.1	18.58	40.565		
3,300.0	3,228.2	3,126.9	3,079.2	12.7	10.8	126.50	512.8	-298.0	789.7	770.3	19.34	40.831		
3,400.0	3,324.1	3,219.6	3,169.6	13.3	11.2	127.28	532.2	-304.8	825.8	805.7	20.10	41.082		
3,500.0	3,420.0	3,312.2	3,259.9	13.9	11.6	128.00	551.7	-311.6	862.0	841.2	20.86	41.318		
3,600.0	3,515.9	3,404.9	3,350.3	14.5	12.1	128.66	571.2	-318.5	898.4	876.8	21.63	41.542		
3,700.0	3,611.8	3,497.6	3,440.6	15.1	12.5	129.26	590.7	-325.3	934.9	912.5	22.39	41.752		
3,800.0	3,707.7	3,590.3	3,531.0	15.7	12.9	129.83	610.1	-332.1	971.4	948.3	23.16	41.951		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19N-432 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-68.82	58.3	-150.4	161.3					
100.0	100.0	100.0	100.0	0.1	0.1	-68.82	58.3	-150.4	161.3	161.1	0.22	717.782		
200.0	200.0	200.0	200.0	0.3	0.3	-68.82	58.3	-150.4	161.3	160.7	0.67	239.261		
300.0	300.0	300.0	300.0	0.6	0.6	-68.82	58.3	-150.4	161.3	160.2	1.12	143.556		
400.0	400.0	400.0	400.0	0.8	0.8	-68.82	58.3	-150.4	161.3	159.8	1.57	102.540		
500.0	500.0	500.0	500.0	1.0	1.0	-68.82	58.3	-150.4	161.3	159.3	2.02	79.754		
600.0	600.0	600.0	600.0	1.2	1.2	-68.82	58.3	-150.4	161.3	158.9	2.47	65.253		
700.0	700.0	700.0	700.0	1.5	1.5	-68.82	58.3	-150.4	161.3	158.4	2.92	55.214		
800.0	800.0	800.0	800.0	1.7	1.7	-68.82	58.3	-150.4	161.3	158.0	3.37	47.852		
900.0	900.0	900.0	900.0	1.9	1.9	-68.82	58.3	-150.4	161.3	157.5	3.82	42.222		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-68.82	58.3	-150.4	161.3	157.1	4.27	37.778 CC		
1,100.0	1,100.0	1,095.9	1,095.9	2.3	2.4	48.79	59.7	-151.2	161.4	156.7	4.69	34.436 ES		
1,200.0	1,199.8	1,191.5	1,191.4	2.5	2.6	51.23	64.0	-153.3	161.9	156.8	5.09	31.824		
1,300.0	1,299.5	1,286.5	1,286.0	2.7	2.8	55.20	71.1	-156.9	163.4	157.9	5.50	29.700		
1,400.0	1,398.7	1,380.4	1,379.3	3.0	3.0	60.50	80.8	-161.8	166.9	160.9	5.94	28.086		
1,500.0	1,497.5	1,473.5	1,471.3	3.2	3.3	66.81	93.1	-168.0	173.4	167.0	6.42	27.014		
1,600.0	1,595.6	1,570.4	1,566.9	3.6	3.5	73.89	107.2	-175.1	182.7	175.7	6.96	26.234		
1,700.0	1,693.1	1,666.5	1,661.8	3.9	3.8	81.08	121.1	-182.2	194.1	186.5	7.56	25.668		
1,800.0	1,789.6	1,761.8	1,755.8	4.3	4.1	88.19	134.9	-189.1	208.4	200.2	8.22	25.353		
1,900.0	1,885.6	1,856.5	1,849.2	4.8	4.4	95.07	148.6	-196.1	226.1	217.2	8.92	25.340 SF		
2,000.0	1,981.5	1,951.1	1,942.6	5.3	4.7	101.02	162.3	-203.0	246.8	237.2	9.63	25.618		
2,100.0	2,077.4	2,045.7	2,036.0	5.9	5.1	106.07	176.0	-209.9	269.8	259.4	10.34	26.080		
2,200.0	2,173.3	2,140.4	2,129.4	6.4	5.4	110.33	189.7	-216.8	294.5	283.4	11.05	26.647		
2,300.0	2,269.2	2,235.0	2,222.8	6.9	5.7	113.94	203.4	-223.7	320.6	308.8	11.76	27.267		
2,400.0	2,365.1	2,329.6	2,316.2	7.5	6.0	117.02	217.1	-230.7	347.7	335.2	12.46	27.905		
2,500.0	2,461.0	2,424.3	2,409.5	8.1	6.4	119.66	230.8	-237.6	375.7	362.5	13.16	28.542		
2,600.0	2,556.9	2,518.9	2,502.9	8.6	6.7	121.94	244.5	-244.5	404.3	390.4	13.86	29.162		
2,700.0	2,652.8	2,613.5	2,596.3	9.2	7.1	123.92	258.2	-251.4	433.4	418.8	14.56	29.760		
2,800.0	2,748.7	2,708.2	2,689.7	9.8	7.4	125.65	271.9	-258.4	462.9	447.7	15.26	30.332		
2,900.0	2,844.6	2,802.8	2,783.1	10.4	7.7	127.18	285.6	-265.3	492.8	476.9	15.96	30.874		
3,000.0	2,940.5	2,897.5	2,876.4	11.0	8.1	128.54	299.3	-272.2	523.0	506.4	16.66	31.388		
3,100.0	3,036.4	2,992.1	2,969.8	11.6	8.4	129.75	313.0	-279.1	553.4	536.1	17.36	31.873		
3,200.0	3,132.3	3,086.7	3,063.2	12.2	8.8	130.83	326.7	-286.1	584.1	566.0	18.07	32.331		
3,300.0	3,228.2	3,181.4	3,156.6	12.7	9.1	131.81	340.4	-293.0	614.9	596.1	18.77	32.764		
3,400.0	3,324.1	3,276.0	3,250.0	13.3	9.5	132.69	354.1	-299.9	645.8	626.3	19.47	33.171		
3,500.0	3,420.0	3,370.6	3,343.3	13.9	9.8	133.50	367.8	-306.8	676.9	656.7	20.17	33.556		
3,600.0	3,515.9	3,465.3	3,436.7	14.5	10.1	134.23	381.5	-313.7	708.1	687.2	20.88	33.919		
3,700.0	3,611.8	3,559.9	3,530.1	15.1	10.5	134.91	395.2	-320.7	739.4	717.8	21.58	34.262		
3,800.0	3,707.7	3,654.5	3,623.5	15.7	10.8	135.52	408.9	-327.6	770.7	748.5	22.28	34.587		
3,900.0	3,803.6	3,749.2	3,716.9	16.3	11.2	136.09	422.6	-334.5	802.2	779.2	22.99	34.894		
4,000.0	3,899.5	3,843.8	3,810.3	16.9	11.5	136.62	436.3	-341.4	833.7	810.0	23.69	35.185		
4,100.0	3,995.4	3,938.4	3,903.6	17.5	11.9	137.11	450.0	-348.4	865.3	840.9	24.40	35.460		
4,200.0	4,091.3	4,033.1	3,997.0	18.1	12.2	137.57	463.7	-355.3	896.9	871.8	25.11	35.722		
4,300.0	4,187.3	4,127.7	4,090.4	18.7	12.6	137.99	477.4	-362.2	928.6	902.7	25.81	35.971		
4,400.0	4,283.2	4,222.3	4,183.8	19.3	12.9	138.39	491.1	-369.1	960.3	933.7	26.52	36.207		
4,500.0	4,379.1	4,317.0	4,277.2	19.9	13.3	138.76	504.8	-376.1	992.0	964.8	27.23	36.432		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-232 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	0.00	29.1	0.0	29.1					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	29.1	0.0	29.1	28.9	0.22	129.668		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.67	43.223		
300.0	300.0	300.0	300.0	0.6	0.6	0.00	29.1	0.0	29.1	28.0	1.12	25.934		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	29.1	0.0	29.1	27.6	1.57	18.524		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	29.1	0.0	29.1	27.1	2.02	14.408		
600.0	600.0	600.0	600.0	1.2	1.2	0.00	29.1	0.0	29.1	26.7	2.47	11.788		
700.0	700.0	700.0	700.0	1.5	1.5	0.00	29.1	0.0	29.1	26.2	2.92	9.974		
800.0	800.0	800.0	800.0	1.7	1.7	0.00	29.1	0.0	29.1	25.8	3.37	8.645		
900.0	900.0	900.0	900.0	1.9	1.9	0.00	29.1	0.0	29.1	25.3	3.82	7.628		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	29.1	0.0	29.1	24.9	4.27	6.825 CC		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	119.75	29.1	0.0	30.0	25.3	4.70	6.377		
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	127.64	29.1	0.0	32.9	27.8	5.12	6.428		
1,300.0	1,299.5	1,299.5	1,299.5	2.7	2.8	137.78	29.1	0.0	38.8	33.3	5.54	7.014		
1,400.0	1,398.7	1,398.7	1,398.7	3.0	3.0	147.36	29.1	0.0	48.6	42.6	5.96	8.156		
1,500.0	1,497.5	1,497.5	1,497.5	3.2	3.3	155.00	29.1	0.0	62.3	56.0	6.37	9.789		
1,600.0	1,595.6	1,598.2	1,598.1	3.6	3.5	160.36	28.4	-1.5	78.5	71.8	6.76	11.618		
1,700.0	1,693.1	1,699.6	1,699.4	3.9	3.7	163.84	26.1	-6.2	95.2	88.0	7.13	13.341		
1,800.0	1,789.6	1,801.6	1,801.0	4.3	3.9	166.25	22.2	-14.3	112.0	104.5	7.51	14.905		
1,900.0	1,885.6	1,904.5	1,903.1	4.8	4.1	167.95	16.7	-25.6	127.8	119.9	7.94	16.097		
2,000.0	1,981.5	2,008.4	2,005.7	5.3	4.4	168.99	9.4	-40.4	140.4	132.0	8.40	16.706		
2,100.0	2,077.4	2,113.2	2,108.5	5.9	4.7	169.59	0.5	-58.8	149.4	140.5	8.89	16.816		
2,200.0	2,173.3	2,218.5	2,211.0	6.4	5.0	169.85	-10.1	-80.6	154.9	145.5	9.39	16.496		
2,300.0	2,269.2	2,321.7	2,310.5	6.9	5.4	169.86	-22.0	-104.9	157.1	147.2	9.91	15.850		
2,400.0	2,365.1	2,421.6	2,406.9	7.5	5.8	169.83	-33.7	-129.0	158.7	148.3	10.43	15.212		
2,500.0	2,461.0	2,521.6	2,503.2	8.1	6.3	169.80	-45.5	-153.1	160.3	149.3	10.97	14.619		
2,600.0	2,556.9	2,621.6	2,599.5	8.6	6.8	169.76	-57.2	-177.2	161.9	150.4	11.51	14.069		
2,700.0	2,652.8	2,721.6	2,695.8	9.2	7.2	169.73	-69.0	-201.3	163.6	151.5	12.06	13.561		
2,800.0	2,748.7	2,821.6	2,792.2	9.8	7.7	169.70	-80.7	-225.4	165.2	152.6	12.62	13.089		
2,900.0	2,844.6	2,921.6	2,888.5	10.4	8.2	169.67	-92.5	-249.5	166.8	153.6	13.18	12.652		
3,000.0	2,940.5	3,021.6	2,984.8	11.0	8.8	169.64	-104.2	-273.6	168.4	154.7	13.75	12.246		
3,100.0	3,036.4	3,121.6	3,081.1	11.6	9.3	169.62	-116.0	-297.7	170.0	155.7	14.33	11.869		
3,200.0	3,132.3	3,221.5	3,177.5	12.2	9.8	169.59	-127.7	-321.8	171.7	156.8	14.91	11.517		
3,300.0	3,228.2	3,321.5	3,273.8	12.7	10.4	169.56	-139.4	-345.9	173.3	157.8	15.49	11.189		
3,400.0	3,324.1	3,421.5	3,370.1	13.3	10.9	169.53	-151.2	-370.0	174.9	158.8	16.07	10.883		
3,500.0	3,420.0	3,521.5	3,466.4	13.9	11.4	169.51	-162.9	-394.1	176.5	159.9	16.66	10.596		
3,600.0	3,515.9	3,621.5	3,562.8	14.5	12.0	169.48	-174.7	-418.2	178.2	160.9	17.25	10.327		
3,700.0	3,611.8	3,721.5	3,659.1	15.1	12.5	169.46	-186.4	-442.3	179.8	161.9	17.85	10.074		
3,800.0	3,707.7	3,821.5	3,755.4	15.7	13.1	169.43	-198.2	-466.4	181.4	163.0	18.44	9.837		
3,900.0	3,803.6	3,921.5	3,851.8	16.3	13.6	169.41	-209.9	-490.5	183.0	164.0	19.04	9.613		
4,000.0	3,899.5	4,021.4	3,948.1	16.9	14.2	169.38	-221.7	-514.6	184.7	165.0	19.64	9.403		
4,100.0	3,995.4	4,121.4	4,044.4	17.5	14.8	169.36	-233.4	-538.7	186.3	166.0	20.24	9.203		
4,200.0	4,091.3	4,221.4	4,140.7	18.1	15.3	169.34	-245.2	-562.8	187.9	167.1	20.84	9.015		
4,300.0	4,187.3	4,321.4	4,237.1	18.7	15.9	169.31	-256.9	-586.9	189.5	168.1	21.45	8.837		
4,400.0	4,283.2	4,421.4	4,333.4	19.3	16.4	169.29	-268.6	-611.0	191.1	169.1	22.05	8.667		
4,500.0	4,379.1	4,521.4	4,429.7	19.9	17.0	169.27	-280.4	-635.1	192.8	170.1	22.66	8.507		
4,600.0	4,475.0	4,621.4	4,526.0	20.5	17.6	169.25	-292.1	-659.2	194.4	171.1	23.27	8.354		
4,700.0	4,570.9	4,721.3	4,622.4	21.1	18.1	169.23	-303.9	-683.3	196.0	172.1	23.88	8.209		
4,800.0	4,666.8	4,821.3	4,718.7	21.7	18.7	169.21	-315.6	-707.4	197.6	173.1	24.49	8.071		
4,900.0	4,762.7	4,921.3	4,815.0	22.3	19.3	169.18	-327.4	-731.5	199.3	174.2	25.10	7.939		
5,000.0	4,858.6	5,021.3	4,911.3	23.0	19.8	169.16	-339.1	-755.6	200.9	175.2	25.71	7.813		

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-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-232 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,954.5	5,121.3	5,007.7	23.6	20.4	169.14		-350.9	-779.6	202.5	176.2	26.32	7.693	
5,200.0	5,050.4	5,216.4	5,099.5	24.2	20.9	169.17		-361.7	-801.8	205.0	178.1	26.90	7.622	
5,300.0	5,146.3	5,309.6	5,190.2	24.8	21.2	169.36		-371.0	-821.0	210.6	183.2	27.42	7.683	
5,400.0	5,242.3	5,400.0	5,278.9	25.3	21.5	169.68		-378.8	-837.0	218.9	191.0	27.91	7.843	
5,500.0	5,339.2	5,495.0	5,372.5	25.7	21.8	170.02		-385.7	-851.2	227.2	198.8	28.36	8.011	
5,600.0	5,436.9	5,587.3	5,464.0	26.1	22.1	170.32		-391.1	-862.2	235.3	206.5	28.76	8.182	
5,700.0	5,535.3	5,679.5	5,555.7	26.4	22.3	170.61		-395.2	-870.6	243.1	214.0	29.10	8.353	
5,800.0	5,634.2	5,771.4	5,647.4	26.7	22.4	170.87		-398.0	-876.3	250.6	221.2	29.40	8.525	
5,900.0	5,733.6	5,863.1	5,739.0	26.9	22.6	171.12		-399.5	-879.4	257.8	228.2	29.64	8.700	
6,000.0	5,833.3	5,957.4	5,833.3	27.1	22.7	171.36		-399.8	-880.0	264.6	234.8	29.84	8.868	
6,100.0	5,933.2	6,057.3	5,933.2	27.2	22.8	171.50		-399.8	-880.0	268.7	238.6	30.02	8.949	
6,200.0	6,033.2	6,143.1	6,019.0	27.3	22.9	54.93		-399.8	-878.4	271.1	221.2	49.84	5.439	
6,300.0	6,133.2	6,219.8	6,095.1	27.4	22.9	-33.95		-399.8	-869.7	280.2	250.0	30.15	9.291	
6,400.0	6,232.7	6,300.0	6,173.5	27.4	22.8	-32.52		-399.8	-852.5	290.0	260.6	29.42	9.856	
6,500.0	6,330.0	6,370.5	6,240.5	27.2	22.7	-31.63		-399.8	-830.6	297.1	268.7	28.40	10.460	
6,600.0	6,423.6	6,450.0	6,313.2	27.0	22.5	-31.05		-399.8	-798.7	301.6	274.4	27.14	11.111	
6,700.0	6,511.8	6,520.0	6,374.2	26.8	22.3	-30.87		-399.8	-764.5	303.1	277.4	25.75	11.773	
6,800.0	6,593.1	6,600.0	6,439.8	26.5	22.2	-31.04		-399.8	-718.7	301.9	277.5	24.40	12.374	
6,900.0	6,666.1	6,669.3	6,492.5	26.2	22.0	-31.54		-399.8	-673.6	297.8	274.4	23.36	12.750	
7,000.0	6,729.6	6,750.0	6,548.4	26.0	21.9	-32.49		-399.8	-615.5	291.0	268.0	22.97	12.668	
7,100.0	6,782.5	6,820.0	6,591.6	26.0	21.9	-33.76		-399.8	-560.5	281.5	258.0	23.48	11.990	
7,200.0	6,823.8	6,900.0	6,634.7	26.1	21.9	-35.65		-399.8	-493.1	269.7	244.5	25.17	10.713	
7,300.0	6,853.0	6,973.3	6,667.8	26.4	22.1	-37.98		-399.8	-427.7	255.6	227.7	27.89	9.163	
7,400.0	6,869.4	7,050.0	6,695.5	27.0	22.4	-41.03		-399.8	-356.3	239.8	208.3	31.55	7.602	
7,500.0	6,879.4	7,131.9	6,717.0	27.9	23.0	-43.37		-399.8	-277.3	227.6	193.2	34.40	6.616	
7,600.0	6,882.9	7,213.9	6,730.0	28.9	23.8	-45.50		-399.8	-196.3	218.7	180.8	37.87	5.775	
7,700.0	6,882.4	7,297.3	6,734.2	30.3	24.7	-46.38		-399.8	-113.1	214.8	174.5	40.31	5.330	
7,700.9	6,882.4	7,298.1	6,734.2	30.3	24.7	-46.38		-399.8	-112.3	214.8	174.5	40.32	5.327	
7,800.0	6,881.9	7,396.4	6,733.2	31.8	26.1	-46.28		-399.8	-14.1	215.2	172.5	42.65	5.045	
7,900.0	6,881.4	7,496.4	6,732.2	33.6	27.8	-46.18		-399.8	85.9	215.6	170.3	45.26	4.763	
8,000.0	6,880.9	7,596.4	6,731.1	35.5	29.6	-46.08		-399.8	185.9	215.9	167.9	48.08	4.491	
8,100.0	6,880.4	7,696.4	6,730.1	37.5	31.6	-45.97		-399.8	285.9	216.3	165.2	51.07	4.236	
8,200.0	6,879.9	7,796.4	6,729.0	39.7	33.7	-45.87		-399.8	385.9	216.7	162.5	54.20	3.998	
8,300.0	6,879.4	7,896.4	6,728.0	41.9	35.9	-45.77		-399.8	485.9	217.1	159.6	57.44	3.779	
8,400.0	6,878.9	7,996.4	6,726.9	44.2	38.3	-45.67		-399.8	585.9	217.4	156.6	60.78	3.577	
8,500.0	6,878.4	8,096.4	6,725.9	46.5	40.6	-45.56		-399.8	685.9	217.8	153.6	64.20	3.393	
8,600.0	6,877.9	8,196.3	6,724.8	48.9	43.0	-45.46		-399.8	785.9	218.2	150.5	67.68	3.224	
8,700.0	6,877.4	8,296.3	6,723.8	51.4	45.5	-45.36		-399.8	885.9	218.6	147.4	71.21	3.069	
8,800.0	6,876.8	8,396.3	6,722.7	53.9	48.0	-45.26		-399.8	985.9	219.0	144.2	74.78	2.928	
8,900.0	6,876.3	8,496.3	6,721.7	56.4	50.6	-45.16		-399.8	1,085.9	219.3	140.9	78.39	2.798	
9,000.0	6,875.8	8,596.3	6,720.6	58.9	53.1	-45.06		-399.8	1,185.9	219.7	137.7	82.02	2.679	
9,100.0	6,875.3	8,696.3	6,719.6	61.5	55.7	-44.96		-399.8	1,285.9	220.1	134.4	85.68	2.569	
9,200.0	6,874.8	8,796.3	6,718.5	64.1	58.3	-44.86		-399.8	1,385.8	220.5	131.1	89.36	2.467	
9,300.0	6,874.3	8,896.3	6,717.5	66.7	61.0	-44.76		-399.8	1,485.8	220.9	127.8	93.04	2.374	
9,400.0	6,873.8	8,996.3	6,716.5	69.3	63.6	-44.66		-399.8	1,585.8	221.2	124.5	96.75	2.287	
9,500.0	6,873.3	9,096.3	6,715.4	71.9	66.3	-44.57		-399.8	1,685.8	221.6	121.2	100.46	2.206	
9,600.0	6,872.8	9,196.3	6,714.4	74.6	68.9	-44.47		-399.8	1,785.8	222.0	117.8	104.17	2.131	
9,700.0	6,872.3	9,296.3	6,713.3	77.2	71.6	-44.37		-399.8	1,885.8	222.4	114.5	107.89	2.061	
9,800.0	6,871.8	9,396.3	6,712.3	79.9	74.3	-44.27		-399.8	1,985.8	222.8	111.2	111.62	1.996	
9,900.0	6,871.3	9,496.3	6,711.2	82.6	77.0	-44.18		-399.8	2,085.8	223.2	107.8	115.34	1.935	
10,000.0	6,870.8	9,596.3	6,710.2	85.3	79.7	-44.08		-399.8	2,185.8	223.6	104.5	119.07	1.878	

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 190-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 190-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-232 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,870.3	9,696.3	6,709.1	88.0	82.4	-43.98		-399.8	2,285.8	224.0	101.2	122.79	1.824	
10,200.0	6,869.8	9,796.3	6,708.1	90.7	85.1	-43.89		-399.8	2,385.8	224.3	97.8	126.52	1.773	
10,300.0	6,869.3	9,896.3	6,707.0	93.4	87.8	-43.79		-399.8	2,485.8	224.7	94.5	130.24	1.726	
10,400.0	6,868.7	9,996.3	6,706.0	96.1	90.6	-43.70		-399.8	2,585.8	225.1	91.2	133.95	1.681	
10,500.0	6,868.2	10,096.3	6,704.9	98.8	93.3	-43.60		-399.8	2,685.8	225.5	87.9	137.66	1.638	
10,600.0	6,867.7	10,196.3	6,703.9	101.5	96.0	-43.51		-399.8	2,785.7	225.9	84.5	141.37	1.598	
10,700.0	6,867.2	10,296.3	6,702.8	104.3	98.8	-43.41		-399.8	2,885.7	226.3	81.2	145.07	1.560	
10,800.0	6,866.7	10,396.3	6,701.8	107.0	101.5	-43.32		-399.8	2,985.7	226.7	77.9	148.77	1.524	
10,900.0	6,866.2	10,496.3	6,700.7	109.7	104.3	-43.22		-399.8	3,085.7	227.1	74.6	152.46	1.490 Level 3	
11,000.0	6,865.7	10,596.3	6,699.7	112.5	107.0	-43.13		-399.8	3,185.7	227.5	71.3	156.14	1.457 Level 3	
11,100.0	6,865.2	10,696.3	6,698.7	115.2	109.8	-43.04		-399.8	3,285.7	227.9	68.1	159.82	1.426 Level 3	
11,200.0	6,864.7	10,796.3	6,697.6	118.0	112.5	-42.95		-399.8	3,385.7	228.3	64.8	163.49	1.396 Level 3	
11,300.0	6,864.2	10,896.3	6,696.6	120.7	115.3	-42.85		-399.8	3,485.7	228.7	61.5	167.15	1.368 Level 3	
11,400.0	6,863.7	10,996.3	6,695.5	123.5	118.1	-42.76		-399.8	3,585.7	229.1	58.3	170.81	1.341 Level 3	
11,500.0	6,863.2	11,096.3	6,694.5	126.2	120.8	-42.67		-399.8	3,685.7	229.5	55.0	174.45	1.315 Level 3	
11,600.0	6,862.7	11,196.3	6,693.4	129.0	123.6	-42.58		-399.8	3,785.7	229.9	51.8	178.09	1.291 Level 3	
11,700.0	6,862.2	11,296.3	6,692.4	131.7	126.4	-42.49		-399.8	3,885.7	230.3	48.5	181.72	1.267 Level 3	
11,800.0	6,861.7	11,396.3	6,691.3	134.5	129.1	-42.40		-399.8	3,985.7	230.7	45.3	185.35	1.245 Level 2	
11,900.0	6,861.2	11,496.3	6,690.3	137.3	131.9	-42.31		-399.8	4,085.7	231.1	42.1	188.96	1.223 Level 2	
12,000.0	6,860.6	11,596.3	6,689.2	140.0	134.7	-42.22		-399.8	4,185.7	231.5	38.9	192.56	1.202 Level 2	
12,100.0	6,860.1	11,696.3	6,688.2	142.8	137.5	-42.13		-399.8	4,285.6	231.9	35.7	196.16	1.182 Level 2	
12,200.0	6,859.6	11,796.3	6,687.1	145.6	140.2	-42.04		-399.8	4,385.6	232.3	32.5	199.75	1.163 Level 2	
12,300.0	6,859.1	11,896.3	6,686.1	148.3	143.0	-41.95		-399.8	4,485.6	232.7	29.3	203.33	1.144 Level 2	
12,400.0	6,858.6	11,996.3	6,685.0	151.1	145.8	-41.86		-399.8	4,585.6	233.1	26.2	206.90	1.127 Level 2	
12,500.0	6,858.1	12,096.3	6,684.0	153.9	148.6	-41.77		-399.8	4,685.6	233.5	23.0	210.46	1.109 Level 2	
12,600.0	6,857.6	12,196.3	6,682.9	156.6	151.3	-41.68		-399.8	4,785.6	233.9	19.9	214.01	1.093 Level 2	
12,700.0	6,857.1	12,296.3	6,681.9	159.4	154.1	-41.59		-399.8	4,885.6	234.3	16.7	217.55	1.077 Level 2	
12,800.0	6,856.6	12,396.3	6,680.9	162.2	156.9	-41.51		-399.8	4,985.6	234.7	13.6	221.09	1.062 Level 2	
12,900.0	6,856.1	12,496.3	6,679.8	165.0	159.7	-41.42		-399.8	5,085.6	235.1	10.5	224.61	1.047 Level 2	
13,000.0	6,855.6	12,596.3	6,678.8	167.7	162.5	-41.33		-399.8	5,185.6	235.5	7.4	228.13	1.032 Level 2	
13,100.0	6,855.1	12,696.3	6,677.7	170.5	165.3	-41.24		-399.8	5,285.6	235.9	4.3	231.63	1.018 Level 2	
13,200.0	6,854.6	12,796.3	6,676.7	173.3	168.0	-41.16		-399.8	5,385.6	236.3	1.2	235.13	1.005 Level 2	
13,300.0	6,854.1	12,896.3	6,675.6	176.1	170.8	-41.07		-399.8	5,485.6	236.7	-1.9	238.62	0.992 Level 1	
13,400.0	6,853.6	12,996.3	6,674.6	178.9	173.6	-40.99		-399.8	5,585.6	237.1	-5.0	242.10	0.979 Level 1	
13,500.0	6,853.1	13,096.3	6,673.5	181.6	176.4	-40.90		-399.8	5,685.5	237.5	-8.0	245.56	0.967 Level 1	
13,600.0	6,852.6	13,196.3	6,672.5	184.4	179.2	-40.82		-399.8	5,785.5	237.9	-11.1	249.02	0.956 Level 1	
13,700.0	6,852.0	13,296.3	6,671.4	187.2	182.0	-40.73		-399.8	5,885.5	238.4	-14.1	252.47	0.944 Level 1	
13,800.0	6,851.5	13,396.3	6,670.4	190.0	184.8	-40.65		-399.8	5,985.5	238.8	-17.1	255.91	0.933 Level 1	
13,900.0	6,851.0	13,496.3	6,669.3	192.8	187.6	-40.56		-399.8	6,085.5	239.2	-20.2	259.34	0.922 Level 1	
14,000.0	6,850.5	13,596.3	6,668.3	195.6	190.4	-40.48		-399.8	6,185.5	239.6	-23.2	262.77	0.912 Level 1	
14,100.0	6,850.0	13,696.3	6,667.2	198.4	193.1	-40.39		-399.8	6,285.5	240.0	-26.2	266.18	0.902 Level 1	
14,200.0	6,849.5	13,796.3	6,666.2	201.1	195.9	-40.31		-399.8	6,385.5	240.4	-29.2	269.58	0.892 Level 1	
14,300.0	6,849.0	13,896.3	6,665.1	203.9	198.7	-40.23		-399.8	6,485.5	240.8	-32.1	272.98	0.882 Level 1	
14,400.0	6,848.5	13,996.3	6,664.1	206.7	201.5	-40.14		-399.8	6,585.5	241.2	-35.1	276.36	0.873 Level 1	
14,500.0	6,848.0	14,096.3	6,663.0	209.5	204.3	-40.06		-399.8	6,685.5	241.7	-38.1	279.74	0.864 Level 1	
14,600.0	6,847.5	14,196.3	6,662.0	212.3	207.1	-39.98		-399.8	6,785.5	242.1	-41.0	283.10	0.855 Level 1	
14,696.6	6,847.0	14,291.9	6,661.0	215.0	209.8	-39.90		-399.8	6,881.1	242.5	-43.9	286.33	0.847 Level 1, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-1.75	91.1	-2.8	91.1					
100.0	100.0	100.0	100.0	0.1	0.1	-1.75	91.1	-2.8	91.1	90.9	0.22	405.401		
200.0	200.0	200.0	200.0	0.3	0.3	-1.75	91.1	-2.8	91.1	90.4	0.67	135.134		
300.0	300.0	300.0	300.0	0.6	0.6	-1.75	91.1	-2.8	91.1	90.0	1.12	81.080		
400.0	400.0	400.0	400.0	0.8	0.8	-1.75	91.1	-2.8	91.1	89.5	1.57	57.914		
500.0	500.0	500.0	500.0	1.0	1.0	-1.75	91.1	-2.8	91.1	89.1	2.02	45.045		
600.0	600.0	600.0	600.0	1.2	1.2	-1.75	91.1	-2.8	91.1	88.6	2.47	36.855		
700.0	700.0	700.0	700.0	1.5	1.5	-1.75	91.1	-2.8	91.1	88.2	2.92	31.185		
800.0	800.0	800.0	800.0	1.7	1.7	-1.75	91.1	-2.8	91.1	87.7	3.37	27.027		
900.0	900.0	900.0	900.0	1.9	1.9	-1.75	91.1	-2.8	91.1	87.3	3.82	23.847		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-1.75	91.1	-2.8	91.1	86.8	4.27	21.337 CC, ES		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	116.01	91.1	-2.8	91.9	87.2	4.70	19.546		
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	118.82	91.1	-2.8	94.3	89.2	5.12	18.425		
1,300.0	1,299.5	1,299.5	1,299.5	2.7	2.8	123.16	91.1	-2.8	98.8	93.2	5.54	17.818		
1,400.0	1,398.7	1,398.7	1,398.7	3.0	3.0	128.55	91.1	-2.8	106.0	100.0	5.98	17.718		
1,500.0	1,497.5	1,497.5	1,497.5	3.2	3.3	134.39	91.1	-2.8	116.4	110.0	6.42	18.124		
1,600.0	1,595.6	1,595.7	1,595.7	3.6	3.5	139.46	91.7	-4.3	130.5	123.7	6.86	19.023		
1,700.0	1,693.1	1,694.0	1,693.8	3.9	3.7	142.96	93.6	-8.8	148.0	140.7	7.31	20.264		
1,800.0	1,789.6	1,792.2	1,791.7	4.3	3.9	145.19	96.8	-16.5	168.4	160.6	7.77	21.675		
1,900.0	1,885.6	1,890.3	1,889.1	4.8	4.1	146.47	101.2	-27.3	190.6	182.3	8.29	22.983		
2,000.0	1,981.5	1,987.8	1,985.7	5.3	4.4	147.24	106.1	-38.9	212.7	203.8	8.85	24.036		
2,100.0	2,077.4	2,085.2	2,082.4	5.9	4.6	147.87	110.9	-50.6	234.8	225.4	9.42	24.921		
2,200.0	2,173.3	2,182.7	2,179.1	6.4	4.9	148.38	115.7	-62.2	257.0	247.0	10.01	25.667		
2,300.0	2,269.2	2,280.2	2,275.7	6.9	5.2	148.82	120.6	-73.9	279.2	268.6	10.61	26.307		
2,400.0	2,365.1	2,377.7	2,372.4	7.5	5.4	149.19	125.4	-85.6	301.4	290.2	11.22	26.852		
2,500.0	2,461.0	2,475.2	2,469.1	8.1	5.7	149.51	130.3	-97.2	323.6	311.7	11.84	27.322		
2,600.0	2,556.9	2,572.7	2,565.7	8.6	6.0	149.78	135.1	-108.9	345.8	333.3	12.47	27.731		
2,700.0	2,652.8	2,670.2	2,662.4	9.2	6.3	150.03	139.9	-120.6	368.0	354.9	13.10	28.088		
2,800.0	2,748.7	2,767.7	2,759.1	9.8	6.6	150.25	144.8	-132.2	390.3	376.5	13.74	28.402		
2,900.0	2,844.6	2,865.1	2,855.7	10.4	6.9	150.44	149.6	-143.9	412.5	398.1	14.38	28.680		
3,000.0	2,940.5	2,962.6	2,952.4	11.0	7.2	150.61	154.5	-155.6	434.7	419.7	15.03	28.926		
3,100.0	3,036.4	3,060.1	3,049.1	11.6	7.5	150.77	159.3	-167.2	457.0	441.3	15.68	29.146		
3,200.0	3,132.3	3,157.6	3,145.7	12.2	7.8	150.91	164.1	-178.9	479.2	462.9	16.33	29.343		
3,300.0	3,228.2	3,255.1	3,242.4	12.7	8.1	151.04	169.0	-190.6	501.5	484.5	16.99	29.520		
3,400.0	3,324.1	3,352.6	3,339.1	13.3	8.4	151.16	173.8	-202.2	523.7	506.1	17.65	29.680		
3,500.0	3,420.0	3,450.1	3,435.7	13.9	8.7	151.27	178.6	-213.9	546.0	527.7	18.31	29.826		
3,600.0	3,515.9	3,547.6	3,532.4	14.5	9.0	151.37	183.5	-225.6	568.2	549.3	18.97	29.958		
3,700.0	3,611.8	3,645.1	3,629.1	15.1	9.3	151.46	188.3	-237.2	590.5	570.9	19.63	30.079		
3,800.0	3,707.7	3,742.5	3,725.7	15.7	9.6	151.55	193.2	-248.9	612.7	592.4	20.30	30.189		
3,900.0	3,803.6	3,840.0	3,822.4	16.3	9.9	151.63	198.0	-260.6	635.0	614.0	20.96	30.291		
4,000.0	3,899.5	3,937.5	3,919.1	16.9	10.2	151.70	202.8	-272.2	657.3	635.6	21.63	30.385		
4,100.0	3,995.4	4,035.0	4,015.7	17.5	10.5	151.77	207.7	-283.9	679.5	657.2	22.30	30.471		
4,200.0	4,091.3	4,132.5	4,112.4	18.1	10.9	151.84	212.5	-295.6	701.8	678.8	22.97	30.551		
4,300.0	4,187.3	4,230.0	4,209.1	18.7	11.2	151.90	217.4	-307.2	724.0	700.4	23.64	30.625		
4,400.0	4,283.2	4,327.5	4,305.7	19.3	11.5	151.96	222.2	-318.9	746.3	722.0	24.31	30.694		
4,500.0	4,379.1	4,425.0	4,402.4	19.9	11.8	152.01	227.0	-330.5	768.6	743.6	24.99	30.759		
4,600.0	4,475.0	4,522.4	4,499.1	20.5	12.1	152.06	231.9	-342.2	790.8	765.2	25.66	30.819		
4,700.0	4,570.9	4,619.9	4,595.7	21.1	12.4	152.11	236.7	-353.9	813.1	786.8	26.34	30.875		
4,800.0	4,666.8	4,717.4	4,692.4	21.7	12.7	152.16	241.6	-365.5	835.4	808.4	27.01	30.927		
4,900.0	4,762.7	4,814.9	4,789.1	22.3	13.1	152.20	246.4	-377.2	857.6	829.9	27.69	30.977		
5,000.0	4,858.6	4,912.4	4,885.7	23.0	13.4	152.24	251.2	-388.9	879.9	851.5	28.36	31.023		

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-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,954.5	5,009.9	4,982.4	23.6	13.7	152.28		256.1	-400.5	902.2	873.1	29.04	31.067	
5,200.0	5,050.4	5,107.4	5,079.1	24.2	14.0	152.32		260.9	-412.2	924.4	894.7	29.72	31.108	
5,300.0	5,146.3	5,204.9	5,175.7	24.8	14.3	152.35		265.7	-423.9	946.7	916.3	30.39	31.147	
5,400.0	5,242.3	5,302.4	5,272.5	25.3	14.6	152.49		270.6	-435.5	968.5	937.4	31.09	31.153	
5,500.0	5,339.2	5,400.6	5,369.8	25.7	15.0	152.60		275.5	-447.3	987.5	955.8	31.75	31.101	
6,900.0	6,666.1	6,473.0	6,425.6	26.2	16.5	-60.04		292.7	-401.2	993.2	958.9	34.38	28.886	
7,000.0	6,729.6	6,529.5	6,474.6	26.0	16.5	-62.28		292.7	-373.0	975.3	940.3	34.95	27.903	
7,100.0	6,782.5	6,586.5	6,521.8	26.0	16.4	-64.86		292.7	-341.1	955.9	920.0	35.90	26.629	
7,200.0	6,823.8	6,650.0	6,571.4	26.1	16.4	-67.93		292.7	-301.5	935.7	898.4	37.25	25.119	
7,300.0	6,853.0	6,700.0	6,608.0	26.4	16.4	-70.88		292.7	-267.5	915.5	876.7	38.81	23.586	
7,400.0	6,869.4	6,761.0	6,649.6	27.0	16.5	-74.30		292.7	-222.9	896.1	855.5	40.69	22.026	
7,500.0	6,879.4	6,823.7	6,688.5	27.9	16.7	-76.65		292.7	-173.7	880.2	837.8	42.45	20.735	
7,600.0	6,882.9	6,890.6	6,725.4	28.9	17.0	-79.51		292.7	-117.9	867.7	823.0	44.61	19.450	
7,700.0	6,882.4	6,963.3	6,759.8	30.3	17.6	-81.79		292.7	-53.9	858.8	811.9	46.94	18.295	
7,800.0	6,881.9	7,043.3	6,790.4	31.8	18.4	-83.85		292.7	19.9	853.5	803.9	49.64	17.193	
7,900.0	6,881.4	7,129.8	6,814.6	33.6	19.5	-85.50		292.7	103.0	850.7	798.0	52.73	16.133	
8,000.0	6,880.9	7,221.2	6,829.8	35.5	20.9	-86.56		292.7	193.0	849.5	793.4	56.18	15.122	
8,091.8	6,880.4	7,307.4	6,834.3	37.4	22.4	-86.88		292.7	279.0	849.2	789.6	59.59	14.251	
8,100.0	6,880.4	7,315.2	6,834.2	37.5	22.6	-86.88		292.7	286.8	849.2	789.3	59.90	14.177	
8,200.0	6,879.9	7,415.2	6,832.8	39.7	24.5	-86.82		292.7	386.8	849.3	785.3	63.99	13.273	
8,300.0	6,879.4	7,515.2	6,831.4	41.9	26.6	-86.76		292.7	486.8	849.3	781.0	68.29	12.436	
8,400.0	6,878.9	7,615.2	6,829.9	44.2	28.8	-86.70		292.7	586.8	849.4	776.6	72.79	11.669	
8,500.0	6,878.4	7,715.2	6,828.5	46.5	31.1	-86.64		292.7	686.8	849.4	772.0	77.44	10.969	
8,600.0	6,877.9	7,815.2	6,827.1	48.9	33.5	-86.58		292.7	786.8	849.5	767.3	82.21	10.333	
8,700.0	6,877.4	7,915.2	6,825.7	51.4	35.9	-86.51		292.7	886.8	849.5	762.5	87.09	9.755	
8,800.0	6,876.8	8,015.2	6,824.3	53.9	38.4	-86.45		292.7	986.7	849.6	757.6	92.05	9.230	
8,900.0	6,876.3	8,115.2	6,822.9	56.4	40.9	-86.39		292.7	1,086.7	849.7	752.6	97.08	8.752	
9,000.0	6,875.8	8,215.2	6,821.5	58.9	43.5	-86.33		292.7	1,186.7	849.7	747.5	102.17	8.317	
9,100.0	6,875.3	8,315.2	6,820.1	61.5	46.1	-86.27		292.7	1,286.7	849.8	742.5	107.31	7.919	
9,200.0	6,874.8	8,415.1	6,818.6	64.1	48.7	-86.21		292.7	1,386.7	849.8	737.3	112.50	7.554	
9,300.0	6,874.3	8,515.1	6,817.2	66.7	51.3	-86.15		292.7	1,486.7	849.9	732.2	117.72	7.219	
9,400.0	6,873.8	8,615.1	6,815.8	69.3	54.0	-86.09		292.7	1,586.7	850.0	727.0	122.98	6.911	
9,500.0	6,873.3	8,715.1	6,814.4	71.9	56.7	-86.03		292.7	1,686.6	850.0	721.8	128.26	6.627	
9,600.0	6,872.8	8,815.1	6,813.0	74.6	59.3	-85.97		292.7	1,786.6	850.1	716.5	133.57	6.364	
9,700.0	6,872.3	8,915.1	6,811.6	77.2	62.0	-85.90		292.7	1,886.6	850.1	711.2	138.90	6.121	
9,800.0	6,871.8	9,015.1	6,810.2	79.9	64.7	-85.84		292.7	1,986.6	850.2	706.0	144.25	5.894	
9,900.0	6,871.3	9,115.1	6,808.7	82.6	67.5	-85.78		292.7	2,086.6	850.3	700.7	149.62	5.683	
10,000.0	6,870.8	9,215.1	6,807.3	85.3	70.2	-85.72		292.7	2,186.6	850.3	695.4	155.00	5.486	
10,100.0	6,870.3	9,315.1	6,805.9	88.0	72.9	-85.66		292.7	2,286.6	850.4	690.0	160.39	5.302	
10,200.0	6,869.8	9,415.1	6,804.5	90.7	75.6	-85.60		292.7	2,386.5	850.5	684.7	165.80	5.130	
10,300.0	6,869.3	9,515.1	6,803.1	93.4	78.4	-85.54		292.7	2,486.5	850.6	679.3	171.21	4.968	
10,400.0	6,868.7	9,615.1	6,801.7	96.1	81.1	-85.48		292.7	2,586.5	850.6	674.0	176.64	4.816	
10,500.0	6,868.2	9,715.1	6,800.3	98.8	83.9	-85.42		292.7	2,686.5	850.7	668.6	182.08	4.672	
10,600.0	6,867.7	9,815.1	6,798.8	101.5	86.6	-85.36		292.7	2,786.5	850.8	663.3	187.52	4.537	
10,700.0	6,867.2	9,915.1	6,797.4	104.3	89.4	-85.29		292.7	2,886.5	850.8	657.9	192.97	4.409	
10,800.0	6,866.7	10,015.1	6,796.0	107.0	92.1	-85.23		292.7	2,986.5	850.9	652.5	198.43	4.288	
10,900.0	6,866.2	10,115.1	6,794.6	109.7	94.9	-85.17		292.7	3,086.4	851.0	647.1	203.89	4.174	
11,000.0	6,865.7	10,215.1	6,793.2	112.5	97.6	-85.11		292.7	3,186.4	851.1	641.7	209.36	4.065	
11,100.0	6,865.2	10,315.1	6,791.8	115.2	100.4	-85.05		292.7	3,286.4	851.2	636.3	214.83	3.962	
11,200.0	6,864.7	10,415.1	6,790.4	118.0	103.2	-84.99		292.7	3,386.4	851.2	630.9	220.31	3.864	
11,300.0	6,864.2	10,515.1	6,789.0	120.7	105.9	-84.93		292.7	3,486.4	851.3	625.5	225.79	3.770	

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-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,400.0	6,863.7	10,615.1	6,787.5	123.5	108.7	-84.87		292.7	3,586.4	851.4	620.1	231.27	3.681	
11,500.0	6,863.2	10,715.1	6,786.1	126.2	111.5	-84.81		292.7	3,686.4	851.5	614.7	236.76	3.596	
11,600.0	6,862.7	10,815.0	6,784.7	129.0	114.3	-84.75		292.7	3,786.3	851.6	609.3	242.25	3.515	
11,700.0	6,862.2	10,915.0	6,783.3	131.7	117.0	-84.69		292.7	3,886.3	851.6	603.9	247.74	3.438	
11,800.0	6,861.7	11,015.0	6,781.9	134.5	119.8	-84.63		292.7	3,986.3	851.7	598.5	253.24	3.363	
11,900.0	6,861.2	11,115.0	6,780.5	137.3	122.6	-84.56		292.7	4,086.3	851.8	593.1	258.73	3.292	
12,000.0	6,860.6	11,215.0	6,779.1	140.0	125.4	-84.50		292.7	4,186.3	851.9	587.7	264.23	3.224	
12,100.0	6,860.1	11,315.0	6,777.6	142.8	128.2	-84.44		292.7	4,286.3	852.0	582.2	269.73	3.159	
12,200.0	6,859.6	11,415.0	6,776.2	145.6	130.9	-84.38		292.7	4,386.3	852.1	576.8	275.23	3.096	
12,300.0	6,859.1	11,515.0	6,774.8	148.3	133.7	-84.32		292.7	4,486.2	852.2	571.4	280.74	3.035	
12,400.0	6,858.6	11,615.0	6,773.4	151.1	136.5	-84.26		292.7	4,586.2	852.3	566.0	286.24	2.977	
12,500.0	6,858.1	11,715.0	6,772.0	153.9	139.3	-84.20		292.7	4,686.2	852.3	560.6	291.75	2.922	
12,600.0	6,857.6	11,815.0	6,770.6	156.6	142.1	-84.14		292.7	4,786.2	852.4	555.2	297.25	2.868	
12,700.0	6,857.1	11,915.0	6,769.2	159.4	144.9	-84.08		292.7	4,886.2	852.5	549.8	302.76	2.816	
12,800.0	6,856.6	12,015.0	6,767.7	162.2	147.7	-84.02		292.7	4,986.2	852.6	544.4	308.26	2.766	
12,900.0	6,856.1	12,115.0	6,766.3	165.0	150.5	-83.96		292.7	5,086.2	852.7	538.9	313.77	2.718	
13,000.0	6,855.6	12,215.0	6,764.9	167.7	153.2	-83.90		292.7	5,186.2	852.8	533.5	319.28	2.671	
13,100.0	6,855.1	12,315.0	6,763.5	170.5	156.0	-83.84		292.7	5,286.1	852.9	528.1	324.79	2.626	
13,200.0	6,854.6	12,415.0	6,762.1	173.3	158.8	-83.78		292.7	5,386.1	853.0	522.7	330.29	2.583	
13,300.0	6,854.1	12,515.0	6,760.7	176.1	161.6	-83.71		292.7	5,486.1	853.1	517.3	335.80	2.541	
13,400.0	6,853.6	12,615.0	6,759.3	178.9	164.4	-83.65		292.7	5,586.1	853.2	511.9	341.31	2.500	
13,500.0	6,853.1	12,715.0	6,757.9	181.6	167.2	-83.59		292.7	5,686.1	853.3	506.5	346.82	2.460	
13,600.0	6,852.6	12,815.0	6,756.4	184.4	170.0	-83.53		292.7	5,786.1	853.4	501.1	352.32	2.422	
13,700.0	6,852.0	12,915.0	6,755.0	187.2	172.8	-83.47		292.7	5,886.1	853.5	495.7	357.83	2.385	
13,800.0	6,851.5	13,015.0	6,753.6	190.0	175.6	-83.41		292.7	5,986.0	853.6	490.3	363.34	2.349	
13,900.0	6,851.0	13,115.0	6,752.2	192.8	178.4	-83.35		292.7	6,086.0	853.7	484.9	368.84	2.315	
14,000.0	6,850.5	13,215.0	6,750.8	195.6	181.2	-83.29		292.7	6,186.0	853.8	479.5	374.35	2.281	
14,100.0	6,850.0	13,314.9	6,749.4	198.4	184.0	-83.23		292.7	6,286.0	853.9	474.1	379.85	2.248	
14,200.0	6,849.5	13,414.9	6,748.0	201.1	186.8	-83.17		292.7	6,386.0	854.0	468.7	385.36	2.216	
14,300.0	6,849.0	13,514.9	6,746.5	203.9	189.6	-83.11		292.7	6,486.0	854.1	463.3	390.86	2.185	
14,400.0	6,848.5	13,614.9	6,745.1	206.7	192.4	-83.05		292.7	6,586.0	854.3	457.9	396.36	2.155	
14,500.0	6,848.0	13,714.9	6,743.7	209.5	195.2	-82.99		292.7	6,685.9	854.4	452.5	401.86	2.126	
14,600.0	6,847.5	13,814.9	6,742.3	212.3	198.0	-82.93		292.7	6,785.9	854.5	447.1	407.37	2.098	
14,642.5	6,847.3	13,857.5	6,741.7	213.5	199.1	-82.90		292.7	6,828.5	854.5	444.8	409.71	2.086	
14,696.6	6,847.0	13,907.1	6,741.0	215.0	200.5	-82.87		292.7	6,878.1	854.6	442.0	412.56	2.071 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-412 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	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	0.00	61.9	0.0	61.9				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	0.00	61.9	0.0	61.9	61.7	0.22	275.526	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	0.00	61.9	0.0	61.9	61.3	0.67	91.842	
300.0	300.0	300.0	300.0	0.6	0.6	0.00	0.00	61.9	0.0	61.9	60.8	1.12	55.105	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	0.00	61.9	0.0	61.9	60.4	1.57	39.361	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	0.00	61.9	0.0	61.9	59.9	2.02	30.614	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	0.00	61.9	0.0	61.9	59.5	2.47	25.048	
700.0	700.0	700.0	700.0	1.5	1.5	0.00	0.00	61.9	0.0	61.9	59.0	2.92	21.194	
800.0	800.0	800.0	800.0	1.7	1.7	0.00	0.00	61.9	0.0	61.9	58.6	3.37	18.368	
900.0	900.0	900.0	900.0	1.9	1.9	0.00	0.00	61.9	0.0	61.9	58.1	3.82	16.207	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	0.00	61.9	0.0	61.9	57.7	4.27	14.501 CC, ES	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	118.19		61.9	0.0	62.7	58.0	4.70	13.347	
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	122.19		61.9	0.0	65.4	60.3	5.12	12.776	
1,300.0	1,299.5	1,299.5	1,299.5	2.7	2.8	128.11		61.9	0.0	70.4	64.9	5.54	12.705	
1,400.0	1,398.7	1,398.7	1,398.7	3.0	3.0	134.98		61.9	0.0	78.5	72.6	5.97	13.151	
1,500.0	1,497.5	1,497.5	1,497.5	3.2	3.3	141.84		61.9	0.0	90.3	83.9	6.40	14.107	
1,600.0	1,595.6	1,595.6	1,595.6	3.6	3.5	148.02		61.9	0.0	106.1	99.2	6.83	15.533	
1,700.0	1,693.1	1,693.1	1,693.1	3.9	3.7	153.24		61.9	0.0	125.8	118.6	7.25	17.361	
1,800.0	1,789.6	1,789.6	1,789.6	4.3	3.9	157.51		61.9	0.0	149.5	141.8	7.66	19.522	
1,900.0	1,885.6	1,885.6	1,885.6	4.8	4.1	160.97		61.9	0.0	176.0	167.9	8.10	21.740	
2,000.0	1,981.5	1,981.5	1,981.5	5.3	4.3	163.57		61.9	0.0	203.1	194.6	8.55	23.751	
2,100.0	2,077.4	2,081.8	2,081.7	5.9	4.6	165.41		62.1	-1.2	229.8	220.8	9.01	25.493	
2,200.0	2,173.3	2,184.5	2,184.3	6.4	4.8	166.29		62.7	-5.9	254.3	244.8	9.48	26.824	
2,300.0	2,269.2	2,288.5	2,288.0	6.9	5.0	166.43		63.8	-14.4	276.5	266.5	9.97	27.733	
2,400.0	2,365.1	2,393.0	2,391.8	7.5	5.2	166.00		65.4	-26.7	296.2	285.8	10.48	28.258	
2,500.0	2,461.0	2,491.2	2,489.1	8.1	5.5	165.44		67.1	-39.7	315.0	304.0	11.01	28.612	
2,600.0	2,556.9	2,589.4	2,586.4	8.6	5.7	164.94		68.8	-52.7	333.8	322.3	11.55	28.904	
2,700.0	2,652.8	2,687.5	2,683.6	9.2	6.0	164.50		70.5	-65.8	352.6	340.6	12.10	29.147	
2,800.0	2,748.7	2,785.7	2,780.9	9.8	6.2	164.10		72.2	-78.8	371.5	358.8	12.66	29.348	
2,900.0	2,844.6	2,883.9	2,878.2	10.4	6.5	163.74		73.9	-91.9	390.4	377.1	13.23	29.513	
3,000.0	2,940.5	2,982.1	2,975.5	11.0	6.8	163.41		75.6	-104.9	409.2	395.4	13.80	29.649	
3,100.0	3,036.4	3,080.2	3,072.8	11.6	7.1	163.12		77.2	-117.9	428.1	413.7	14.38	29.761	
3,200.0	3,132.3	3,178.4	3,170.1	12.2	7.3	162.84		78.9	-131.0	447.0	432.0	14.97	29.853	
3,300.0	3,228.2	3,276.6	3,267.4	12.7	7.6	162.59		80.6	-144.0	465.9	450.3	15.57	29.928	
3,400.0	3,324.1	3,374.8	3,364.7	13.3	7.9	162.36		82.3	-157.0	484.8	468.6	16.17	29.989	
3,500.0	3,420.0	3,472.9	3,462.0	13.9	8.2	162.15		84.0	-170.1	503.7	487.0	16.77	30.037	
3,600.0	3,515.9	3,571.1	3,559.3	14.5	8.5	161.95		85.7	-183.1	522.7	505.3	17.38	30.076	
3,700.0	3,611.8	3,669.3	3,656.6	15.1	8.8	161.76		87.4	-196.1	541.6	523.6	17.99	30.106	
3,800.0	3,707.7	3,767.5	3,753.9	15.7	9.1	161.59		89.1	-209.2	560.5	541.9	18.60	30.129	
3,900.0	3,803.6	3,865.7	3,851.2	16.3	9.4	161.43		90.8	-222.2	579.5	560.2	19.22	30.146	
4,000.0	3,899.5	3,963.8	3,948.5	16.9	9.7	161.28		92.5	-235.2	598.4	578.6	19.84	30.157	
4,100.0	3,995.4	4,062.0	4,045.8	17.5	10.0	161.14		94.2	-248.3	617.4	596.9	20.47	30.165	
4,200.0	4,091.3	4,160.2	4,143.1	18.1	10.3	161.01		95.9	-261.3	636.3	615.2	21.09	30.168	
4,300.0	4,187.3	4,258.4	4,240.3	18.7	10.7	160.88		97.6	-274.4	655.3	633.5	21.72	30.169	
4,400.0	4,283.2	4,356.5	4,337.6	19.3	11.0	160.76		99.3	-287.4	674.2	651.9	22.35	30.167	
4,500.0	4,379.1	4,454.7	4,434.9	19.9	11.3	160.65		100.9	-300.4	693.2	670.2	22.98	30.163	
4,600.0	4,475.0	4,552.9	4,532.2	20.5	11.6	160.54		102.6	-313.5	712.1	688.5	23.61	30.157	
4,700.0	4,570.9	4,651.1	4,629.5	21.1	11.9	160.44		104.3	-326.5	731.1	706.8	24.25	30.149	
4,800.0	4,666.8	4,749.3	4,726.8	21.7	12.2	160.35		106.0	-339.5	750.1	725.2	24.89	30.140	
4,900.0	4,762.7	4,847.4	4,824.1	22.3	12.6	160.26		107.7	-352.6	769.0	743.5	25.52	30.130	
5,000.0	4,858.6	4,945.6	4,921.4	23.0	12.9	160.17		109.4	-365.6	788.0	761.8	26.16	30.119	

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-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design		Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-412 - Wellbore #1 - Plan #1 (3-05-14)											Offset Site Error:	0.0 ft
Survey Program: 0-MWD													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	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
5,100.0	4,954.5	5,043.8	5,018.7	23.6	13.2	160.09	111.1	-378.6	807.0	780.2	26.80	30.108		
5,200.0	5,050.4	5,142.0	5,116.0	24.2	13.5	160.01	112.8	-391.7	825.9	798.5	27.44	30.095		
5,300.0	5,146.3	5,240.1	5,213.3	24.8	13.8	159.94	114.5	-404.7	844.9	816.8	28.09	30.082		
5,400.0	5,242.3	5,338.4	5,310.7	25.3	14.2	159.92	116.2	-417.8	863.4	834.6	28.76	30.026		
5,500.0	5,339.2	5,437.2	5,408.5	25.7	14.5	159.88	117.9	-430.9	878.9	849.5	29.41	29.890		
5,600.0	5,436.9	5,536.3	5,506.8	26.1	14.8	159.74	119.6	-444.0	891.3	861.2	30.04	29.671		
5,700.0	5,535.3	5,635.8	5,605.4	26.4	15.1	159.50	121.3	-457.2	900.3	869.7	30.65	29.374		
5,800.0	5,634.2	5,721.8	5,690.7	26.7	15.4	159.28	122.7	-467.7	906.9	875.7	31.15	29.117		
5,900.0	5,733.6	5,800.0	5,768.6	26.9	15.5	159.13	123.6	-475.0	911.9	880.3	31.53	28.918		
6,000.0	5,833.3	5,890.7	5,859.0	27.1	15.7	159.01	124.4	-480.9	915.2	883.4	31.88	28.711		
6,100.0	5,933.2	5,975.2	5,943.5	27.2	15.9	158.95	124.8	-483.7	917.1	884.9	32.14	28.535		
6,200.0	6,033.2	6,064.9	6,033.2	27.3	16.0	42.15	124.8	-484.3	917.4	876.9	40.50	22.651		
6,300.0	6,133.2	6,150.2	6,118.5	27.4	16.2	-47.86	124.8	-484.3	917.3	884.7	32.62	28.116		
6,400.0	6,232.7	6,213.7	6,182.0	27.4	16.2	-48.18	124.8	-481.7	913.9	881.3	32.53	28.094		
6,500.0	6,330.0	6,269.2	6,237.0	27.2	16.3	-48.87	124.8	-475.0	906.7	874.4	32.32	28.056		
6,600.0	6,423.6	6,324.7	6,291.5	27.0	16.3	-49.94	124.8	-464.4	895.8	863.7	32.09	27.916		
6,700.0	6,511.8	6,380.4	6,345.3	26.8	16.3	-51.41	124.8	-449.9	881.5	849.5	31.95	27.587		
6,800.0	6,593.1	6,436.4	6,398.1	26.5	16.3	-53.28	124.8	-431.3	864.0	832.0	32.03	26.975		
6,900.0	6,666.1	6,500.0	6,456.2	26.2	16.2	-55.73	124.8	-405.6	843.9	811.4	32.48	25.979		
7,000.0	6,729.6	6,550.0	6,500.3	26.0	16.2	-58.34	124.8	-382.0	821.6	788.3	33.26	24.701		
7,100.0	6,782.5	6,600.0	6,542.8	26.0	16.2	-61.29	124.8	-355.6	797.9	763.4	34.45	23.159		
7,200.0	6,823.8	6,663.9	6,594.4	26.1	16.2	-65.05	124.8	-318.0	773.5	737.3	36.17	21.382		
7,300.0	6,853.0	6,722.3	6,638.6	26.4	16.2	-68.98	124.8	-279.9	749.5	711.3	38.14	19.649		
7,400.0	6,869.4	6,781.6	6,680.4	27.0	16.3	-73.14	124.8	-237.9	727.0	686.8	40.27	18.053		
7,500.0	6,879.4	6,850.0	6,724.5	27.9	16.5	-76.41	124.8	-185.5	709.0	666.8	42.23	16.791		
7,600.0	6,882.9	6,913.2	6,760.8	28.9	16.8	-79.85	124.8	-133.9	695.5	651.0	44.46	15.643		
7,700.0	6,882.4	6,987.9	6,798.1	30.3	17.4	-82.95	124.8	-69.2	686.7	639.9	46.85	14.658		
7,800.0	6,881.9	7,071.0	6,832.0	31.8	18.2	-85.81	124.8	6.6	682.2	632.6	49.59	13.757		
7,900.0	6,881.4	7,161.7	6,859.3	33.6	19.3	-88.14	124.8	93.1	680.5	627.8	52.70	12.913		
8,000.0	6,880.9	7,258.3	6,876.9	35.5	20.8	-89.66	124.8	188.0	680.1	624.0	56.19	12.105		
8,035.8	6,880.7	7,293.8	6,880.7	36.2	21.4	-90.00	124.8	223.3	680.1	622.6	57.54	11.821		
8,100.0	6,880.4	7,357.7	6,887.3	37.5	22.6	-90.58	124.8	286.9	680.2	620.1	60.03	11.331		
8,200.0	6,879.9	7,458.4	6,892.2	39.7	24.5	-91.04	124.8	387.4	680.2	616.1	64.14	10.605		
8,300.0	6,879.4	7,558.6	6,891.6	41.9	26.6	-91.03	124.8	487.6	680.2	611.8	68.47	9.935		
8,400.0	6,878.9	7,658.6	6,890.9	44.2	28.8	-91.01	124.8	587.6	680.2	607.3	72.97	9.322		
8,500.0	6,878.4	7,758.6	6,890.2	46.5	31.1	-91.00	124.8	687.6	680.2	602.6	77.63	8.763		
8,600.0	6,877.9	7,858.6	6,889.5	48.9	33.5	-90.98	124.8	787.6	680.2	597.8	82.41	8.254		
8,700.0	6,877.4	7,958.6	6,888.8	51.4	35.9	-90.97	124.8	887.6	680.2	592.9	87.30	7.792		
8,800.0	6,876.8	8,058.6	6,888.1	53.9	38.4	-90.95	124.8	987.6	680.2	588.0	92.27	7.372		
8,900.0	6,876.3	8,158.6	6,887.4	56.4	40.9	-90.93	124.8	1,087.6	680.2	582.9	97.31	6.990		
9,000.0	6,875.8	8,258.6	6,886.7	58.9	43.5	-90.92	124.8	1,187.6	680.2	577.8	102.42	6.642		
9,100.0	6,875.3	8,358.6	6,886.0	61.5	46.1	-90.90	124.8	1,287.6	680.2	572.6	107.57	6.323		
9,200.0	6,874.8	8,458.6	6,885.3	64.1	48.7	-90.89	124.8	1,387.6	680.2	567.4	112.78	6.032		
9,300.0	6,874.3	8,558.6	6,884.6	66.7	51.3	-90.87	124.8	1,487.6	680.2	562.2	118.01	5.764		
9,400.0	6,873.8	8,658.6	6,883.9	69.3	54.0	-90.85	124.8	1,587.5	680.2	556.9	123.29	5.517		
9,500.0	6,873.3	8,758.6	6,883.2	71.9	56.7	-90.84	124.8	1,687.5	680.2	551.6	128.59	5.290		
9,600.0	6,872.8	8,858.6	6,882.5	74.6	59.3	-90.82	124.8	1,787.5	680.2	546.3	133.92	5.079		
9,700.0	6,872.3	8,958.6	6,881.8	77.2	62.0	-90.80	124.8	1,887.5	680.2	540.9	139.27	4.884		
9,800.0	6,871.8	9,058.6	6,881.1	79.9	64.7	-90.79	124.8	1,987.5	680.2	535.6	144.64	4.703		
9,900.0	6,871.3	9,158.6	6,880.4	82.6	67.5	-90.77	124.8	2,087.5	680.2	530.2	150.03	4.534		
10,000.0	6,870.8	9,258.6	6,879.7	85.3	70.2	-90.76	124.8	2,187.5	680.2	524.8	155.43	4.376		

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-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-412 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation	Warning	
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	Toolface (°)	+N/-S (ft)	+E/-W (ft)	Centres (ft)	Ellipses (ft)	Separation (ft)	Factor		
10,100.0	6,870.3	9,358.6	6,879.0	88.0	72.9	-90.74	124.8	2,287.5	680.2	519.3	160.85	4.229		
10,200.0	6,869.8	9,458.6	6,878.4	90.7	75.6	-90.72	124.8	2,387.5	680.2	513.9	166.29	4.090		
10,300.0	6,869.3	9,558.6	6,877.7	93.4	78.4	-90.71	124.8	2,487.5	680.2	508.5	171.73	3.961		
10,400.0	6,868.7	9,658.6	6,877.0	96.1	81.1	-90.69	124.8	2,587.5	680.2	503.0	177.19	3.839		
10,500.0	6,868.2	9,758.6	6,876.3	98.8	83.9	-90.68	124.8	2,687.5	680.2	497.5	182.65	3.724		
10,600.0	6,867.7	9,858.6	6,875.6	101.5	86.6	-90.66	124.8	2,787.5	680.2	492.1	188.12	3.616		
10,700.0	6,867.2	9,958.6	6,874.9	104.3	89.4	-90.64	124.8	2,887.5	680.2	486.6	193.61	3.513		
10,800.0	6,866.7	10,058.6	6,874.2	107.0	92.1	-90.63	124.8	2,987.5	680.2	481.1	199.10	3.416		
10,900.0	6,866.2	10,158.6	6,873.5	109.7	94.9	-90.61	124.8	3,087.5	680.2	475.6	204.59	3.325		
11,000.0	6,865.7	10,258.6	6,872.8	112.5	97.6	-90.59	124.8	3,187.5	680.2	470.1	210.09	3.237		
11,100.0	6,865.2	10,358.6	6,872.1	115.2	100.4	-90.58	124.8	3,287.5	680.2	464.6	215.60	3.155		
11,200.0	6,864.7	10,458.6	6,871.4	118.0	103.2	-90.56	124.8	3,387.5	680.2	459.0	221.12	3.076		
11,300.0	6,864.2	10,558.6	6,870.7	120.7	105.9	-90.55	124.8	3,487.5	680.2	453.5	226.64	3.001		
11,400.0	6,863.7	10,658.6	6,870.0	123.5	108.7	-90.53	124.8	3,587.5	680.2	448.0	232.16	2.930		
11,500.0	6,863.2	10,758.6	6,869.3	126.2	111.5	-90.51	124.8	3,687.5	680.2	442.5	237.69	2.862		
11,600.0	6,862.7	10,858.6	6,868.6	129.0	114.3	-90.50	124.8	3,787.5	680.2	436.9	243.22	2.796		
11,700.0	6,862.2	10,958.6	6,867.9	131.7	117.0	-90.48	124.8	3,887.5	680.2	431.4	248.76	2.734		
11,800.0	6,861.7	11,058.6	6,867.2	134.5	119.8	-90.47	124.8	3,987.5	680.2	425.9	254.30	2.675		
11,900.0	6,861.2	11,158.6	6,866.5	137.3	122.6	-90.45	124.8	4,087.5	680.2	420.3	259.84	2.618		
12,000.0	6,860.6	11,258.6	6,865.8	140.0	125.4	-90.43	124.8	4,187.5	680.2	414.8	265.38	2.563		
12,100.0	6,860.1	11,358.6	6,865.1	142.8	128.2	-90.42	124.8	4,287.5	680.2	409.2	270.93	2.510		
12,200.0	6,859.6	11,458.6	6,864.4	145.6	131.0	-90.40	124.8	4,387.5	680.2	403.7	276.49	2.460		
12,300.0	6,859.1	11,558.6	6,863.7	148.3	133.7	-90.38	124.8	4,487.5	680.1	398.1	282.04	2.412		
12,400.0	6,858.6	11,658.6	6,863.0	151.1	136.5	-90.37	124.8	4,587.5	680.1	392.6	287.60	2.365		
12,500.0	6,858.1	11,758.6	6,862.3	153.9	139.3	-90.35	124.8	4,687.5	680.1	387.0	293.16	2.320		
12,600.0	6,857.6	11,858.6	6,861.6	156.6	142.1	-90.34	124.8	4,787.5	680.1	381.4	298.72	2.277		
12,700.0	6,857.1	11,958.6	6,860.9	159.4	144.9	-90.32	124.8	4,887.5	680.1	375.9	304.28	2.235		
12,800.0	6,856.6	12,058.6	6,860.2	162.2	147.7	-90.30	124.8	4,987.5	680.1	370.3	309.84	2.195		
12,900.0	6,856.1	12,158.6	6,859.5	165.0	150.5	-90.29	124.8	5,087.5	680.1	364.7	315.41	2.156		
13,000.0	6,855.6	12,258.6	6,858.8	167.7	153.3	-90.27	124.8	5,187.5	680.1	359.2	320.98	2.119		
13,100.0	6,855.1	12,358.6	6,858.1	170.5	156.1	-90.25	124.8	5,287.5	680.1	353.6	326.55	2.083		
13,200.0	6,854.6	12,458.6	6,857.4	173.3	158.8	-90.24	124.8	5,387.4	680.1	348.0	332.12	2.048		
13,300.0	6,854.1	12,558.6	6,856.7	176.1	161.6	-90.22	124.8	5,487.4	680.1	342.4	337.70	2.014		
13,400.0	6,853.6	12,658.6	6,856.0	178.9	164.4	-90.21	124.8	5,587.4	680.1	336.9	343.27	1.981		
13,500.0	6,853.1	12,758.6	6,855.3	181.6	167.2	-90.19	124.8	5,687.4	680.1	331.3	348.85	1.950		
13,600.0	6,852.6	12,858.6	6,854.6	184.4	170.0	-90.17	124.8	5,787.4	680.1	325.7	354.42	1.919		
13,700.0	6,852.0	12,958.6	6,853.9	187.2	172.8	-90.16	124.8	5,887.4	680.1	320.1	360.00	1.889		
13,800.0	6,851.5	13,058.6	6,853.2	190.0	175.6	-90.14	124.8	5,987.4	680.1	314.6	365.58	1.860		
13,900.0	6,851.0	13,158.6	6,852.5	192.8	178.4	-90.13	124.8	6,087.4	680.1	309.0	371.16	1.832		
14,000.0	6,850.5	13,258.6	6,851.8	195.6	181.2	-90.11	124.8	6,187.4	680.1	303.4	376.75	1.805		
14,100.0	6,850.0	13,358.6	6,851.1	198.4	184.0	-90.09	124.8	6,287.4	680.1	297.8	382.33	1.779		
14,200.0	6,849.5	13,458.6	6,850.4	201.1	186.8	-90.08	124.8	6,387.4	680.1	292.2	387.91	1.753		
14,300.0	6,849.0	13,558.6	6,849.7	203.9	189.6	-90.06	124.8	6,487.4	680.1	286.6	393.50	1.728		
14,400.0	6,848.5	13,658.6	6,849.0	206.7	192.4	-90.04	124.8	6,587.4	680.1	281.1	399.08	1.704		
14,500.0	6,848.0	13,758.6	6,848.3	209.5	195.2	-90.03	124.8	6,687.4	680.1	275.5	404.67	1.681		
14,572.9	6,847.6	13,831.5	6,847.8	211.5	197.2	-90.02	124.8	6,760.4	680.1	271.4	408.75	1.664		
14,600.0	6,847.5	13,858.6	6,847.6	212.3	198.0	-90.01	124.8	6,787.4	680.1	269.9	410.26	1.658		
14,656.8	6,847.2	13,915.3	6,847.2	213.9	199.6	-90.00	124.8	6,844.2	680.1	266.7	413.43	1.645		
14,696.6	6,847.0	13,949.3	6,847.0	215.0	200.5	-90.00	124.8	6,878.2	680.2	264.7	415.49	1.637 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-312 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+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	-79.04	29.1	-150.4	153.2				
100.0	100.0	100.0	100.0	0.1	0.1	-79.04	-79.04	29.1	-150.4	153.2	153.0	0.22	681.740	
200.0	200.0	200.0	200.0	0.3	0.3	-79.04	-79.04	29.1	-150.4	153.2	152.6	0.67	227.247	
300.0	300.0	300.0	300.0	0.6	0.6	-79.04	-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	-79.04	29.1	-150.4	153.2	151.7	1.57	97.391 CC, ES	
500.0	500.0	497.4	497.3	1.0	1.0	-79.57	-79.57	27.9	-151.5	154.1	152.1	2.00	77.206	
600.0	600.0	594.5	594.3	1.2	1.2	-81.13	-81.13	24.2	-154.8	156.7	154.3	2.41	64.939	
700.0	700.0	691.2	690.7	1.5	1.4	-83.59	-83.59	18.0	-160.1	161.4	158.6	2.84	56.742	
800.0	800.0	787.2	786.0	1.7	1.6	-86.78	-86.78	9.4	-167.6	168.4	165.1	3.28	51.267	
900.0	900.0	882.4	880.1	1.9	1.9	-90.47	-90.47	-1.5	-177.0	178.1	174.4	3.74	47.668	
1,000.0	1,000.0	976.5	972.6	2.1	2.3	-94.41	-94.41	-14.5	-188.3	190.9	186.7	4.20	45.403	
1,100.0	1,100.0	1,069.7	1,063.6	2.3	2.6	18.45	18.45	-29.7	-201.5	205.3	200.5	4.77	43.039	
1,200.0	1,199.8	1,162.2	1,153.3	2.5	3.1	14.82	14.82	-47.0	-216.5	219.8	214.5	5.24	41.926	
1,300.0	1,299.5	1,254.1	1,241.5	2.7	3.6	11.43	11.43	-66.3	-233.3	234.4	228.7	5.72	40.959	
1,400.0	1,398.7	1,346.5	1,329.4	3.0	4.1	8.19	8.19	-87.8	-252.0	249.1	242.9	6.21	40.125	
1,500.0	1,497.5	1,444.7	1,422.5	3.2	4.7	5.13	5.13	-111.5	-272.5	262.0	255.3	6.71	39.081	
1,600.0	1,595.6	1,543.4	1,516.0	3.6	5.3	2.39	2.39	-135.3	-293.2	272.2	265.0	7.19	37.859	
1,700.0	1,693.1	1,642.4	1,609.8	3.9	5.9	-0.13	-0.13	-159.2	-313.9	279.5	271.8	7.67	36.427	
1,800.0	1,789.6	1,741.6	1,703.8	4.3	6.6	-2.55	-2.55	-183.1	-334.6	283.8	275.7	8.15	34.827	
1,900.0	1,885.6	1,840.8	1,797.8	4.8	7.2	-4.94	-4.94	-207.0	-355.4	286.2	277.6	8.66	33.049	
2,000.0	1,981.5	1,940.1	1,891.9	5.3	7.9	-7.29	-7.29	-230.9	-376.2	289.0	279.8	9.19	31.457	
2,100.0	2,077.4	2,039.3	1,986.0	5.9	8.5	-9.59	-9.59	-254.9	-396.9	292.3	282.6	9.73	30.053	
2,200.0	2,173.3	2,138.6	2,080.0	6.4	9.2	-11.83	-11.83	-278.8	-417.7	296.0	285.7	10.28	28.794	
2,300.0	2,269.2	2,237.8	2,174.1	6.9	9.8	-14.02	-14.02	-302.7	-438.5	300.2	289.3	10.86	27.649	
2,400.0	2,365.1	2,337.1	2,268.2	7.5	10.5	-16.14	-16.14	-326.7	-459.2	304.8	293.3	11.46	26.593	
2,500.0	2,461.0	2,436.3	2,362.2	8.1	11.1	-18.20	-18.20	-350.6	-480.0	309.8	297.7	12.10	25.610	
2,600.0	2,556.9	2,535.6	2,456.3	8.6	11.8	-20.20	-20.20	-374.5	-500.8	315.2	302.5	12.77	24.689	
2,700.0	2,652.8	2,634.9	2,550.3	9.2	12.4	-22.12	-22.12	-398.4	-521.5	321.0	307.6	13.48	23.822	
2,800.0	2,748.7	2,734.1	2,644.4	9.8	13.1	-23.97	-23.97	-422.4	-542.3	327.2	312.9	14.22	23.006	
2,900.0	2,844.6	2,833.4	2,738.5	10.4	13.7	-25.76	-25.76	-446.3	-563.1	333.6	318.6	15.00	22.236	
3,000.0	2,940.5	2,932.6	2,832.5	11.0	14.4	-27.47	-27.47	-470.2	-583.8	340.4	324.6	15.82	21.512	
3,100.0	3,036.4	3,031.9	2,926.6	11.6	15.0	-29.12	-29.12	-494.2	-604.6	347.5	330.8	16.68	20.831	
3,200.0	3,132.3	3,131.1	3,020.6	12.2	15.7	-30.70	-30.70	-518.1	-625.4	354.8	337.3	17.57	20.193	
3,300.0	3,228.2	3,230.4	3,114.7	12.7	16.4	-32.22	-32.22	-542.0	-646.1	362.5	344.0	18.50	19.596	
3,400.0	3,324.1	3,329.6	3,208.8	13.3	17.0	-33.68	-33.68	-566.0	-666.9	370.3	350.9	19.45	19.038	
3,500.0	3,420.0	3,428.9	3,302.8	13.9	17.7	-35.07	-35.07	-589.9	-687.7	378.4	358.0	20.43	18.518	
3,600.0	3,515.9	3,528.2	3,396.9	14.5	18.3	-36.40	-36.40	-613.8	-708.4	386.7	365.3	21.44	18.034	
3,700.0	3,611.8	3,627.4	3,491.0	15.1	19.0	-37.68	-37.68	-637.7	-729.2	395.2	372.7	22.48	17.585	
3,800.0	3,707.7	3,726.7	3,585.0	15.7	19.6	-38.91	-38.91	-661.7	-750.0	403.9	380.4	23.53	17.166	
3,900.0	3,803.6	3,825.9	3,679.1	16.3	20.3	-40.08	-40.08	-685.6	-770.7	412.8	388.2	24.60	16.778	
4,000.0	3,899.5	3,925.2	3,773.1	16.9	21.0	-41.20	-41.20	-709.5	-791.5	421.8	396.1	25.69	16.417	
4,100.0	3,995.4	4,024.4	3,867.2	17.5	21.6	-42.28	-42.28	-733.5	-812.3	431.0	404.2	26.80	16.083	
4,200.0	4,091.3	4,123.7	3,961.3	18.1	22.3	-43.31	-43.31	-757.4	-833.1	440.3	412.4	27.92	15.772	
4,300.0	4,187.3	4,222.9	4,055.3	18.7	22.9	-44.30	-44.30	-781.3	-853.8	449.8	420.8	29.05	15.483	
4,400.0	4,283.2	4,322.2	4,149.4	19.3	23.6	-45.24	-45.24	-805.2	-874.6	459.4	429.2	30.20	15.214	
4,500.0	4,379.1	4,421.4	4,243.4	19.9	24.2	-46.15	-46.15	-829.2	-895.4	469.1	437.8	31.35	14.964	
4,600.0	4,475.0	4,520.7	4,337.5	20.5	24.9	-47.03	-47.03	-853.1	-916.1	479.0	446.4	32.51	14.731	
4,700.0	4,570.9	4,620.0	4,431.6	21.1	25.6	-47.86	-47.86	-877.0	-936.9	488.9	455.2	33.68	14.514	
4,800.0	4,666.8	4,719.2	4,525.6	21.7	26.2	-48.67	-48.67	-901.0	-957.7	498.9	464.1	34.86	14.312	
4,900.0	4,762.7	4,818.5	4,619.7	22.3	26.9	-49.44	-49.44	-924.9	-978.4	509.1	473.0	36.05	14.123	
5,000.0	4,858.6	4,917.7	4,713.8	23.0	27.5	-50.18	-50.18	-948.8	-999.2	519.3	482.1	37.24	13.946	

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-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-312 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,954.5	5,017.0	4,807.8	23.6	28.2	-50.89	-972.8	-1,020.0	529.6	491.2	38.43	13.781		
5,200.0	5,050.4	5,116.2	4,901.9	24.2	28.9	-51.58	-996.7	-1,040.7	540.0	500.3	39.63	13.626		
5,300.0	5,146.3	5,217.7	4,998.0	24.8	29.5	-52.25	-1,021.1	-1,061.9	550.4	509.6	40.84	13.477		
5,400.0	5,242.3	5,336.7	5,111.7	25.3	30.1	-53.19	-1,047.6	-1,085.0	559.1	517.0	42.10	13.279		
5,500.0	5,339.2	5,456.0	5,227.1	25.7	30.6	-54.11	-1,070.6	-1,104.9	566.3	523.1	43.16	13.119		
5,600.0	5,436.9	5,575.7	5,344.0	26.1	31.0	-54.92	-1,090.0	-1,121.7	572.1	527.9	44.11	12.969		
5,700.0	5,535.3	5,695.5	5,461.9	26.4	31.4	-55.62	-1,105.7	-1,135.4	576.4	531.5	44.94	12.826		
5,800.0	5,634.2	5,815.4	5,580.8	26.7	31.6	-56.23	-1,117.7	-1,145.7	579.3	533.6	45.65	12.691		
5,900.0	5,733.6	5,935.4	5,700.3	26.9	31.9	-56.74	-1,125.9	-1,152.9	580.7	534.4	46.23	12.560		
6,000.0	5,833.3	6,055.3	5,820.0	27.1	32.0	-57.16	-1,130.3	-1,156.7	580.6	533.9	46.70	12.431		
6,100.0	5,933.2	6,168.5	5,933.2	27.2	32.1	-57.46	-1,131.2	-1,157.4	579.1	532.1	47.05	12.310		
6,200.0	6,033.2	6,268.5	6,033.2	27.3	32.2	-174.30	-1,131.2	-1,157.4	578.7	531.0	47.70	12.131		
6,300.0	6,133.2	6,375.4	6,139.9	27.4	32.2	95.12	-1,131.2	-1,151.1	578.2	530.6	47.63	12.139		
6,400.0	6,232.7	6,481.4	6,243.7	27.4	32.1	94.12	-1,131.2	-1,130.2	577.4	529.4	47.93	12.045		
6,500.0	6,330.0	6,585.8	6,342.2	27.2	32.0	93.05	-1,131.2	-1,095.8	576.7	528.6	48.04	12.005		
6,600.0	6,423.6	6,688.6	6,433.6	27.0	31.7	91.94	-1,131.2	-1,049.1	576.2	528.2	47.98	12.008		
6,700.0	6,511.8	6,789.7	6,516.8	26.8	31.4	90.79	-1,131.2	-991.6	575.9	528.1	47.83	12.040		
6,769.3	6,568.9	6,858.9	6,568.9	26.6	31.2	90.00	-1,131.2	-946.2	575.9	528.1	47.72	12.068		
6,800.0	6,593.1	6,889.3	6,590.5	26.5	31.1	89.65	-1,131.2	-924.7	575.9	528.2	47.67	12.081		
6,900.0	6,666.1	6,987.5	6,654.1	26.2	30.8	88.52	-1,131.2	-850.0	576.1	528.5	47.58	12.107		
7,000.0	6,729.6	7,084.3	6,706.8	26.0	30.5	87.42	-1,131.2	-769.0	576.4	528.8	47.69	12.088		
7,100.0	6,782.5	7,179.8	6,748.5	26.0	30.3	86.37	-1,131.2	-683.1	577.0	528.9	48.09	11.999		
7,200.0	6,823.8	7,274.1	6,778.7	26.1	30.1	85.38	-1,131.2	-593.8	577.7	528.9	48.87	11.821		
7,300.0	6,853.0	7,367.4	6,797.7	26.4	29.9	84.48	-1,131.2	-502.5	578.6	528.5	50.08	11.554		
7,400.0	6,869.4	7,459.8	6,805.3	27.0	29.8	83.67	-1,131.2	-410.5	579.4	527.7	51.70	11.206		
7,500.0	6,879.4	7,557.1	6,804.7	27.9	29.9	82.63	-1,131.2	-313.2	580.7	526.7	53.98	10.757		
7,600.0	6,882.9	7,656.9	6,803.6	28.9	30.2	82.16	-1,131.2	-213.3	581.3	524.7	56.61	10.269		
7,700.0	6,882.4	7,756.9	6,802.5	30.3	30.8	82.10	-1,131.2	-113.3	581.4	521.6	59.74	9.732		
7,800.0	6,881.9	7,856.9	6,801.5	31.8	32.0	82.05	-1,131.2	-13.4	581.4	518.2	63.20	9.200		
7,900.0	6,881.4	7,956.9	6,800.4	33.6	33.6	81.99	-1,131.2	86.6	581.5	514.6	66.95	8.686		
8,000.0	6,880.9	8,056.9	6,799.3	35.5	35.6	81.94	-1,131.2	186.6	581.6	510.7	70.94	8.199		
8,100.0	6,880.4	8,156.9	6,798.3	37.5	37.7	81.88	-1,131.2	286.6	581.7	506.6	75.12	7.743		
8,200.0	6,879.9	8,256.9	6,797.2	39.7	39.9	81.83	-1,131.2	386.6	581.8	502.3	79.48	7.320		
8,300.0	6,879.4	8,356.9	6,796.1	41.9	42.2	81.78	-1,131.2	486.6	581.8	497.9	83.97	6.929		
8,400.0	6,878.9	8,456.9	6,795.1	44.2	44.6	81.72	-1,131.2	586.6	581.9	493.3	88.58	6.569		
8,500.0	6,878.4	8,556.9	6,794.0	46.5	47.0	81.67	-1,131.2	686.6	582.0	488.7	93.30	6.238		
8,600.0	6,877.9	8,656.9	6,792.9	48.9	49.5	81.61	-1,131.2	786.6	582.1	484.0	98.10	5.933		
8,700.0	6,877.4	8,756.9	6,791.9	51.4	52.0	81.56	-1,131.2	886.6	582.2	479.2	102.98	5.653		
8,800.0	6,876.8	8,856.9	6,790.8	53.9	54.6	81.50	-1,131.2	986.6	582.2	474.3	107.92	5.395		
8,900.0	6,876.3	8,956.9	6,789.8	56.4	57.1	81.45	-1,131.2	1,086.6	582.3	469.4	112.91	5.157		
9,000.0	6,875.8	9,056.9	6,788.7	58.9	59.7	81.39	-1,131.2	1,186.6	582.4	464.5	117.96	4.937		
9,100.0	6,875.3	9,156.9	6,787.6	61.5	62.3	81.34	-1,131.2	1,286.6	582.5	459.5	123.04	4.734		
9,200.0	6,874.8	9,256.9	6,786.6	64.1	65.0	81.29	-1,131.2	1,386.6	582.6	454.4	128.16	4.546		
9,300.0	6,874.3	9,356.9	6,785.5	66.7	67.6	81.23	-1,131.2	1,486.6	582.7	449.3	133.32	4.370		
9,400.0	6,873.8	9,456.9	6,784.4	69.3	70.2	81.18	-1,131.2	1,586.6	582.7	444.2	138.50	4.208		
9,500.0	6,873.3	9,556.9	6,783.4	71.9	72.9	81.12	-1,131.2	1,686.6	582.8	439.1	143.71	4.056		
9,600.0	6,872.8	9,656.9	6,782.3	74.6	75.6	81.07	-1,131.2	1,786.6	582.9	434.0	148.94	3.914		
9,700.0	6,872.3	9,756.9	6,781.2	77.2	78.3	81.01	-1,131.2	1,886.6	583.0	428.8	154.19	3.781		
9,800.0	6,871.8	9,856.9	6,780.2	79.9	80.9	80.96	-1,131.2	1,986.6	583.1	423.6	159.46	3.657		
9,900.0	6,871.3	9,956.9	6,779.1	82.6	83.6	80.91	-1,131.2	2,086.6	583.2	418.4	164.74	3.540		
10,000.0	6,870.8	10,056.9	6,778.0	85.3	86.3	80.85	-1,131.2	2,186.6	583.3	413.2	170.04	3.430		

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-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-312 - Wellbore #1 - Plan #1 (3-05-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,870.3	10,156.9	6,777.0	88.0	89.1	80.80	-1,131.2	2,286.5	583.4	408.0	175.35	3.327	
10,200.0	6,869.8	10,256.9	6,775.9	90.7	91.8	80.74	-1,131.2	2,386.5	583.5	402.8	180.67	3.229	
10,300.0	6,869.3	10,356.9	6,774.9	93.4	94.5	80.69	-1,131.2	2,486.5	583.5	397.5	186.00	3.137	
10,400.0	6,868.7	10,456.9	6,773.8	96.1	97.2	80.64	-1,131.2	2,586.5	583.6	392.3	191.34	3.050	
10,500.0	6,868.2	10,556.9	6,772.7	98.8	99.9	80.58	-1,131.2	2,686.4	583.7	387.0	196.69	2.968	
10,600.0	6,867.7	10,656.9	6,771.7	101.5	102.7	80.53	-1,131.2	2,786.4	583.8	381.8	202.05	2.889	
10,700.0	6,867.2	10,756.9	6,770.6	104.3	105.4	80.47	-1,131.2	2,886.4	583.9	376.5	207.41	2.815	
10,800.0	6,866.7	10,856.9	6,769.5	107.0	108.1	80.42	-1,131.2	2,986.4	584.0	371.2	212.78	2.745	
10,900.0	6,866.2	10,956.9	6,768.5	109.7	110.9	80.37	-1,131.2	3,086.4	584.1	365.9	218.16	2.677	
11,000.0	6,865.7	11,056.9	6,767.4	112.5	113.6	80.31	-1,131.2	3,186.4	584.2	360.6	223.54	2.613	
11,100.0	6,865.2	11,156.9	6,766.3	115.2	116.4	80.26	-1,131.2	3,286.4	584.3	355.4	228.92	2.552	
11,200.0	6,864.7	11,256.9	6,765.3	118.0	119.1	80.20	-1,131.2	3,386.4	584.4	350.1	234.31	2.494	
11,300.0	6,864.2	11,356.9	6,764.2	120.7	121.9	80.15	-1,131.2	3,486.4	584.5	344.8	239.70	2.438	
11,400.0	6,863.7	11,456.9	6,763.1	123.5	124.6	80.10	-1,131.2	3,586.4	584.6	339.5	245.10	2.385	
11,500.0	6,863.2	11,556.9	6,762.1	126.2	127.4	80.04	-1,131.2	3,686.4	584.7	334.2	250.50	2.334	
11,600.0	6,862.7	11,656.9	6,761.0	129.0	130.2	79.99	-1,131.2	3,786.4	584.8	328.9	255.90	2.285	
11,700.0	6,862.2	11,756.9	6,759.9	131.7	132.9	79.93	-1,131.2	3,886.4	584.9	323.6	261.30	2.238	
11,800.0	6,861.7	11,856.9	6,758.9	134.5	135.7	79.88	-1,131.2	3,986.4	585.0	318.2	266.71	2.193	
11,900.0	6,861.2	11,956.9	6,757.8	137.3	138.5	79.83	-1,131.2	4,086.3	585.1	312.9	272.12	2.150	
12,000.0	6,860.6	12,056.9	6,756.8	140.0	141.2	79.77	-1,131.2	4,186.3	585.2	307.6	277.52	2.108	
12,100.0	6,860.1	12,156.9	6,755.7	142.8	144.0	79.72	-1,131.2	4,286.3	585.3	302.3	282.93	2.069	
12,200.0	6,859.6	12,256.9	6,754.6	145.6	146.8	79.66	-1,131.2	4,386.3	585.4	297.0	288.35	2.030	
12,300.0	6,859.1	12,356.9	6,753.6	148.3	149.5	79.61	-1,131.2	4,486.3	585.5	291.7	293.76	1.993	
12,400.0	6,858.6	12,456.9	6,752.5	151.1	152.3	79.56	-1,131.2	4,586.3	585.6	286.4	299.17	1.957	
12,500.0	6,858.1	12,556.9	6,751.4	153.9	155.1	79.50	-1,131.2	4,686.3	585.7	281.1	304.58	1.923	
12,600.0	6,857.6	12,656.9	6,750.4	156.6	157.9	79.45	-1,131.2	4,786.3	585.8	275.8	310.00	1.890	
12,700.0	6,857.1	12,756.9	6,749.3	159.4	160.6	79.40	-1,131.2	4,886.3	585.9	270.4	315.41	1.857	
12,800.0	6,856.6	12,856.9	6,748.2	162.2	163.4	79.34	-1,131.2	4,986.3	586.0	265.1	320.83	1.826	
12,900.0	6,856.1	12,956.9	6,747.2	165.0	166.2	79.29	-1,131.2	5,086.3	586.1	259.8	326.24	1.796	
13,000.0	6,855.6	13,056.9	6,746.1	167.7	169.0	79.24	-1,131.2	5,186.3	586.2	254.5	331.66	1.767	
13,100.0	6,855.1	13,156.9	6,745.0	170.5	171.8	79.18	-1,131.2	5,286.3	586.3	249.2	337.07	1.739	
13,200.0	6,854.6	13,256.9	6,744.0	173.3	174.5	79.13	-1,131.2	5,386.3	586.4	243.9	342.48	1.712	
13,300.0	6,854.1	13,356.8	6,742.9	176.1	177.3	79.07	-1,131.2	5,486.2	586.5	238.6	347.90	1.686	
13,400.0	6,853.6	13,456.8	6,741.8	178.9	180.1	79.02	-1,131.2	5,586.2	586.6	233.3	353.31	1.660	
13,500.0	6,853.1	13,556.8	6,740.8	181.6	182.9	78.97	-1,131.2	5,686.2	586.7	228.0	358.72	1.636	
13,600.0	6,852.6	13,656.8	6,739.7	184.4	185.7	78.91	-1,131.2	5,786.2	586.8	222.7	364.13	1.612	
13,700.0	6,852.0	13,756.8	6,738.7	187.2	188.5	78.86	-1,131.2	5,886.2	586.9	217.4	369.54	1.588	
13,800.0	6,851.5	13,856.8	6,737.6	190.0	191.2	78.81	-1,131.2	5,986.2	587.0	212.1	374.96	1.566	
13,900.0	6,851.0	13,956.8	6,736.5	192.8	194.0	78.75	-1,131.2	6,086.2	587.1	206.8	380.36	1.544	
14,000.0	6,850.5	14,056.8	6,735.5	195.6	196.8	78.70	-1,131.2	6,186.2	587.2	201.5	385.77	1.522	
14,100.0	6,850.0	14,156.8	6,734.4	198.4	199.6	78.65	-1,131.2	6,286.2	587.3	196.2	391.18	1.501	
14,200.0	6,849.5	14,256.8	6,733.3	201.1	202.4	78.59	-1,131.2	6,386.2	587.5	190.9	396.59	1.481 Level 3	
14,300.0	6,849.0	14,356.8	6,732.3	203.9	205.2	78.54	-1,131.2	6,486.2	587.6	185.6	401.99	1.462 Level 3	
14,400.0	6,848.5	14,456.8	6,731.2	206.7	208.0	78.49	-1,131.2	6,586.2	587.7	180.3	407.40	1.443 Level 3	
14,500.0	6,848.0	14,556.8	6,730.1	209.5	210.8	78.43	-1,131.2	6,686.2	587.8	175.0	412.80	1.424 Level 3	
14,600.0	6,847.5	14,656.8	6,729.1	212.3	213.6	78.38	-1,131.2	6,786.2	587.9	169.7	418.20	1.406 Level 3	
14,696.6	6,847.0	14,753.4	6,728.0	215.0	216.2	78.33	-1,131.2	6,882.7	588.0	164.6	423.42	1.389 Level 3, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-402 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-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	669.296		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-150.4	150.4	149.8	0.67	223.099 CC, ES		
300.0	300.0	296.9	296.8	0.6	0.5	-90.49	-1.3	-151.4	151.5	150.4	1.10	137.856		
400.0	400.0	393.5	393.3	0.8	0.7	-91.92	-5.2	-154.4	154.7	153.1	1.53	101.152		
500.0	500.0	489.7	489.2	1.0	1.0	-94.16	-11.6	-159.4	160.2	158.2	1.97	81.152		
600.0	600.0	585.2	584.1	1.2	1.2	-97.03	-20.5	-166.2	168.2	165.8	2.43	69.283		
700.0	700.0	679.9	677.7	1.5	1.6	-100.30	-31.8	-174.9	179.2	176.3	2.90	61.850		
800.0	800.0	773.6	769.8	1.7	1.9	-103.75	-45.3	-185.4	193.2	189.8	3.39	57.075		
900.0	900.0	866.0	860.0	1.9	2.3	-107.18	-61.1	-197.5	210.5	206.6	3.90	53.971		
1,000.0	1,000.0	957.0	948.3	2.1	2.8	-110.47	-78.8	-211.1	231.2	226.8	4.45	51.952		
1,100.0	1,100.0	1,046.9	1,034.7	2.3	3.2	3.26	-98.5	-226.3	253.6	248.6	4.95	51.236		
1,200.0	1,199.8	1,136.1	1,119.5	2.5	3.8	0.48	-120.1	-242.9	276.0	270.5	5.42	50.957		
1,300.0	1,299.5	1,226.0	1,204.2	2.7	4.4	-2.12	-144.0	-261.3	298.3	292.4	5.89	50.666		
1,400.0	1,398.7	1,323.0	1,295.3	3.0	5.0	-4.62	-170.4	-281.7	318.7	312.3	6.37	50.001		
1,500.0	1,497.5	1,420.5	1,386.9	3.2	5.7	-6.88	-197.1	-302.2	336.3	329.4	6.86	49.020		
1,600.0	1,595.6	1,518.6	1,478.9	3.6	6.4	-8.99	-223.9	-322.8	350.9	343.6	7.35	47.771		
1,700.0	1,693.1	1,617.1	1,571.3	3.9	7.1	-11.03	-250.7	-343.5	362.7	354.8	7.84	46.284		
1,800.0	1,789.6	1,715.8	1,664.0	4.3	7.7	-13.06	-277.7	-364.3	371.4	363.1	8.33	44.581		
1,900.0	1,885.6	1,814.6	1,756.8	4.8	8.4	-15.12	-304.7	-385.1	378.3	369.5	8.87	42.636		
2,000.0	1,981.5	1,913.5	1,849.6	5.3	9.1	-17.12	-331.7	-405.9	385.6	376.2	9.44	40.828		
2,100.0	2,077.4	2,012.3	1,942.3	5.9	9.8	-19.04	-358.6	-426.6	393.4	383.3	10.04	39.174		
2,200.0	2,173.3	2,111.1	2,035.1	6.4	10.5	-20.88	-385.6	-447.4	401.5	390.9	10.67	37.648		
2,300.0	2,269.2	2,209.9	2,127.9	6.9	11.2	-22.65	-412.6	-468.2	410.1	398.8	11.32	36.231		
2,400.0	2,365.1	2,308.8	2,220.7	7.5	11.9	-24.35	-439.6	-489.0	419.0	407.0	12.00	34.910		
2,500.0	2,461.0	2,407.6	2,313.5	8.1	12.6	-25.98	-466.6	-509.8	428.4	415.6	12.72	33.674		
2,600.0	2,556.9	2,506.4	2,406.2	8.6	13.3	-27.54	-493.6	-530.5	438.0	424.5	13.47	32.518		
2,700.0	2,652.8	2,605.3	2,499.0	9.2	14.0	-29.03	-520.5	-551.3	447.9	433.7	14.25	31.435		
2,800.0	2,748.7	2,704.1	2,591.8	9.8	14.7	-30.45	-547.5	-572.1	458.2	443.1	15.06	30.423		
2,900.0	2,844.6	2,802.9	2,684.6	10.4	15.4	-31.81	-574.5	-592.9	468.7	452.8	15.90	29.477		
3,000.0	2,940.5	2,901.8	2,777.4	11.0	16.1	-33.12	-601.5	-613.7	479.5	462.7	16.77	28.593		
3,100.0	3,036.4	3,000.6	2,870.1	11.6	16.8	-34.36	-628.5	-634.4	490.5	472.8	17.66	27.769		
3,200.0	3,132.3	3,099.4	2,962.9	12.2	17.5	-35.56	-655.5	-655.2	501.7	483.1	18.58	27.000		
3,300.0	3,228.2	3,198.3	3,055.7	12.7	18.2	-36.69	-682.4	-676.0	513.1	493.6	19.52	26.284		
3,400.0	3,324.1	3,297.1	3,148.5	13.3	18.9	-37.78	-709.4	-696.8	524.8	504.3	20.48	25.617		
3,500.0	3,420.0	3,395.9	3,241.2	13.9	19.6	-38.83	-736.4	-717.6	536.6	515.1	21.47	24.995		
3,600.0	3,515.9	3,494.8	3,334.0	14.5	20.3	-39.82	-763.4	-738.4	548.5	526.1	22.47	24.416		
3,700.0	3,611.8	3,593.6	3,426.8	15.1	21.0	-40.78	-790.4	-759.1	560.7	537.2	23.48	23.876		
3,800.0	3,707.7	3,692.4	3,519.6	15.7	21.7	-41.69	-817.4	-779.9	573.0	548.4	24.51	23.372		
3,900.0	3,803.6	3,791.3	3,612.4	16.3	22.4	-42.57	-844.3	-800.7	585.4	559.8	25.56	22.903		
4,000.0	3,899.5	3,890.1	3,705.1	16.9	23.1	-43.41	-871.3	-821.5	597.9	571.3	26.62	22.464		
4,100.0	3,995.4	3,988.9	3,797.9	17.5	23.8	-44.22	-898.3	-842.3	610.6	582.9	27.69	22.054		
4,200.0	4,091.3	4,087.8	3,890.7	18.1	24.5	-44.99	-925.3	-863.0	623.4	594.6	28.77	21.671		
4,300.0	4,187.3	4,186.6	3,983.5	18.7	25.2	-45.73	-952.3	-883.8	636.3	606.4	29.85	21.313		
4,400.0	4,283.2	4,285.4	4,076.3	19.3	25.9	-46.45	-979.3	-904.6	649.3	618.3	30.95	20.977		
4,500.0	4,379.1	4,384.3	4,169.0	19.9	26.6	-47.13	-1,006.2	-925.4	662.4	630.3	32.06	20.661		
4,600.0	4,475.0	4,483.1	4,261.8	20.5	27.3	-47.79	-1,033.2	-946.2	675.6	642.4	33.17	20.366		
4,700.0	4,570.9	4,581.9	4,354.6	21.1	28.0	-48.42	-1,060.2	-966.9	688.8	654.5	34.29	20.088		
4,800.0	4,666.8	4,680.8	4,447.4	21.7	28.7	-49.03	-1,087.2	-987.7	702.2	666.8	35.42	19.826		
4,900.0	4,762.7	4,779.6	4,540.1	22.3	29.4	-49.62	-1,114.2	-1,008.5	715.6	679.1	36.55	19.580		
5,000.0	4,858.6	4,878.4	4,632.9	23.0	30.1	-50.18	-1,141.2	-1,029.3	729.1	691.4	37.68	19.348		

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-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-402 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,954.5	4,977.2	4,725.7	23.6	30.8	-50.73		-1,168.1	-1,050.1	742.7	703.8	38.82	19.129	
5,200.0	5,050.4	5,076.1	4,818.5	24.2	31.5	-51.25		-1,195.1	-1,070.8	756.3	716.3	39.97	18.922	
5,300.0	5,146.3	5,174.9	4,911.3	24.8	32.2	-51.76		-1,222.1	-1,091.6	770.0	728.9	41.12	18.726	
5,400.0	5,242.3	5,273.7	5,004.0	25.3	32.9	-52.34		-1,249.1	-1,112.4	784.1	741.8	42.24	18.562	
5,500.0	5,339.2	5,401.4	5,124.7	25.7	33.6	-52.99		-1,282.1	-1,137.8	798.4	755.2	43.27	18.452	
5,600.0	5,436.9	5,533.0	5,250.9	26.1	34.2	-53.55		-1,311.7	-1,160.6	811.0	766.8	44.18	18.354	
5,700.0	5,535.3	5,665.5	5,379.5	26.4	34.7	-54.00		-1,336.8	-1,179.9	821.6	776.6	44.98	18.264	
5,800.0	5,634.2	5,798.7	5,510.2	26.7	35.1	-54.37		-1,357.2	-1,195.7	830.1	784.5	45.66	18.182	
5,900.0	5,733.6	5,932.4	5,642.4	26.9	35.4	-54.64		-1,372.9	-1,207.8	836.7	790.5	46.21	18.109	
6,000.0	5,833.3	6,066.6	5,775.9	27.1	35.7	-54.82		-1,383.7	-1,216.1	841.2	794.6	46.63	18.042	
6,100.0	5,933.2	6,201.1	5,910.2	27.2	35.9	-54.92		-1,389.5	-1,220.6	843.7	796.7	46.93	17.979	
6,200.0	6,033.2	6,324.2	6,033.2	27.3	36.0	-171.73		-1,390.7	-1,221.4	844.1	791.4	52.77	15.996	
6,300.0	6,133.2	6,428.6	6,137.6	27.4	36.0	98.27		-1,390.7	-1,220.9	844.1	796.8	47.32	17.838	
6,400.0	6,232.7	6,547.3	6,255.5	27.4	36.0	98.15		-1,390.7	-1,207.4	843.9	796.6	47.31	17.836	
6,500.0	6,330.0	6,665.5	6,369.3	27.2	35.8	97.86		-1,390.7	-1,176.0	843.3	796.2	47.14	17.889	
6,600.0	6,423.6	6,782.5	6,475.8	27.0	35.6	97.42		-1,390.7	-1,128.0	842.4	795.6	46.88	17.970	
6,700.0	6,511.8	6,898.0	6,572.7	26.8	35.3	96.83		-1,390.7	-1,065.3	841.4	794.8	46.62	18.048	
6,800.0	6,593.1	7,011.6	6,657.6	26.5	34.9	96.11		-1,390.7	-989.9	840.2	793.7	46.46	18.084	
6,900.0	6,666.1	7,123.2	6,729.3	26.2	34.5	95.28		-1,390.7	-904.6	839.0	792.4	46.53	18.030	
7,000.0	6,729.6	7,232.4	6,786.7	26.0	34.2	94.37		-1,390.7	-811.7	837.8	790.9	46.94	17.848	
7,100.0	6,782.5	7,339.4	6,829.5	26.0	33.9	93.38		-1,390.7	-713.8	836.8	789.1	47.77	17.517	
7,200.0	6,823.8	7,444.0	6,857.7	26.1	33.6	92.35		-1,390.7	-613.1	836.1	787.0	49.06	17.042	
7,300.0	6,853.0	7,545.7	6,872.2	26.4	33.4	91.32		-1,390.7	-512.5	835.6	784.8	50.79	16.453	
7,400.0	6,869.4	7,646.1	6,881.5	27.0	33.2	90.83		-1,390.7	-412.6	835.4	782.6	52.84	15.810	
7,500.0	6,879.4	7,746.3	6,883.4	27.9	33.1	90.27		-1,390.7	-312.4	835.4	780.1	55.30	15.105	
7,564.4	6,882.7	7,810.7	6,883.1	28.6	33.1	90.03		-1,390.7	-248.1	835.4	778.2	57.11	14.627	
7,600.0	6,882.9	7,846.2	6,882.9	28.9	33.2	90.00		-1,390.7	-212.5	835.4	777.2	58.15	14.366	
7,700.0	6,882.4	7,946.2	6,882.4	30.3	33.5	90.00		-1,390.7	-112.5	835.4	774.0	61.32	13.622	
7,800.0	6,881.9	8,046.2	6,881.9	31.8	34.2	90.00		-1,390.7	-12.5	835.4	770.5	64.83	12.886	
7,900.0	6,881.4	8,146.2	6,881.4	33.6	35.6	90.00		-1,390.7	87.5	835.4	766.7	68.62	12.174	
8,000.0	6,880.9	8,246.2	6,880.9	35.5	37.4	90.00		-1,390.7	187.5	835.4	762.7	72.64	11.499	
8,100.0	6,880.4	8,346.2	6,880.4	37.5	39.4	90.00		-1,390.7	287.5	835.4	758.5	76.87	10.867	
8,200.0	6,879.9	8,446.2	6,879.9	39.7	41.6	90.00		-1,390.7	387.5	835.4	754.1	81.27	10.279	
8,300.0	6,879.4	8,546.2	6,879.4	41.9	43.9	90.00		-1,390.7	487.5	835.4	749.6	85.81	9.736	
8,400.0	6,878.9	8,646.2	6,878.9	44.2	46.3	90.00		-1,390.7	587.5	835.4	744.9	90.47	9.234	
8,500.0	6,878.4	8,746.2	6,878.4	46.5	48.8	90.00		-1,390.7	687.5	835.4	740.1	95.23	8.772	
8,600.0	6,877.9	8,846.2	6,877.9	48.9	51.2	90.00		-1,390.7	787.5	835.4	735.3	100.08	8.347	
8,700.0	6,877.4	8,946.2	6,877.4	51.4	53.7	90.00		-1,390.7	887.5	835.4	730.3	105.01	7.955	
8,800.0	6,876.8	9,046.2	6,876.9	53.9	56.3	90.00		-1,390.7	987.5	835.4	725.4	110.01	7.594	
8,900.0	6,876.3	9,146.2	6,876.4	56.4	58.8	90.00		-1,390.7	1,087.5	835.4	720.3	115.06	7.260	
9,000.0	6,875.8	9,246.2	6,875.8	58.9	61.4	90.00		-1,390.7	1,187.5	835.4	715.2	120.16	6.952	
9,100.0	6,875.3	9,346.2	6,875.3	61.5	64.0	90.00		-1,390.7	1,287.5	835.4	710.0	125.31	6.666	
9,200.0	6,874.8	9,446.2	6,874.8	64.1	66.6	90.00		-1,390.7	1,387.5	835.4	704.9	130.49	6.402	
9,300.0	6,874.3	9,546.2	6,874.3	66.7	69.3	90.00		-1,390.7	1,487.5	835.4	699.6	135.71	6.155	
9,400.0	6,873.8	9,646.2	6,873.8	69.3	71.9	90.00		-1,390.7	1,587.5	835.4	694.4	140.96	5.926	
9,500.0	6,873.3	9,746.2	6,873.3	71.9	74.6	90.00		-1,390.7	1,687.5	835.4	689.1	146.24	5.712	
9,600.0	6,872.8	9,846.2	6,872.8	74.6	77.2	90.00		-1,390.7	1,787.5	835.4	683.8	151.55	5.512	
9,700.0	6,872.3	9,946.2	6,872.3	77.2	79.9	90.00		-1,390.7	1,887.5	835.4	678.5	156.87	5.325	
9,800.0	6,871.8	10,046.2	6,871.8	79.9	82.6	90.00		-1,390.7	1,987.5	835.4	673.1	162.21	5.150	
9,900.0	6,871.3	10,146.2	6,871.3	82.6	85.3	90.00		-1,390.7	2,087.5	835.4	667.8	167.58	4.985	
10,000.0	6,870.8	10,246.2	6,870.8	85.3	88.0	90.00		-1,390.7	2,187.5	835.4	662.4	172.95	4.830	

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-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-402 - Wellbore #1 - Plan #1 (3-05-14)													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		
10,100.0	6,870.3	10,346.2	6,870.3	88.0	90.7	90.00	-1,390.7	2,287.5	835.4	657.0	178.35	4.684		
10,200.0	6,869.8	10,446.2	6,869.8	90.7	93.4	90.00	-1,390.7	2,387.5	835.4	651.6	183.75	4.546		
10,300.0	6,869.3	10,546.2	6,869.3	93.4	96.1	90.00	-1,390.7	2,487.5	835.4	646.2	189.17	4.416		
10,400.0	6,868.7	10,646.2	6,868.8	96.1	98.8	90.00	-1,390.7	2,587.5	835.4	640.8	194.60	4.293		
10,500.0	6,868.2	10,746.2	6,868.3	98.8	101.5	90.00	-1,390.7	2,687.5	835.4	635.3	200.04	4.176		
10,600.0	6,867.7	10,846.2	6,867.7	101.5	104.3	90.00	-1,390.7	2,787.5	835.4	629.9	205.49	4.065		
10,700.0	6,867.2	10,946.2	6,867.2	104.3	107.0	90.00	-1,390.7	2,887.5	835.4	624.4	210.95	3.960		
10,800.0	6,866.7	11,046.2	6,866.7	107.0	109.7	90.00	-1,390.7	2,987.5	835.4	618.9	216.42	3.860		
10,900.0	6,866.2	11,146.2	6,866.2	109.7	112.5	90.00	-1,390.7	3,087.5	835.4	613.5	221.89	3.765		
11,000.0	6,865.7	11,246.2	6,865.7	112.5	115.2	90.00	-1,390.7	3,187.5	835.4	608.0	227.38	3.674		
11,100.0	6,865.2	11,346.2	6,865.2	115.2	117.9	90.00	-1,390.7	3,287.5	835.4	602.5	232.86	3.587		
11,200.0	6,864.7	11,446.2	6,864.7	118.0	120.7	90.00	-1,390.7	3,387.5	835.4	597.0	238.36	3.505		
11,300.0	6,864.2	11,546.2	6,864.2	120.7	123.4	90.00	-1,390.7	3,487.5	835.4	591.5	243.86	3.426		
11,400.0	6,863.7	11,646.2	6,863.7	123.5	126.2	90.00	-1,390.7	3,587.5	835.4	586.0	249.36	3.350		
11,500.0	6,863.2	11,746.2	6,863.2	126.2	128.9	90.00	-1,390.7	3,687.5	835.4	580.5	254.87	3.278		
11,600.0	6,862.7	11,846.2	6,862.7	129.0	131.7	90.00	-1,390.7	3,787.5	835.4	575.0	260.39	3.208		
11,700.0	6,862.2	11,946.2	6,862.2	131.7	134.5	90.00	-1,390.7	3,887.5	835.4	569.4	265.90	3.142		
11,800.0	6,861.7	12,046.2	6,861.7	134.5	137.2	90.00	-1,390.7	3,987.4	835.4	563.9	271.43	3.078		
11,900.0	6,861.2	12,146.2	6,861.2	137.3	140.0	90.00	-1,390.7	4,087.4	835.4	558.4	276.95	3.016		
12,000.0	6,860.6	12,246.2	6,860.7	140.0	142.7	90.00	-1,390.7	4,187.4	835.4	552.9	282.48	2.957		
12,100.0	6,860.1	12,346.2	6,860.2	142.8	145.5	90.00	-1,390.7	4,287.4	835.4	547.3	288.02	2.900		
12,200.0	6,859.6	12,446.2	6,859.7	145.6	148.3	90.00	-1,390.7	4,387.4	835.4	541.8	293.55	2.846		
12,300.0	6,859.1	12,546.2	6,859.1	148.3	151.0	90.00	-1,390.7	4,487.4	835.4	536.3	299.09	2.793		
12,400.0	6,858.6	12,646.2	6,858.6	151.1	153.8	90.00	-1,390.7	4,587.4	835.4	530.7	304.64	2.742		
12,500.0	6,858.1	12,746.2	6,858.1	153.9	156.6	90.00	-1,390.7	4,687.4	835.4	525.2	310.18	2.693		
12,600.0	6,857.6	12,846.2	6,857.6	156.6	159.4	90.00	-1,390.7	4,787.4	835.4	519.6	315.73	2.646		
12,700.0	6,857.1	12,946.2	6,857.1	159.4	162.1	90.00	-1,390.7	4,887.4	835.4	514.1	321.28	2.600		
12,800.0	6,856.6	13,046.2	6,856.6	162.2	164.9	90.00	-1,390.7	4,987.4	835.4	508.5	326.83	2.556		
12,900.0	6,856.1	13,146.2	6,856.1	165.0	167.7	90.00	-1,390.7	5,087.4	835.4	503.0	332.39	2.513		
13,000.0	6,855.6	13,246.2	6,855.6	167.7	170.5	90.00	-1,390.7	5,187.4	835.4	497.4	337.94	2.472		
13,100.0	6,855.1	13,346.2	6,855.1	170.5	173.2	90.00	-1,390.7	5,287.4	835.4	491.9	343.50	2.432		
13,200.0	6,854.6	13,446.2	6,854.6	173.3	176.0	90.00	-1,390.7	5,387.4	835.4	486.3	349.06	2.393		
13,300.0	6,854.1	13,546.2	6,854.1	176.1	178.8	90.00	-1,390.7	5,487.4	835.4	480.7	354.63	2.356		
13,400.0	6,853.6	13,646.2	6,853.6	178.9	181.6	90.00	-1,390.7	5,587.4	835.4	475.2	360.19	2.319		
13,500.0	6,853.1	13,746.2	6,853.1	181.6	184.4	90.00	-1,390.7	5,687.4	835.4	469.6	365.76	2.284		
13,600.0	6,852.6	13,846.2	6,852.6	184.4	187.1	90.00	-1,390.7	5,787.4	835.4	464.0	371.32	2.250		
13,700.0	6,852.0	13,946.2	6,852.1	187.2	189.9	90.00	-1,390.7	5,887.4	835.4	458.5	376.89	2.216		
13,800.0	6,851.5	14,046.2	6,851.6	190.0	192.7	90.00	-1,390.7	5,987.4	835.4	452.9	382.46	2.184		
13,900.0	6,851.0	14,146.2	6,851.0	192.8	195.5	90.00	-1,390.7	6,087.4	835.4	447.3	388.03	2.153		
14,000.0	6,850.5	14,246.2	6,850.5	195.6	198.3	90.00	-1,390.7	6,187.4	835.4	441.7	393.61	2.122		
14,100.0	6,850.0	14,346.2	6,850.0	198.4	201.1	90.00	-1,390.7	6,287.4	835.4	436.2	399.18	2.093		
14,200.0	6,849.5	14,446.2	6,849.5	201.1	203.8	90.00	-1,390.7	6,387.4	835.4	430.6	404.76	2.064		
14,300.0	6,849.0	14,546.2	6,849.0	203.9	206.6	90.00	-1,390.7	6,487.4	835.4	425.0	410.33	2.036		
14,400.0	6,848.5	14,646.2	6,848.5	206.7	209.4	90.00	-1,390.7	6,587.4	835.4	419.4	415.91	2.008		
14,500.0	6,848.0	14,746.2	6,848.0	209.5	212.2	90.00	-1,390.7	6,687.4	835.4	413.9	421.49	1.982		
14,600.0	6,847.5	14,846.2	6,847.5	212.3	215.0	90.00	-1,390.7	6,787.4	835.4	408.3	427.07	1.956		
14,696.6	6,847.0	14,942.8	6,847.0	215.0	217.7	90.00	-1,390.7	6,884.0	835.4	402.9	432.46	1.932 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Maxey 24O-HZ Pad Sec.24-T5N-R65W - Maxey 24O-232 - Wellbore #1 - Plan #2 (8-9-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
6,000.0	5,833.3	11,048.1	6,726.4	27.1	126.2	-76.36	-785.4	-1,092.9	913.1	764.6	148.54	6.147		
6,100.0	5,933.2	11,044.0	6,726.4	27.2	126.0	-68.01	-785.4	-1,097.0	816.4	665.3	151.06	5.404		
6,200.0	6,033.2	11,042.8	6,726.4	27.3	126.0	179.53	-785.3	-1,098.1	720.9	686.4	34.55	20.869		
6,300.0	6,133.2	11,042.8	6,726.4	27.4	126.0	94.21	-785.3	-1,098.2	626.9	476.3	150.60	4.163		
6,400.0	6,232.7	11,052.0	6,726.4	27.4	126.3	108.55	-785.4	-1,089.0	535.7	392.8	142.89	3.749		
6,500.0	6,330.0	11,074.1	6,726.3	27.2	126.9	115.77	-785.5	-1,066.8	449.7	313.4	136.28	3.300		
6,600.0	6,423.6	11,108.8	6,726.1	27.0	127.9	117.57	-785.7	-1,032.2	372.4	237.5	134.87	2.761		
6,700.0	6,511.8	11,137.6	6,726.0	26.8	128.7	118.08	-785.8	-1,003.4	308.5	173.8	134.74	2.290		
6,800.0	6,593.1	11,137.6	6,726.0	26.5	128.7	120.68	-785.8	-1,003.4	272.1	140.9	131.28	2.073		
6,839.7	6,623.1	11,137.6	6,726.0	26.4	128.7	120.91	-785.8	-1,003.4	268.7	137.8	130.95	2.052 CC, ES, SF		
6,900.0	6,666.1	11,137.6	6,726.0	26.2	128.7	120.39	-785.8	-1,003.4	276.6	145.0	131.56	2.102		
7,000.0	6,729.6	11,137.6	6,726.0	26.0	128.7	117.15	-785.8	-1,003.4	320.0	184.4	135.60	2.360		
7,100.0	6,782.5	11,137.6	6,726.0	26.0	128.7	110.49	-785.8	-1,003.4	389.1	246.3	142.79	2.725		
7,200.0	6,823.8	11,137.6	6,726.0	26.1	128.7	99.74	-785.8	-1,003.4	471.8	321.2	150.64	3.132		
7,300.0	6,853.0	11,137.6	6,726.0	26.4	128.7	84.84	-785.8	-1,003.4	561.1	407.8	153.33	3.660		
7,400.0	6,869.4	11,137.6	6,726.0	27.0	128.7	68.53	-785.8	-1,003.4	653.1	507.7	145.38	4.492		
7,500.0	6,879.4	11,137.6	6,726.0	27.9	128.7	64.75	-785.8	-1,003.4	746.5	603.7	142.81	5.228		
7,600.0	6,882.9	11,137.6	6,726.0	28.9	128.7	53.45	-785.8	-1,003.4	840.5	710.6	129.94	6.469		
7,700.0	6,882.4	11,137.6	6,726.0	30.3	128.7	53.45	-785.8	-1,003.4	935.1	803.9	131.21	7.127		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Maxey 24O-HZ Pad Sec.24-T5N-R65W - Maxey 24O-402 - Wellbore #1 - Plan #2 (8-9-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,100.0	5,933.2	11,200.0	6,912.0	27.2	126.1	126.06		-439.3	-1,098.9	975.6	827.5	148.14	6.586	
6,200.0	6,033.2	11,199.4	6,912.0	27.3	126.1	0.21		-439.3	-1,099.6	876.5	842.4	34.08	25.718	
6,300.0	6,133.2	11,199.8	6,912.0	27.4	126.1	-101.57		-439.3	-1,099.2	777.5	627.2	150.24	5.175	
6,400.0	6,232.7	11,209.4	6,912.0	27.4	126.4	-132.90		-439.3	-1,089.5	679.3	559.6	119.65	5.677	
6,500.0	6,330.0	11,232.0	6,912.0	27.2	127.0	-144.91		-439.5	-1,066.9	583.6	484.7	98.85	5.904	
6,600.0	6,423.6	11,267.1	6,912.0	27.0	128.0	-149.51		-439.6	-1,031.8	492.2	402.2	90.00	5.469	
6,700.0	6,511.8	11,295.6	6,912.0	26.8	128.8	-152.40		-439.8	-1,003.4	407.4	323.2	84.13	4.842	
6,800.0	6,593.1	11,295.6	6,912.0	26.5	128.8	-155.59		-439.8	-1,003.4	338.5	261.3	77.20	4.385	
6,900.0	6,666.1	11,295.6	6,912.0	26.2	128.8	-156.89		-439.8	-1,003.4	299.7	225.6	74.17	4.041	
6,941.5	6,693.6	11,295.6	6,912.0	26.1	128.8	-157.01		-439.8	-1,003.4	295.8	222.0	73.78	4.009	CC, ES, SF
7,000.0	6,729.6	11,295.6	6,912.0	26.0	128.8	-156.78		-439.8	-1,003.4	303.6	229.6	74.03	4.101	
7,100.0	6,782.5	11,295.6	6,912.0	26.0	128.8	-155.20		-439.8	-1,003.4	348.5	271.7	76.81	4.538	
7,200.0	6,823.8	11,295.6	6,912.0	26.1	128.8	-151.59		-439.8	-1,003.4	421.1	337.4	83.71	5.031	
7,300.0	6,853.0	11,295.6	6,912.0	26.4	128.8	-144.22		-439.8	-1,003.4	508.6	410.8	97.86	5.198	
7,400.0	6,869.4	11,295.6	6,912.0	27.0	128.8	-129.22		-439.8	-1,003.4	603.5	479.7	123.86	4.873	
7,500.0	6,879.4	11,295.6	6,912.0	27.9	128.8	-123.58		-439.8	-1,003.4	700.9	568.1	132.80	5.278	
7,600.0	6,882.9	11,295.6	6,912.0	28.9	128.8	-97.44		-439.8	-1,003.4	799.5	643.4	156.07	5.123	
7,700.0	6,882.4	11,295.6	6,912.0	30.3	128.8	-97.44		-439.8	-1,003.4	898.5	741.0	157.57	5.703	
7,800.0	6,881.9	11,295.6	6,912.0	31.8	128.8	-97.44		-439.8	-1,003.4	997.8	838.5	159.24	6.266	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	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: 6997-UNKNOWN												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+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	171.68	-837.9	122.6	847.0				
100.0	100.0	85.0	85.0	0.1	1.7	171.68	-837.9	122.6	846.8	845.0	1.81	467.194	
200.0	200.0	185.0	185.0	0.3	3.7	171.68	-837.9	122.6	846.8	842.8	4.04	209.748	
300.0	300.0	285.0	285.0	0.6	5.7	171.68	-837.9	122.6	846.8	840.6	6.26	135.230	
400.0	400.0	385.0	385.0	0.8	7.7	171.68	-837.9	122.6	846.8	838.3	8.49	99.781	
500.0	500.0	485.0	485.0	1.0	9.7	171.68	-837.9	122.6	846.8	836.1	10.71	79.057	
600.0	600.0	585.0	585.0	1.2	11.7	171.68	-837.9	122.6	846.8	833.9	12.94	65.461	
700.0	700.0	685.0	685.0	1.5	13.7	171.68	-837.9	122.6	846.8	831.7	15.16	55.855	
800.0	800.0	785.0	785.0	1.7	15.7	171.68	-837.9	122.6	846.8	829.4	17.39	48.708	
900.0	900.0	885.0	885.0	1.9	17.7	171.68	-837.9	122.6	846.8	827.2	19.61	43.182	
1,000.0	1,000.0	985.0	985.0	2.1	19.7	171.68	-837.9	122.6	846.8	825.0	21.84	38.782	
1,100.0	1,100.0	1,085.0	1,085.0	2.3	21.7	-71.66	-837.9	122.6	846.3	822.2	24.04	35.204	
1,200.0	1,199.8	1,184.8	1,184.8	2.5	23.7	-72.03	-837.9	122.6	844.6	818.4	26.23	32.207	
1,300.0	1,299.5	1,284.5	1,284.5	2.7	25.7	-72.64	-837.9	122.6	842.0	813.6	28.42	29.628	
1,400.0	1,398.7	1,383.7	1,383.7	3.0	27.7	-73.50	-837.9	122.6	838.4	807.8	30.63	27.376	
1,500.0	1,497.5	1,482.5	1,482.5	3.2	29.6	-74.60	-837.9	122.6	834.1	801.2	32.85	25.387	
1,600.0	1,595.6	1,580.6	1,580.6	3.6	31.6	-75.95	-837.9	122.6	829.1	794.0	35.11	23.612	
1,700.0	1,693.1	1,678.1	1,678.1	3.9	33.6	-77.53	-837.9	122.6	823.8	786.4	37.42	22.018	
1,800.0	1,789.6	1,774.6	1,774.6	4.3	35.5	-79.35	-837.9	122.6	818.5	778.7	39.77	20.581	
1,900.0	1,885.6	1,870.6	1,870.6	4.8	37.4	-81.25	-837.9	122.6	813.5	771.3	42.18	19.288	
2,000.0	1,981.5	1,966.5	1,966.5	5.3	39.3	-83.15	-837.9	122.6	809.5	764.9	44.62	18.143	
2,100.0	2,077.4	2,062.4	2,062.4	5.9	41.2	-85.07	-837.9	122.6	806.5	759.4	47.08	17.131	
2,200.0	2,173.3	2,158.3	2,158.3	6.4	43.2	-86.99	-837.9	122.6	804.4	754.9	49.55	16.236	
2,300.0	2,269.2	2,254.2	2,254.2	6.9	45.1	-88.93	-837.9	122.6	803.4	751.4	52.03	15.442	
2,355.2	2,322.1	2,307.1	2,307.1	7.3	46.1	-90.00	-837.9	122.6	803.2	749.8	53.40	15.043	
2,400.0	2,365.1	2,350.1	2,350.1	7.5	47.0	-90.87	-837.9	122.6	803.3	748.8	54.51	14.739	
2,500.0	2,461.0	2,446.0	2,446.0	8.1	48.9	-92.80	-837.9	122.6	804.3	747.3	56.98	14.114	
2,600.0	2,556.9	2,541.9	2,541.9	8.6	50.8	-94.73	-837.9	122.6	806.2	746.8	59.46	13.560	
2,700.0	2,652.8	2,637.8	2,637.8	9.2	52.8	-96.65	-837.9	122.6	809.2	747.2	61.92	13.068	
2,800.0	2,748.7	2,733.7	2,733.7	9.8	54.7	-98.56	-837.9	122.6	813.1	748.7	64.37	12.630	
2,900.0	2,844.6	2,829.6	2,829.6	10.4	56.6	-100.44	-837.9	122.6	817.9	751.1	66.82	12.242	
3,000.0	2,940.5	2,925.5	2,925.5	11.0	58.5	-102.30	-837.9	122.6	823.7	754.5	69.24	11.896	
3,100.0	3,036.4	3,021.4	3,021.4	11.6	60.4	-104.14	-837.9	122.6	830.5	758.8	71.65	11.590	
3,200.0	3,132.3	3,117.3	3,117.3	12.2	62.3	-105.95	-837.9	122.6	838.1	764.1	74.05	11.319	
3,300.0	3,228.2	3,213.2	3,213.2	12.7	64.3	-107.72	-837.9	122.6	846.7	770.2	76.43	11.078	
3,400.0	3,324.1	3,309.1	3,309.1	13.3	66.2	-109.46	-837.9	122.6	856.0	777.3	78.79	10.865	
3,500.0	3,420.0	3,405.0	3,405.0	13.9	68.1	-111.17	-837.9	122.6	866.2	785.1	81.13	10.677	
3,600.0	3,515.9	3,500.9	3,500.9	14.5	70.0	-112.83	-837.9	122.6	877.2	793.8	83.45	10.512	
3,700.0	3,611.8	3,596.8	3,596.8	15.1	71.9	-114.46	-837.9	122.6	889.0	803.2	85.76	10.367	
3,800.0	3,707.7	3,692.7	3,692.7	15.7	73.9	-116.04	-837.9	122.6	901.5	813.5	88.04	10.239	
3,900.0	3,803.6	3,788.6	3,788.6	16.3	75.8	-117.59	-837.9	122.6	914.7	824.4	90.31	10.128	
4,000.0	3,899.5	3,884.5	3,884.5	16.9	77.7	-119.09	-837.9	122.6	928.6	836.0	92.57	10.031	
4,100.0	3,995.4	3,980.4	3,980.4	17.5	79.6	-120.55	-837.9	122.6	943.1	848.3	94.81	9.948	
4,200.0	4,091.3	4,076.3	4,076.3	18.1	81.5	-121.96	-837.9	122.6	958.3	861.3	97.03	9.876	
4,300.0	4,187.3	4,172.3	4,172.3	18.7	83.4	-123.34	-837.9	122.6	974.0	874.8	99.24	9.815	
4,400.0	4,283.2	4,268.2	4,268.2	19.3	85.4	-124.67	-837.9	122.6	990.3	888.9	101.44	9.763	
7,000.0	6,729.6	6,714.6	6,714.6	26.0	134.3	28.17	-837.9	122.6	947.5	835.7	111.80	8.475	
7,100.0	6,782.5	6,767.5	6,767.5	26.0	135.3	36.12	-837.9	122.6	867.0	752.8	114.12	7.597	
7,200.0	6,823.8	6,808.8	6,808.8	26.1	136.2	47.66	-837.9	122.6	781.5	654.6	126.90	6.158	
7,300.0	6,853.0	6,838.0	6,838.0	26.4	136.8	62.91	-837.9	122.6	693.3	546.8	146.42	4.735	
7,400.0	6,869.4	6,854.4	6,854.4	27.0	137.1	78.82	-837.9	122.6	604.6	444.2	160.40	3.769	

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-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	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: 6997-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	
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
7,500.0	6,879.4	6,864.4	6,864.4	27.9	137.3	83.12	-837.9	122.6	518.7	355.3	163.41	3.174	
7,600.0	6,882.9	6,867.9	6,867.9	28.9	137.4	90.34	-837.9	122.6	438.3	272.6	165.74	2.645	
7,700.0	6,882.4	6,867.4	6,867.4	30.3	137.3	90.24	-837.9	122.6	367.6	200.4	167.24	2.198	
7,800.0	6,881.9	6,866.9	6,866.9	31.8	137.3	90.14	-837.9	122.6	313.2	144.3	168.92	1.854	
7,900.0	6,881.4	6,866.4	6,866.4	33.6	137.3	90.04	-837.9	122.6	284.8	114.0	170.75	1.668	
7,935.1	6,881.2	6,866.2	6,866.2	34.3	137.3	90.00	-837.9	122.6	282.6	111.2	171.44	1.648 CC, ES, SF	
8,000.0	6,880.9	6,865.9	6,865.9	35.5	137.3	89.93	-837.9	122.6	290.0	117.3	172.71	1.679	
8,100.0	6,880.4	6,865.4	6,865.4	37.5	137.3	89.83	-837.9	122.6	327.2	152.4	174.77	1.872	
8,200.0	6,879.9	6,864.9	6,864.9	39.7	137.3	89.73	-837.9	122.6	387.4	210.4	176.93	2.189	
8,300.0	6,879.4	6,864.4	6,864.4	41.9	137.3	89.63	-837.9	122.6	461.5	282.4	179.16	2.576	
8,400.0	6,878.9	6,863.9	6,863.9	44.2	137.3	89.52	-837.9	122.6	544.1	362.6	181.45	2.998	
8,500.0	6,878.4	6,863.4	6,863.4	46.5	137.3	89.42	-837.9	122.6	631.7	447.9	183.80	3.437	
8,600.0	6,877.9	6,862.9	6,862.9	48.9	137.3	89.32	-837.9	122.6	722.5	536.3	186.20	3.880	
8,700.0	6,877.4	6,862.4	6,862.4	51.4	137.2	89.22	-837.9	122.6	815.4	626.8	188.64	4.323	
8,800.0	6,876.8	6,861.8	6,861.8	53.9	137.2	89.11	-837.9	122.6	909.9	718.8	191.11	4.761	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	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
12,300.0	6,859.1	7,027.7	6,877.1	148.3	20.8	91.36	-750.0	5,401.2	934.3	766.7	167.61	5.574	
12,400.0	6,858.6	7,027.2	6,876.6	151.1	20.8	91.21	-750.0	5,401.2	836.8	666.4	170.39	4.911	
12,500.0	6,858.1	7,026.7	6,876.1	153.9	20.8	91.06	-750.0	5,401.2	739.9	566.7	173.16	4.273	
12,600.0	6,857.6	7,026.2	6,875.6	156.6	20.8	90.91	-750.0	5,401.2	643.9	468.0	175.94	3.660	
12,700.0	6,857.1	7,025.7	6,875.1	159.4	20.8	90.77	-750.0	5,401.2	549.5	370.7	178.71	3.074	
12,800.0	6,856.6	7,025.2	6,874.6	162.2	20.8	90.62	-750.0	5,401.2	457.3	275.8	181.49	2.520	
12,900.0	6,856.1	7,024.7	6,874.1	165.0	20.8	90.47	-750.0	5,401.2	369.3	185.0	184.26	2.004	
13,000.0	6,855.6	7,024.2	6,873.6	167.7	20.8	90.32	-750.0	5,401.2	289.2	102.1	187.04	1.546	
13,100.0	6,855.1	7,023.7	6,873.1	170.5	20.8	90.17	-750.0	5,401.2	225.5	35.7	189.82	1.188	Level 2
13,200.0	6,854.6	7,023.2	6,872.6	173.3	20.8	90.02	-750.0	5,401.2	195.2	2.6	192.59	1.014	Level 2
13,213.8	6,854.5	7,023.1	6,872.5	173.7	20.8	90.00	-750.0	5,401.2	194.7	1.7	192.97	1.009	Level 2, CC, ES, SF
13,300.0	6,854.1	7,022.6	6,872.1	176.1	20.8	89.87	-750.0	5,401.2	212.9	17.6	195.37	1.090	Level 2
13,400.0	6,853.6	7,022.1	6,871.6	178.9	20.8	89.72	-750.0	5,401.2	269.4	71.3	198.14	1.360	Level 3
13,500.0	6,853.1	7,021.6	6,871.1	181.6	20.8	89.57	-750.0	5,401.2	346.1	145.2	200.92	1.723	
13,600.0	6,852.6	7,021.1	6,870.6	184.4	20.8	89.42	-750.0	5,401.2	432.5	228.8	203.69	2.123	
13,700.0	6,852.0	7,020.6	6,870.0	187.2	20.8	89.28	-750.0	5,401.2	523.7	317.3	206.46	2.537	
13,800.0	6,851.5	7,020.1	6,869.5	190.0	20.8	89.13	-750.0	5,401.2	617.7	408.4	209.23	2.952	
13,900.0	6,851.0	7,019.6	6,869.0	192.8	20.8	88.98	-750.0	5,401.2	713.3	501.3	212.00	3.364	
14,000.0	6,850.5	7,019.1	6,868.5	195.6	20.8	88.83	-750.0	5,401.2	809.9	595.2	214.78	3.771	
14,100.0	6,850.0	7,018.6	6,868.0	198.4	20.8	88.68	-750.0	5,401.2	907.3	689.8	217.54	4.171	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	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		
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	
13,700.0	6,852.0	7,065.3	6,883.8	187.2	18.5	100.46	-656.0	6,845.0	963.0	762.2	200.84	4.795	
13,800.0	6,851.5	7,063.1	6,881.5	190.0	18.5	99.22	-655.9	6,845.1	863.6	659.4	204.25	4.228	
13,900.0	6,851.0	7,060.8	6,879.3	192.8	18.5	97.96	-655.8	6,845.1	764.4	556.8	207.60	3.682	
14,000.0	6,850.5	7,058.5	6,877.0	195.6	18.5	96.69	-655.7	6,845.2	665.4	454.6	210.87	3.156	
14,100.0	6,850.0	7,056.2	6,874.7	198.4	18.5	95.41	-655.7	6,845.2	566.8	352.7	214.07	2.648	
14,200.0	6,849.5	7,054.0	6,872.4	201.1	18.5	94.12	-655.6	6,845.3	468.7	251.5	217.18	2.158	
14,300.0	6,849.0	7,051.7	6,870.1	203.9	18.5	92.82	-655.5	6,845.3	371.7	151.5	220.20	1.688	
14,400.0	6,848.5	7,049.4	6,867.8	206.7	18.5	91.52	-655.4	6,845.3	276.7	53.6	223.13	1.240	Level 2
14,500.0	6,848.0	7,047.1	6,865.5	209.5	18.5	90.20	-655.4	6,845.4	187.0	-39.0	225.95	0.828	Level 1
14,600.0	6,847.5	7,044.8	6,863.2	212.3	18.5	88.88	-655.3	6,845.4	115.6	-113.0	228.66	0.506	Level 1
14,658.0	6,847.2	7,043.4	6,861.9	213.9	18.5	88.11	-655.2	6,845.4	100.0	-130.2	230.18	0.434	Level 1, CC, ES, SF
14,696.6	6,847.0	7,042.5	6,861.0	215.0	18.5	87.60	-655.2	6,845.5	107.2	-124.0	231.16	0.464	Level 1

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	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: 7000-UNKNOWN												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
11,000.0	6,865.7	6,858.7	6,858.7	112.5	137.2	90.99	-819.4	4,089.7	940.1	690.5	249.58	3.767	
11,100.0	6,865.2	6,858.2	6,858.2	115.2	137.2	90.88	-819.4	4,089.7	844.6	592.3	252.32	3.347	
11,200.0	6,864.7	6,857.7	6,857.7	118.0	137.2	90.77	-819.4	4,089.7	750.3	495.2	255.06	2.942	
11,300.0	6,864.2	6,857.2	6,857.2	120.7	137.1	90.66	-819.4	4,089.7	657.6	399.8	257.81	2.551	
11,400.0	6,863.7	6,856.7	6,856.7	123.5	137.1	90.55	-819.4	4,089.7	567.5	306.9	260.56	2.178	
11,500.0	6,863.2	6,856.2	6,856.2	126.2	137.1	90.44	-819.4	4,089.7	481.2	217.9	263.31	1.828	
11,600.0	6,862.7	6,855.7	6,855.7	129.0	137.1	90.33	-819.4	4,089.7	401.4	135.3	266.06	1.509	
11,700.0	6,862.2	6,855.2	6,855.2	131.7	137.1	90.22	-819.4	4,089.7	332.6	63.8	268.81	1.237	Level 2
11,800.0	6,861.7	6,854.7	6,854.7	134.5	137.1	90.11	-819.4	4,089.7	283.2	11.6	271.56	1.043	Level 2
11,900.0	6,861.2	6,854.2	6,854.2	137.3	137.1	90.00	-819.4	4,089.7	264.1	-10.3	274.32	0.963	Level 1
11,902.3	6,861.1	6,854.1	6,854.1	137.3	137.1	90.00	-819.4	4,089.7	264.1	-10.3	274.38	0.962	Level 1, CC, ES, SF
12,000.0	6,860.6	6,853.6	6,853.6	140.0	137.1	89.89	-819.4	4,089.7	281.6	4.5	277.07	1.016	Level 2
12,100.0	6,860.1	6,853.1	6,853.1	142.8	137.1	89.78	-819.4	4,089.7	329.9	50.0	279.83	1.179	Level 2
12,200.0	6,859.6	6,852.6	6,852.6	145.6	137.1	89.67	-819.4	4,089.7	397.9	115.4	282.59	1.408	Level 3
12,300.0	6,859.1	6,852.1	6,852.1	148.3	137.0	89.56	-819.4	4,089.7	477.4	192.0	285.34	1.673	
12,400.0	6,858.6	6,851.6	6,851.6	151.1	137.0	89.45	-819.4	4,089.7	563.4	275.3	288.10	1.956	
12,500.0	6,858.1	6,851.1	6,851.1	153.9	137.0	89.34	-819.4	4,089.7	653.4	362.6	290.86	2.247	
12,600.0	6,857.6	6,850.6	6,850.6	156.6	137.0	89.23	-819.4	4,089.7	746.0	452.4	293.62	2.541	
12,700.0	6,857.1	6,850.1	6,850.1	159.4	137.0	89.12	-819.4	4,089.7	840.3	543.9	296.37	2.835	
12,800.0	6,856.6	6,849.6	6,849.6	162.2	137.0	89.01	-819.4	4,089.7	935.7	636.6	299.13	3.128	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Ivan Klein 13-20 (Exist) - Wellbore #1 - Wellbore													Offset Site Error:	0.0 ft
Survey Program: 7000-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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
9,700.0	6,872.3	6,855.3	6,855.3	77.2	137.1	90.53	-1,030.8	2,758.1	992.0	777.7	214.32	4.629		
9,800.0	6,871.8	6,854.8	6,854.8	79.9	137.1	90.47	-1,030.8	2,758.1	905.5	688.5	216.98	4.173		
9,900.0	6,871.3	6,854.3	6,854.3	82.6	137.1	90.41	-1,030.8	2,758.1	822.1	602.5	219.65	3.743		
10,000.0	6,870.8	6,853.8	6,853.8	85.3	137.1	90.35	-1,030.8	2,758.1	742.8	520.5	222.33	3.341		
10,100.0	6,870.3	6,853.3	6,853.3	88.0	137.1	90.29	-1,030.8	2,758.1	669.0	444.0	225.02	2.973		
10,200.0	6,869.8	6,852.8	6,852.8	90.7	137.1	90.23	-1,030.8	2,758.1	602.9	375.2	227.71	2.648		
10,300.0	6,869.3	6,852.3	6,852.3	93.4	137.0	90.17	-1,030.8	2,758.1	547.2	316.7	230.41	2.375		
10,400.0	6,868.7	6,851.7	6,851.7	96.1	137.0	90.10	-1,030.8	2,758.1	505.2	272.1	233.11	2.167		
10,500.0	6,868.2	6,851.2	6,851.2	98.8	137.0	90.04	-1,030.8	2,758.1	480.8	244.9	235.82	2.039		
10,570.6	6,867.9	6,850.9	6,850.9	100.7	137.0	90.00	-1,030.8	2,758.1	475.5	237.8	237.74	2.000 CC, ES		
10,600.0	6,867.7	6,850.7	6,850.7	101.5	137.0	89.98	-1,030.8	2,758.1	476.4	237.9	238.54	1.997 SF		
10,700.0	6,867.2	6,850.2	6,850.2	104.3	137.0	89.92	-1,030.8	2,758.1	492.8	251.6	241.25	2.043		
10,800.0	6,866.7	6,849.7	6,849.7	107.0	137.0	89.86	-1,030.8	2,758.1	528.0	284.0	243.98	2.164		
10,900.0	6,866.2	6,849.2	6,849.2	109.7	137.0	89.80	-1,030.8	2,758.1	578.5	331.8	246.70	2.345		
11,000.0	6,865.7	6,848.7	6,848.7	112.5	137.0	89.74	-1,030.8	2,758.1	640.7	391.3	249.43	2.569		
11,100.0	6,865.2	6,848.2	6,848.2	115.2	137.0	89.68	-1,030.8	2,758.1	711.6	459.4	252.16	2.822		
11,200.0	6,864.7	6,847.7	6,847.7	118.0	137.0	89.62	-1,030.8	2,758.1	788.8	533.9	254.90	3.095		
11,300.0	6,864.2	6,847.2	6,847.2	120.7	136.9	89.56	-1,030.8	2,758.1	870.7	613.1	257.64	3.380		
11,400.0	6,863.7	6,846.7	6,846.7	123.5	136.9	89.49	-1,030.8	2,758.1	956.0	695.7	260.38	3.672		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Mowery 19-1 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 6975-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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,300.0	6,879.4	6,862.4	6,862.4	41.9	137.2	90.97	-826.9	1,395.7	948.0	768.9	179.07	5.294	
8,400.0	6,878.9	6,861.9	6,861.9	44.2	137.2	90.86	-826.9	1,395.7	852.7	671.3	181.37	4.701	
8,500.0	6,878.4	6,861.4	6,861.4	46.5	137.2	90.76	-826.9	1,395.7	758.6	574.8	183.73	4.129	
8,600.0	6,877.9	6,860.9	6,860.9	48.9	137.2	90.65	-826.9	1,395.7	666.2	480.0	186.13	3.579	
8,700.0	6,877.4	6,860.4	6,860.4	51.4	137.2	90.54	-826.9	1,395.7	576.3	387.7	188.58	3.056	
8,800.0	6,876.8	6,859.8	6,859.8	53.9	137.2	90.44	-826.9	1,395.7	490.4	299.3	191.06	2.567	
8,900.0	6,876.3	6,859.3	6,859.3	56.4	137.2	90.33	-826.9	1,395.7	410.9	217.3	193.56	2.123	
9,000.0	6,875.8	6,858.8	6,858.8	58.9	137.2	90.22	-826.9	1,395.7	342.3	146.2	196.10	1.746	
9,100.0	6,875.3	6,858.3	6,858.3	61.5	137.2	90.12	-826.9	1,395.7	292.4	93.8	198.66	1.472	Level 3
9,200.0	6,874.8	6,857.8	6,857.8	64.1	137.2	90.01	-826.9	1,395.7	271.8	70.5	201.23	1.351	Level 3
9,208.3	6,874.8	6,857.8	6,857.8	64.3	137.2	90.00	-826.9	1,395.7	271.6	70.2	201.45	1.348	Level 3, CC, ES, SF
9,300.0	6,874.3	6,857.3	6,857.3	66.7	137.1	89.90	-826.9	1,395.7	286.7	82.9	203.83	1.407	Level 3
9,400.0	6,873.8	6,856.8	6,856.8	69.3	137.1	89.80	-826.9	1,395.7	332.5	126.1	206.44	1.611	
9,500.0	6,873.3	6,856.3	6,856.3	71.9	137.1	89.69	-826.9	1,395.7	398.6	189.6	209.06	1.907	
9,600.0	6,872.8	6,855.8	6,855.8	74.6	137.1	89.58	-826.9	1,395.7	476.7	265.0	211.70	2.252	
9,700.0	6,872.3	6,855.3	6,855.3	77.2	137.1	89.48	-826.9	1,395.7	561.8	347.4	214.34	2.621	
9,800.0	6,871.8	6,854.8	6,854.8	79.9	137.1	89.37	-826.9	1,395.7	651.1	434.1	217.00	3.000	
9,900.0	6,871.3	6,854.3	6,854.3	82.6	137.1	89.26	-826.9	1,395.7	743.2	523.5	219.66	3.383	
10,000.0	6,870.8	6,853.8	6,853.8	85.3	137.1	89.15	-826.9	1,395.7	837.0	614.7	222.33	3.765	
10,100.0	6,870.3	6,853.3	6,853.3	88.0	137.1	89.05	-826.9	1,395.7	932.2	707.2	225.01	4.143	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-432	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #2 (3-11-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4641.0ft (RKB - 15')

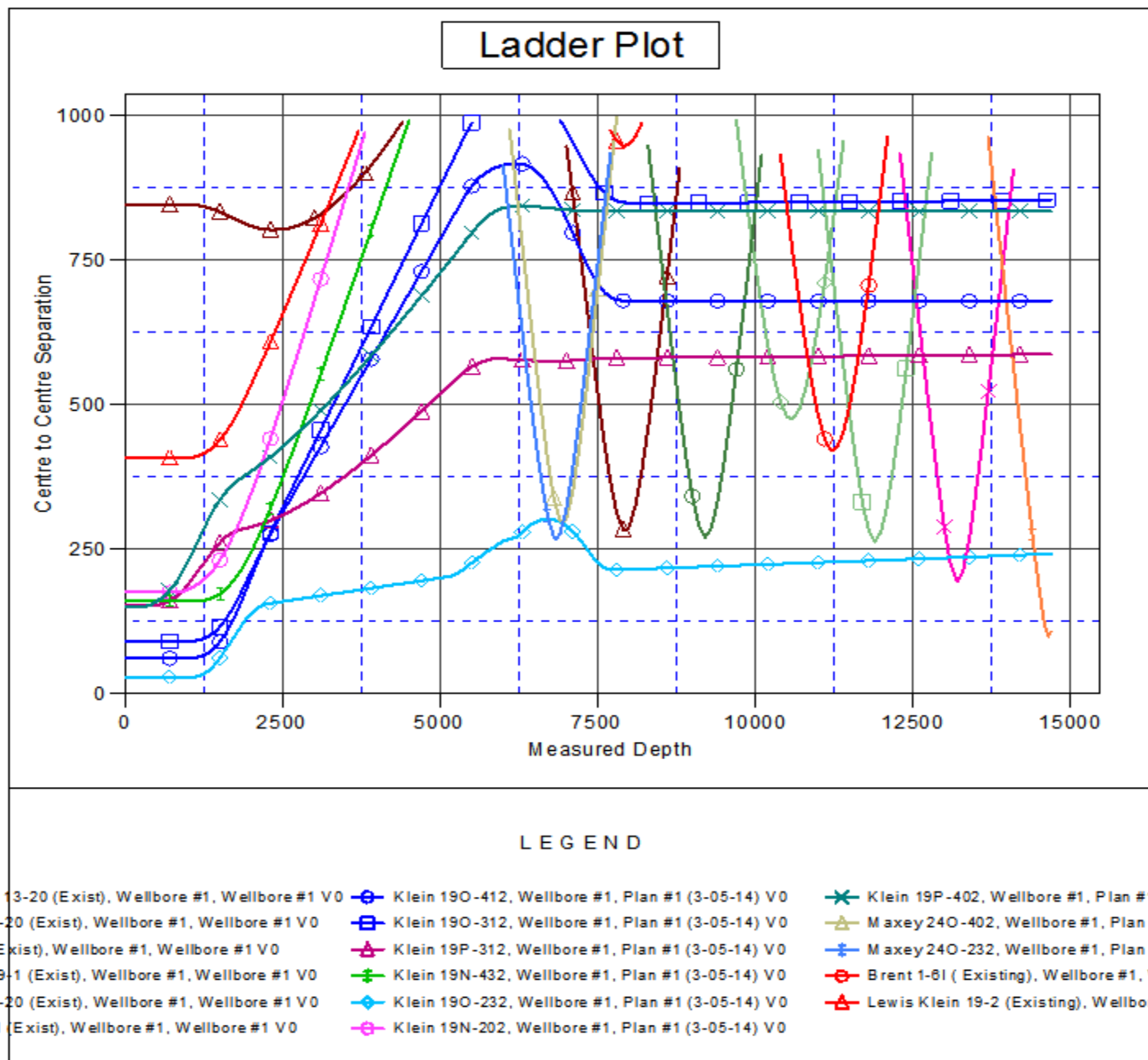
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Klein 19O-432

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-432
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
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