

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Klein 19M-202**

Surface Location: Klein 19MN-HZ Pad Sec.19-T5N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4628.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1386208.46	3252898.04	40.389990	-104.592080	

Original Well Elev WELL @ 4643.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 688'FNL & 2432'FEL, SEC.19	1.0	0.0	0.0	Point
BHL 75'FNL & 500'FEL, SEC.20	6649.0	675.0	7214.6	Point



Azimuths to True North
Magnetic North: 8.40°

Magnetic Field
Strength: 52859.3nT
Dip Angle: 66.98°
Date: 3/4/2014
Model: IGRF2010

Klein 19MN-HZ Pad Sec.19-T5N-R64W
Klein 19M-202
Plan #1 (2-26-14)
16:14, March 05 2014

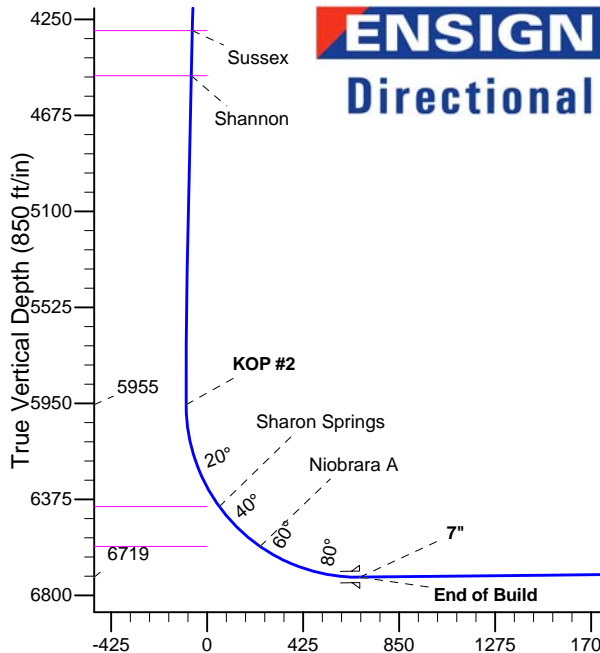
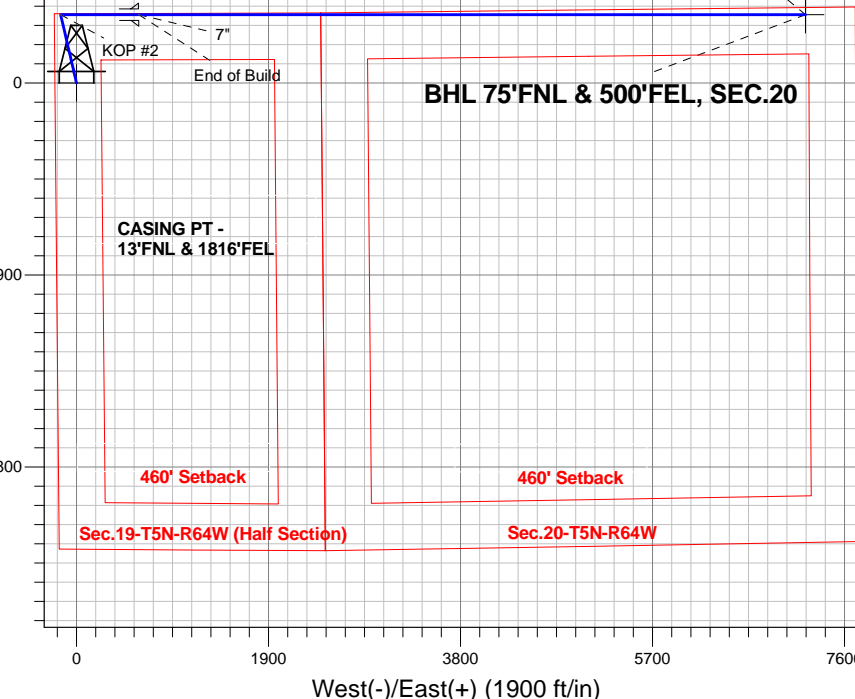
ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP #1
5955.3	6008.3	KOP #2
6719.3	7216.5	End of Build

SHL 688'FNL & 2432'FEL, SEC.19

Klein 19M-202

South(-)/North(+) (1900 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	1452.9	9.06	346.99	1451.0	34.8	-8.0	2.00	346.99	-4.8	
4	5400.1	9.06	346.99	5349.0	640.2	-148.0	0.00	0.00	-87.7	
5	5853.0	0.00	0.00	5800.0	675.0	-156.0	2.00	180.00	-92.4	
6	6008.3	0.00	0.00	5955.4	675.0	-156.0	0.00	0.00	-92.4	
7	7216.5	90.61	90.00	6719.3	675.0	616.1	7.50	90.00	676.3	
8	13815.4	90.61	90.00	6649.0	675.0	7214.6	0.00	0.00	7246.1	BHL 75'FNL & 500'FEL, SEC.20

BHL 75'FNL & 500'FEL, SEC.20

Vertical Section at 84.65° (850 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

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

Klein 19M-202

Wellbore #1

Plan: Plan #1 (2-26-14)

Standard Planning Report

05 March, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Klein 19M-202
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-26-14)		

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 19MN-HZ Pad Sec.19-T5N-R64W					
Site Position:		Northing:	1,386,208.48 ft	Latitude:	40.389990
From:	Lat/Long	Easting:	3,252,898.04 ft	Longitude:	-104.592080
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.59 °

Well	Klein 19M-202					
Well Position	+N-S	0.0 ft	Northing:	1,386,208.46 ft	Latitude:	40.389990
	+E-W	0.0 ft	Easting:	3,252,898.04 ft	Longitude:	-104.592080
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,628.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/4/2014	8.40	66.98	52,859

Design	Plan #1 (2-26-14)			
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	84.65

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	
1,452.9	9.06	346.99	1,451.0	34.8	-8.0	2.00	2.00	0.00	346.99	
5,400.1	9.06	346.99	5,349.0	640.2	-148.0	0.00	0.00	0.00	0.00	
5,853.0	0.00	0.00	5,800.0	675.0	-156.0	2.00	-2.00	0.00	180.00	
6,008.3	0.00	0.00	5,955.4	675.0	-156.0	0.00	0.00	0.00	0.00	
7,216.5	90.61	90.00	6,719.3	675.0	616.1	7.50	7.50	0.00	90.00	
13,815.4	90.61	90.00	6,649.0	675.0	7,214.6	0.00	0.00	0.00	0.00	BHL 75'FNL & 500'I

Database:	landmark	Local Co-ordinate Reference:	Well Klein 19M-202
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-26-14)		

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 688'FNL & 2432'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	346.99	1,100.0	1.7	-0.4	-0.2	2.00	2.00	0.00
1,200.0	4.00	346.99	1,199.8	6.8	-1.6	-0.9	2.00	2.00	0.00
1,300.0	6.00	346.99	1,299.5	15.3	-3.5	-2.1	2.00	2.00	0.00
1,400.0	8.00	346.99	1,398.7	27.2	-6.3	-3.7	2.00	2.00	0.00
1,452.9	9.06	346.99	1,451.0	34.8	-8.0	-4.8	2.00	2.00	0.00
1,500.0	9.06	346.99	1,497.5	42.0	-9.7	-5.8	0.00	0.00	0.00
1,600.0	9.06	346.99	1,596.3	57.4	-13.3	-7.9	0.00	0.00	0.00
1,700.0	9.06	346.99	1,695.0	72.7	-16.8	-10.0	0.00	0.00	0.00
1,800.0	9.06	346.99	1,793.8	88.0	-20.3	-12.1	0.00	0.00	0.00
1,900.0	9.06	346.99	1,892.5	103.4	-23.9	-14.2	0.00	0.00	0.00
2,000.0	9.06	346.99	1,991.3	118.7	-27.4	-16.3	0.00	0.00	0.00
2,100.0	9.06	346.99	2,090.0	134.1	-31.0	-18.4	0.00	0.00	0.00
2,200.0	9.06	346.99	2,188.8	149.4	-34.5	-20.5	0.00	0.00	0.00
2,300.0	9.06	346.99	2,287.6	164.7	-38.1	-22.6	0.00	0.00	0.00
2,400.0	9.06	346.99	2,386.3	180.1	-41.6	-24.7	0.00	0.00	0.00
2,500.0	9.06	346.99	2,485.1	195.4	-45.2	-26.8	0.00	0.00	0.00
2,600.0	9.06	346.99	2,583.8	210.8	-48.7	-28.9	0.00	0.00	0.00
2,700.0	9.06	346.99	2,682.6	226.1	-52.2	-31.0	0.00	0.00	0.00
2,800.0	9.06	346.99	2,781.3	241.4	-55.8	-33.1	0.00	0.00	0.00
2,900.0	9.06	346.99	2,880.1	256.8	-59.3	-35.2	0.00	0.00	0.00
3,000.0	9.06	346.99	2,978.8	272.1	-62.9	-37.3	0.00	0.00	0.00
3,100.0	9.06	346.99	3,077.6	287.4	-66.4	-39.4	0.00	0.00	0.00
3,200.0	9.06	346.99	3,176.3	302.8	-70.0	-41.5	0.00	0.00	0.00
3,300.0	9.06	346.99	3,275.1	318.1	-73.5	-43.6	0.00	0.00	0.00
3,400.0	9.06	346.99	3,373.8	333.5	-77.1	-45.7	0.00	0.00	0.00
3,500.0	9.06	346.99	3,472.6	348.8	-80.6	-47.8	0.00	0.00	0.00
3,578.4	9.06	346.99	3,550.0	360.8	-83.4	-49.4	0.00	0.00	0.00
Parkman									
3,600.0	9.06	346.99	3,571.3	364.1	-84.2	-49.9	0.00	0.00	0.00
3,700.0	9.06	346.99	3,670.1	379.5	-87.7	-52.0	0.00	0.00	0.00
3,800.0	9.06	346.99	3,768.9	394.8	-91.2	-54.1	0.00	0.00	0.00
3,900.0	9.06	346.99	3,867.6	410.1	-94.8	-56.2	0.00	0.00	0.00
4,000.0	9.06	346.99	3,966.4	425.5	-98.3	-58.3	0.00	0.00	0.00
4,100.0	9.06	346.99	4,065.1	440.8	-101.9	-60.4	0.00	0.00	0.00
4,200.0	9.06	346.99	4,163.9	456.2	-105.4	-62.5	0.00	0.00	0.00
4,300.0	9.06	346.99	4,262.6	471.5	-109.0	-64.6	0.00	0.00	0.00
4,337.9	9.06	346.99	4,300.0	477.3	-110.3	-65.4	0.00	0.00	0.00
Sussex									
4,400.0	9.06	346.99	4,361.4	486.8	-112.5	-66.7	0.00	0.00	0.00

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Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-26-14)		

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	9.06	346.99	4,460.1	502.2	-116.1	-68.8	0.00	0.00	0.00
4,540.4	9.06	346.99	4,500.0	508.4	-117.5	-69.6	0.00	0.00	0.00
Shannon									
4,600.0	9.06	346.99	4,558.9	517.5	-119.6	-70.9	0.00	0.00	0.00
4,700.0	9.06	346.99	4,657.6	532.9	-123.1	-73.0	0.00	0.00	0.00
4,800.0	9.06	346.99	4,756.4	548.2	-126.7	-75.1	0.00	0.00	0.00
4,900.0	9.06	346.99	4,855.1	563.5	-130.2	-77.2	0.00	0.00	0.00
5,000.0	9.06	346.99	4,953.9	578.9	-133.8	-79.3	0.00	0.00	0.00
5,100.0	9.06	346.99	5,052.6	594.2	-137.3	-81.4	0.00	0.00	0.00
5,200.0	9.06	346.99	5,151.4	609.5	-140.9	-83.5	0.00	0.00	0.00
5,300.0	9.06	346.99	5,250.1	624.9	-144.4	-85.6	0.00	0.00	0.00
5,400.0	9.06	346.99	5,348.9	640.2	-148.0	-87.7	0.00	0.00	0.00
5,400.1	9.06	346.99	5,349.0	640.2	-148.0	-87.7	0.00	0.00	0.00
5,500.0	7.06	346.99	5,447.9	653.9	-151.1	-89.5	2.00	-2.00	0.00
5,600.0	5.06	346.99	5,547.3	664.2	-153.5	-90.9	2.00	-2.00	0.00
5,700.0	3.06	346.99	5,647.1	671.1	-155.1	-91.9	2.00	-2.00	0.00
5,800.0	1.06	346.99	5,747.0	674.6	-155.9	-92.4	2.00	-2.00	0.00
5,853.0	0.00	0.00	5,800.0	675.0	-156.0	-92.4	2.00	-2.00	0.00
5,900.0	0.00	0.00	5,847.0	675.0	-156.0	-92.4	0.00	0.00	0.00
6,000.0	0.00	0.00	5,947.0	675.0	-156.0	-92.4	0.00	0.00	0.00
6,008.3	0.00	0.00	5,955.3	675.0	-156.0	-92.4	0.00	0.00	0.00
KOP #2									
6,100.0	6.87	90.00	6,046.8	675.0	-150.5	-87.0	7.50	7.50	0.00
6,200.0	14.37	90.00	6,145.0	675.0	-132.1	-68.6	7.50	7.50	0.00
6,300.0	21.87	90.00	6,240.0	675.0	-101.0	-37.7	7.50	7.50	0.00
6,400.0	29.37	90.00	6,330.1	675.0	-57.8	5.4	7.50	7.50	0.00
6,491.6	36.24	90.00	6,407.0	675.0	-8.2	54.7	7.50	7.50	0.00
Sharon Springs									
6,500.0	36.87	90.00	6,413.8	675.0	-3.2	59.7	7.50	7.50	0.00
6,600.0	44.37	90.00	6,489.6	675.0	61.9	124.5	7.50	7.50	0.00
6,700.0	51.87	90.00	6,556.3	675.0	136.3	198.6	7.50	7.50	0.00
6,744.9	55.24	90.00	6,583.0	675.0	172.4	234.6	7.50	7.50	0.00
Niobrara A									
6,800.0	59.37	90.00	6,612.7	675.0	218.8	280.7	7.50	7.50	0.00
6,900.0	66.87	90.00	6,657.9	675.0	307.9	369.5	7.50	7.50	0.00
7,000.0	74.37	90.00	6,691.1	675.0	402.2	463.3	7.50	7.50	0.00
7,100.0	81.87	90.00	6,711.6	675.0	500.0	560.7	7.50	7.50	0.00
7,200.0	89.37	90.00	6,719.3	675.0	599.6	659.9	7.50	7.50	0.00
7,216.5	90.61	90.00	6,719.3	675.0	616.1	676.3	7.49	7.49	0.00
End of Build - 7"									
7,300.0	90.61	90.00	6,718.4	675.0	699.6	759.4	0.00	0.00	0.00
7,400.0	90.61	90.00	6,717.3	675.0	799.6	859.0	0.00	0.00	0.00
7,500.0	90.61	90.00	6,716.2	675.0	899.6	958.6	0.00	0.00	0.00
7,600.0	90.61	90.00	6,715.2	675.0	999.6	1,058.1	0.00	0.00	0.00
7,700.0	90.61	90.00	6,714.1	675.0	1,099.6	1,157.7	0.00	0.00	0.00
7,800.0	90.61	90.00	6,713.0	675.0	1,199.6	1,257.2	0.00	0.00	0.00
7,900.0	90.61	90.00	6,712.0	675.0	1,299.6	1,356.8	0.00	0.00	0.00
8,000.0	90.61	90.00	6,710.9	675.0	1,399.6	1,456.4	0.00	0.00	0.00
8,100.0	90.61	90.00	6,709.8	675.0	1,499.6	1,555.9	0.00	0.00	0.00
8,200.0	90.61	90.00	6,708.8	675.0	1,599.6	1,655.5	0.00	0.00	0.00
8,300.0	90.61	90.00	6,707.7	675.0	1,699.5	1,755.0	0.00	0.00	0.00
8,400.0	90.61	90.00	6,706.7	675.0	1,799.5	1,854.6	0.00	0.00	0.00

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Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-26-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,500.0	90.61	90.00	6,705.6	675.0	1,899.5	1,954.2	0.00	0.00	0.00
8,600.0	90.61	90.00	6,704.5	675.0	1,999.5	2,053.7	0.00	0.00	0.00
8,700.0	90.61	90.00	6,703.5	675.0	2,099.5	2,153.3	0.00	0.00	0.00
8,800.0	90.61	90.00	6,702.4	675.0	2,199.5	2,252.8	0.00	0.00	0.00
8,900.0	90.61	90.00	6,701.3	675.0	2,299.5	2,352.4	0.00	0.00	0.00
9,000.0	90.61	90.00	6,700.3	675.0	2,399.5	2,452.0	0.00	0.00	0.00
9,100.0	90.61	90.00	6,699.2	675.0	2,499.5	2,551.5	0.00	0.00	0.00
9,200.0	90.61	90.00	6,698.1	675.0	2,599.5	2,651.1	0.00	0.00	0.00
9,300.0	90.61	90.00	6,697.1	675.0	2,699.5	2,750.6	0.00	0.00	0.00
9,400.0	90.61	90.00	6,696.0	675.0	2,799.5	2,850.2	0.00	0.00	0.00
9,500.0	90.61	90.00	6,694.9	675.0	2,899.5	2,949.8	0.00	0.00	0.00
9,600.0	90.61	90.00	6,693.9	675.0	2,999.5	3,049.3	0.00	0.00	0.00
9,700.0	90.61	90.00	6,692.8	675.0	3,099.5	3,148.9	0.00	0.00	0.00
9,800.0	90.61	90.00	6,691.7	675.0	3,199.5	3,248.4	0.00	0.00	0.00
9,900.0	90.61	90.00	6,690.7	675.0	3,299.5	3,348.0	0.00	0.00	0.00
10,000.0	90.61	90.00	6,689.6	675.0	3,399.4	3,447.6	0.00	0.00	0.00
10,100.0	90.61	90.00	6,688.6	675.0	3,499.4	3,547.1	0.00	0.00	0.00
10,200.0	90.61	90.00	6,687.5	675.0	3,599.4	3,646.7	0.00	0.00	0.00
10,300.0	90.61	90.00	6,686.4	675.0	3,699.4	3,746.2	0.00	0.00	0.00
10,400.0	90.61	90.00	6,685.4	675.0	3,799.4	3,845.8	0.00	0.00	0.00
10,500.0	90.61	90.00	6,684.3	675.0	3,899.4	3,945.3	0.00	0.00	0.00
10,600.0	90.61	90.00	6,683.2	675.0	3,999.4	4,044.9	0.00	0.00	0.00
10,700.0	90.61	90.00	6,682.2	675.0	4,099.4	4,144.5	0.00	0.00	0.00
10,800.0	90.61	90.00	6,681.1	675.0	4,199.4	4,244.0	0.00	0.00	0.00
10,900.0	90.61	90.00	6,680.0	675.0	4,299.4	4,343.6	0.00	0.00	0.00
11,000.0	90.61	90.00	6,679.0	675.0	4,399.4	4,443.1	0.00	0.00	0.00
11,100.0	90.61	90.00	6,677.9	675.0	4,499.4	4,542.7	0.00	0.00	0.00
11,200.0	90.61	90.00	6,676.8	675.0	4,599.4	4,642.3	0.00	0.00	0.00
11,300.0	90.61	90.00	6,675.8	675.0	4,699.4	4,741.8	0.00	0.00	0.00
11,400.0	90.61	90.00	6,674.7	675.0	4,799.4	4,841.4	0.00	0.00	0.00
11,500.0	90.61	90.00	6,673.7	675.0	4,899.4	4,940.9	0.00	0.00	0.00
11,600.0	90.61	90.00	6,672.6	675.0	4,999.4	5,040.5	0.00	0.00	0.00
11,700.0	90.61	90.00	6,671.5	675.0	5,099.4	5,140.1	0.00	0.00	0.00
11,800.0	90.61	90.00	6,670.5	675.0	5,199.3	5,239.6	0.00	0.00	0.00
11,900.0	90.61	90.00	6,669.4	675.0	5,299.3	5,339.2	0.00	0.00	0.00
12,000.0	90.61	90.00	6,668.3	675.0	5,399.3	5,438.7	0.00	0.00	0.00
12,100.0	90.61	90.00	6,667.3	675.0	5,499.3	5,538.3	0.00	0.00	0.00
12,200.0	90.61	90.00	6,666.2	675.0	5,599.3	5,637.9	0.00	0.00	0.00
12,300.0	90.61	90.00	6,665.1	675.0	5,699.3	5,737.4	0.00	0.00	0.00
12,400.0	90.61	90.00	6,664.1	675.0	5,799.3	5,837.0	0.00	0.00	0.00
12,500.0	90.61	90.00	6,663.0	675.0	5,899.3	5,936.5	0.00	0.00	0.00
12,600.0	90.61	90.00	6,661.9	675.0	5,999.3	6,036.1	0.00	0.00	0.00
12,700.0	90.61	90.00	6,660.9	675.0	6,099.3	6,135.7	0.00	0.00	0.00
12,800.0	90.61	90.00	6,659.8	675.0	6,199.3	6,235.2	0.00	0.00	0.00
12,900.0	90.61	90.00	6,658.7	675.0	6,299.3	6,334.8	0.00	0.00	0.00
13,000.0	90.61	90.00	6,657.7	675.0	6,399.3	6,434.3	0.00	0.00	0.00
13,100.0	90.61	90.00	6,656.6	675.0	6,499.3	6,533.9	0.00	0.00	0.00
13,200.0	90.61	90.00	6,655.6	675.0	6,599.3	6,633.5	0.00	0.00	0.00
13,300.0	90.61	90.00	6,654.5	675.0	6,699.3	6,733.0	0.00	0.00	0.00
13,400.0	90.61	90.00	6,653.4	675.0	6,799.3	6,832.6	0.00	0.00	0.00
13,500.0	90.61	90.00	6,652.4	675.0	6,899.2	6,932.1	0.00	0.00	0.00
13,600.0	90.61	90.00	6,651.3	675.0	6,999.2	7,031.7	0.00	0.00	0.00
13,700.0	90.61	90.00	6,650.2	675.0	7,099.2	7,131.3	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Klein 19M-202
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-26-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,800.0	90.61	90.00	6,649.2	675.0	7,199.2	7,230.8	0.00	0.00	0.00
13,815.4	90.61	90.00	6,649.0	675.0	7,214.6	7,246.1	0.00	0.00	0.00
BHL 75'FNL & 500'FEL, SEC.20									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,216.5	6,719.3	7"	7	7-1/2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,578.4	3,550.0	Parkman		0.00		
4,337.9	4,300.0	Sussex		0.00		
4,540.4	4,500.0	Shannon		0.00		
6,491.6	6,407.0	Sharon Springs		0.00		
6,744.9	6,583.0	Niobrara A		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,000.0	1,000.0	0.0	0.0	KOP #1	
6,008.3	5,955.3	675.0	-156.0	KOP #2	
7,216.5	6,719.3	675.0	616.1	End of Build	



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

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

Klein 19M-202

Wellbore #1

Plan #1 (2-26-14)

Anticollision Report

05 March, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (2-26-14)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	3/4/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,815.4	Plan #1 (2-26-14) (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						
Lucille 1-6I (Existing) - Wellbore #1 - Wellbore #1						Out of range
Lucille 20-1 (Existing) - Wellbore #1 - Wellbore #1	11,024.2	6,655.7	612.7	354.3	2.371	CC, ES
Lucille 20-1 (Existing) - Wellbore #1 - Wellbore #1	11,100.0	6,654.9	617.4	356.8	2.370	SF
Paige 1 (D&A) (Existing) - Wellbore #1 - Wellbore #1	8,378.8	6,678.9	631.3	445.2	3.392	CC
Paige 1 (D&A) (Existing) - Wellbore #1 - Wellbore #1	8,400.0	6,678.7	631.6	445.0	3.384	ES, SF
Pigeon 1 (Existing) - Wellbore #1 - Wellbore #1	9,698.1	6,671.8	634.8	412.8	2.860	CC
Pigeon 1 (Existing) - Wellbore #1 - Wellbore #1	9,700.0	6,671.8	634.8	412.8	2.859	ES, SF
Pigeon 1-6B (Existing) - Wellbore #1 - Wellbore #1						Out of range
Pigeon 5-JAN (Existing) - Wellbore #1 - Wellbore #1						Out of range
Seth 1 (Existing) - Wellbore #1 - Wellbore #1	7,204.9	6,703.3	525.7	368.2	3.338	CC, ES, SF
Klein 19MN-HZ Pad Sec.19-T5N-R64W						
Klein 19M-432 - Wellbore #1 - Plan #1 (2-26-14)	1,000.0	1,000.0	27.9	23.6	6.523	CC
Klein 19M-432 - Wellbore #1 - Plan #1 (2-26-14)	13,815.4	13,941.1	375.8	12.3	1.034	Level 2, ES, SF
Klein 19N-312 - Wellbore #1 - Plan #1 (2-26-14)	1,000.0	1,000.0	89.1	84.9	20.873	CC
Klein 19N-312 - Wellbore #1 - Plan #1 (2-26-14)	1,100.0	1,100.0	89.5	84.8	18.978	ES
Klein 19N-312 - Wellbore #1 - Plan #1 (2-26-14)	13,815.4	13,859.3	737.7	333.1	1.823	SF
Klein 19N-412 - Wellbore #1 - Plan #1 (2-26-14)	1,000.0	1,000.0	58.5	54.2	13.698	CC
Klein 19N-412 - Wellbore #1 - Plan #1 (2-26-14)	1,100.0	1,100.0	58.9	54.2	12.486	ES
Klein 19N-412 - Wellbore #1 - Plan #1 (2-26-14)	1,300.0	1,299.5	63.9	58.3	11.377	SF

Offset Design	Klein (Existing) Sec.19-T5N-R64W - Lucille 20-1 (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program:	7055-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)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,300.0	6,686.4	6,663.4	6,663.4	105.4	133.3	90.72	62.3	4,423.6	948.6	710.1	238.46	3.978		
10,400.0	6,685.4	6,662.4	6,662.4	108.2	133.2	90.62	62.3	4,423.6	874.6	633.4	241.22	3.626		
10,500.0	6,684.3	6,661.3	6,661.3	110.9	133.2	90.52	62.3	4,423.6	806.3	562.3	243.98	3.305		
10,600.0	6,683.2	6,660.2	6,660.2	113.7	133.2	90.42	62.3	4,423.6	745.2	498.5	246.73	3.020		
10,700.0	6,682.2	6,659.2	6,659.2	116.5	133.2	90.32	62.3	4,423.6	693.2	443.7	249.49	2.778		
10,800.0	6,681.1	6,658.1	6,658.1	119.3	133.2	90.22	62.3	4,423.6	652.4	400.2	252.25	2.586		
10,900.0	6,680.0	6,657.0	6,657.0	122.1	133.1	90.12	62.3	4,423.6	625.2	370.2	255.01	2.452		

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 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Lucille 20-1 (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7055-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
11,000.0	6,679.0	6,656.0	6,656.0	124.8	133.1	90.02	62.3	4,423.6	613.2	355.4	257.77	2.379	
11,024.2	6,678.7	6,655.7	6,655.7	125.5	133.1	90.00	62.3	4,423.6	612.7	354.3	258.44	2.371 CC, ES	
11,100.0	6,677.9	6,654.9	6,654.9	127.6	133.1	89.92	62.3	4,423.6	617.4	356.8	260.54	2.370 SF	
11,200.0	6,676.8	6,653.8	6,653.8	130.4	133.1	89.82	62.3	4,423.6	637.4	374.1	263.30	2.421	
11,300.0	6,675.8	6,652.8	6,652.8	133.2	133.1	89.73	62.3	4,423.6	671.9	405.9	266.06	2.525	
11,400.0	6,674.7	6,651.7	6,651.7	136.0	133.0	89.63	62.3	4,423.6	718.8	450.0	268.82	2.674	
11,500.0	6,673.7	6,650.7	6,650.7	138.8	133.0	89.53	62.3	4,423.6	775.8	504.2	271.58	2.856	
11,600.0	6,672.6	6,649.6	6,649.6	141.5	133.0	89.43	62.3	4,423.6	840.8	566.5	274.34	3.065	
11,700.0	6,671.5	6,648.5	6,648.5	144.3	133.0	89.33	62.3	4,423.6	912.2	635.1	277.10	3.292	
11,800.0	6,670.5	6,647.5	6,647.5	147.1	132.9	89.23	62.3	4,423.6	988.6	708.7	279.86	3.532	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Paige 1 (D&A) (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7003-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
7,700.0	6,714.1	6,686.1	6,686.1	35.5	133.7	90.66	43.8	1,778.3	926.9	758.3	168.60	5.498		
7,800.0	6,713.0	6,685.0	6,685.0	37.9	133.7	90.56	43.8	1,778.3	856.4	685.3	171.09	5.006		
7,900.0	6,712.0	6,684.0	6,684.0	40.5	133.7	90.46	43.8	1,778.3	792.3	618.7	173.63	4.563		
8,000.0	6,710.9	6,682.9	6,682.9	43.0	133.7	90.37	43.8	1,778.3	736.2	560.0	176.19	4.178		
8,100.0	6,709.8	6,681.8	6,681.8	45.6	133.6	90.27	43.8	1,778.3	690.1	511.3	178.78	3.860		
8,200.0	6,708.8	6,680.8	6,680.8	48.2	133.6	90.17	43.8	1,778.3	656.1	474.7	181.39	3.617		
8,300.0	6,707.7	6,679.7	6,679.7	50.8	133.6	90.08	43.8	1,778.3	636.2	452.1	184.02	3.457		
8,378.8	6,706.9	6,678.9	6,678.9	52.9	133.6	90.00	43.8	1,778.3	631.3	445.2	186.10	3.392 CC		
8,400.0	6,706.7	6,678.7	6,678.7	53.5	133.6	89.98	43.8	1,778.3	631.6	445.0	186.66	3.384 ES, SF		
8,500.0	6,705.6	6,677.6	6,677.6	56.2	133.6	89.88	43.8	1,778.3	642.8	453.5	189.32	3.395		
8,600.0	6,704.5	6,676.5	6,676.5	58.8	133.5	89.79	43.8	1,778.3	668.9	476.9	191.99	3.484		
8,700.0	6,703.5	6,675.5	6,675.5	61.5	133.5	89.69	43.8	1,778.3	708.3	513.6	194.67	3.638		
8,800.0	6,702.4	6,674.4	6,674.4	64.2	133.5	89.59	43.8	1,778.3	758.9	561.5	197.36	3.845		
8,900.0	6,701.3	6,673.3	6,673.3	66.9	133.5	89.50	43.8	1,778.3	818.6	618.5	200.05	4.092		
9,000.0	6,700.3	6,672.3	6,672.3	69.7	133.4	89.40	43.8	1,778.3	885.6	682.9	202.75	4.368		
9,100.0	6,699.2	6,671.2	6,671.2	72.4	133.4	89.30	43.8	1,778.3	958.4	753.0	205.46	4.665		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Pigeon 1 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7029-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,000.0	6,700.3	6,679.3	6,679.3	69.7	133.6	90.67	40.3	3,097.6	943.6	740.6	202.93	4.650		
9,100.0	6,699.2	6,678.2	6,678.2	72.4	133.6	90.57	40.3	3,097.6	872.2	666.5	205.64	4.241		
9,200.0	6,698.1	6,677.1	6,677.1	75.1	133.5	90.48	40.3	3,097.6	806.9	598.5	208.36	3.873		
9,300.0	6,697.1	6,676.1	6,676.1	77.8	133.5	90.38	40.3	3,097.6	749.3	538.2	211.08	3.550		
9,400.0	6,696.0	6,675.0	6,675.0	80.6	133.5	90.29	40.3	3,097.6	701.3	487.5	213.81	3.280		
9,500.0	6,694.9	6,673.9	6,673.9	83.3	133.5	90.19	40.3	3,097.6	665.0	448.4	216.54	3.071		
9,600.0	6,693.9	6,672.9	6,672.9	86.1	133.5	90.09	40.3	3,097.6	642.3	423.0	219.28	2.929		
9,698.1	6,692.8	6,671.8	6,671.8	88.8	133.4	90.00	40.3	3,097.6	634.8	412.8	221.96	2.860 CC		
9,700.0	6,692.8	6,671.8	6,671.8	88.8	133.4	90.00	40.3	3,097.6	634.8	412.8	222.01	2.859 ES, SF		
9,800.0	6,691.7	6,670.7	6,670.7	91.6	133.4	89.90	40.3	3,097.6	642.9	418.1	224.75	2.860		
9,900.0	6,690.7	6,669.7	6,669.7	94.3	133.4	89.81	40.3	3,097.6	666.1	438.6	227.49	2.928		
10,000.0	6,689.6	6,668.6	6,668.6	97.1	133.4	89.71	40.3	3,097.6	702.9	472.6	230.23	3.053		
10,100.0	6,688.6	6,667.6	6,667.6	99.9	133.4	89.61	40.3	3,097.6	751.3	518.3	232.98	3.225		
10,200.0	6,687.5	6,666.5	6,666.5	102.6	133.3	89.52	40.3	3,097.6	809.2	573.4	235.72	3.433		
10,300.0	6,686.4	6,665.4	6,665.4	105.4	133.3	89.42	40.3	3,097.6	874.7	636.2	238.47	3.668		
10,400.0	6,685.4	6,664.4	6,664.4	108.2	133.3	89.33	40.3	3,097.6	946.3	705.1	241.22	3.923		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Seth 1 (Existing) - 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)	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	76.12	76.12	149.4	604.5	622.9				
100.0	100.0	84.0	84.0	0.1	1.7	76.12	76.12	149.4	604.5	622.7	620.9	1.79	347.354	
200.0	200.0	184.0	184.0	0.3	3.7	76.12	76.12	149.4	604.5	622.7	618.6	4.02	154.993	
300.0	300.0	284.0	284.0	0.6	5.7	76.12	76.12	149.4	604.5	622.7	616.4	6.24	99.752	
400.0	400.0	384.0	384.0	0.8	7.7	76.12	76.12	149.4	604.5	622.7	614.2	8.47	73.541	
500.0	500.0	484.0	484.0	1.0	9.7	76.12	76.12	149.4	604.5	622.7	612.0	10.69	58.238	
600.0	600.0	584.0	584.0	1.2	11.7	76.12	76.12	149.4	604.5	622.7	609.7	12.92	48.207	
700.0	700.0	684.0	684.0	1.5	13.7	76.12	76.12	149.4	604.5	622.7	607.5	15.14	41.124	
800.0	800.0	784.0	784.0	1.7	15.7	76.12	76.12	149.4	604.5	622.7	605.3	17.37	35.855	
900.0	900.0	884.0	884.0	1.9	17.7	76.12	76.12	149.4	604.5	622.7	603.1	19.59	31.783	
1,000.0	1,000.0	984.0	984.0	2.1	19.7	76.12	76.12	149.4	604.5	622.7	600.8	21.82	28.542	
1,100.0	1,100.0	1,084.0	1,084.0	2.4	21.7	89.29	89.29	149.4	604.5	622.6	598.6	24.04	25.902	
1,200.0	1,199.8	1,183.8	1,183.8	2.6	23.7	89.78	89.78	149.4	604.5	622.6	596.3	26.26	23.709	
1,232.5	1,232.2	1,216.2	1,216.2	2.7	24.3	90.00	90.00	149.4	604.5	622.6	595.6	26.98	23.074	
1,300.0	1,299.5	1,283.5	1,283.5	2.8	25.7	90.57	90.57	149.4	604.5	622.6	594.1	28.48	21.860	
1,400.0	1,398.7	1,382.7	1,382.7	3.1	27.7	91.68	91.68	149.4	604.5	622.9	592.1	30.71	20.280	
1,500.0	1,497.5	1,481.5	1,481.5	3.3	29.6	93.06	93.06	149.4	604.5	623.5	590.5	32.96	18.919	
1,600.0	1,596.3	1,580.3	1,580.3	3.6	31.6	94.49	94.49	149.4	604.5	624.6	589.3	35.22	17.735	
1,700.0	1,695.0	1,679.0	1,679.0	3.9	33.6	95.90	95.90	149.4	604.5	626.0	588.5	37.49	16.699	
1,800.0	1,793.8	1,777.8	1,777.8	4.2	35.6	97.32	97.32	149.4	604.5	627.8	588.1	39.77	15.788	
1,900.0	1,892.5	1,876.5	1,876.5	4.5	37.5	98.72	98.72	149.4	604.5	630.1	588.0	42.05	14.982	
2,000.0	1,991.3	1,975.3	1,975.3	4.9	39.5	100.11	100.11	149.4	604.5	632.7	588.3	44.34	14.267	
2,100.0	2,090.0	2,074.0	2,074.0	5.2	41.5	101.49	101.49	149.4	604.5	635.6	589.0	46.64	13.630	
2,200.0	2,188.8	2,172.8	2,172.8	5.5	43.5	102.86	102.86	149.4	604.5	639.0	590.1	48.93	13.060	
2,300.0	2,287.6	2,271.6	2,271.6	5.9	45.4	104.21	104.21	149.4	604.5	642.7	591.5	51.22	12.548	
2,400.0	2,386.3	2,370.3	2,370.3	6.2	47.4	105.55	105.55	149.4	604.5	646.8	593.3	53.52	12.086	
2,500.0	2,485.1	2,469.1	2,469.1	6.6	49.4	106.87	106.87	149.4	604.5	651.3	595.5	55.81	11.670	
2,600.0	2,583.8	2,567.8	2,567.8	6.9	51.4	108.17	108.17	149.4	604.5	656.1	598.0	58.10	11.292	
2,700.0	2,682.6	2,666.6	2,666.6	7.3	53.3	109.45	109.45	149.4	604.5	661.2	600.8	60.39	10.949	
2,800.0	2,781.3	2,765.3	2,765.3	7.6	55.3	110.71	110.71	149.4	604.5	666.7	604.0	62.67	10.637	
2,900.0	2,880.1	2,864.1	2,864.1	8.0	57.3	111.95	111.95	149.4	604.5	672.4	607.5	64.95	10.353	
3,000.0	2,978.8	2,962.8	2,962.8	8.3	59.3	113.17	113.17	149.4	604.5	678.6	611.3	67.23	10.093	
3,100.0	3,077.6	3,061.6	3,061.6	8.7	61.2	114.37	114.37	149.4	604.5	685.0	615.5	69.51	9.855	
3,200.0	3,176.3	3,160.3	3,160.3	9.0	63.2	115.55	115.55	149.4	604.5	691.7	619.9	71.78	9.636	
3,300.0	3,275.1	3,259.1	3,259.1	9.4	65.2	116.70	116.70	149.4	604.5	698.7	624.6	74.04	9.436	
3,400.0	3,373.8	3,357.8	3,357.8	9.7	67.2	117.83	117.83	149.4	604.5	706.0	629.7	76.31	9.251	
3,500.0	3,472.6	3,456.6	3,456.6	10.1	69.1	118.94	118.94	149.4	604.5	713.5	635.0	78.57	9.082	
3,600.0	3,571.3	3,555.3	3,555.3	10.5	71.1	120.02	120.02	149.4	604.5	721.3	640.5	80.82	8.925	
3,700.0	3,670.1	3,654.1	3,654.1	10.8	73.1	121.08	121.08	149.4	604.5	729.4	646.3	83.08	8.780	
3,800.0	3,768.9	3,752.9	3,752.9	11.2	75.1	122.12	122.12	149.4	604.5	737.7	652.4	85.33	8.646	
3,900.0	3,867.6	3,851.6	3,851.6	11.5	77.0	123.13	123.13	149.4	604.5	746.3	658.7	87.57	8.522	
4,000.0	3,966.4	3,950.4	3,950.4	11.9	79.0	124.13	124.13	149.4	604.5	755.1	665.3	89.81	8.407	
4,100.0	4,065.1	4,049.1	4,049.1	12.3	81.0	125.10	125.10	149.4	604.5	764.1	672.1	92.05	8.301	
4,200.0	4,163.9	4,147.9	4,147.9	12.6	83.0	126.04	126.04	149.4	604.5	773.4	679.1	94.29	8.202	
4,300.0	4,262.6	4,246.6	4,246.6	13.0	84.9	126.97	126.97	149.4	604.5	782.8	686.3	96.52	8.110	
4,400.0	4,361.4	4,345.4	4,345.4	13.3	86.9	127.87	127.87	149.4	604.5	792.4	693.7	98.75	8.025	
4,500.0	4,460.1	4,444.1	4,444.1	13.7	88.9	128.75	128.75	149.4	604.5	802.3	701.3	100.97	7.945	
4,600.0	4,558.9	4,542.9	4,542.9	14.1	90.9	129.61	129.61	149.4	604.5	812.3	709.1	103.20	7.871	
4,700.0	4,657.6	4,641.6	4,641.6	14.4	92.8	130.45	130.45	149.4	604.5	822.5	717.1	105.42	7.802	
4,800.0	4,756.4	4,740.4	4,740.4	14.8	94.8	131.27	131.27	149.4	604.5	832.9	725.2	107.64	7.738	
4,900.0	4,855.1	4,839.1	4,839.1	15.2	96.8	132.06	132.06	149.4	604.5	843.4	733.5	109.85	7.678	

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 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Seth 1 (Existing) - 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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,953.9	4,937.9	4,937.9	15.5	98.8	132.84	149.4	604.5	854.1	742.0	112.07	7.621	
5,100.0	5,052.6	5,036.6	5,036.6	15.9	100.7	133.60	149.4	604.5	865.0	750.7	114.28	7.569	
5,200.0	5,151.4	5,135.4	5,135.4	16.3	102.7	134.34	149.4	604.5	876.0	759.5	116.49	7.520	
5,300.0	5,250.1	5,234.1	5,234.1	16.6	104.7	135.07	149.4	604.5	887.1	768.4	118.69	7.474	
5,400.0	5,348.9	5,332.9	5,332.9	17.0	106.7	135.77	149.4	604.5	898.4	777.5	120.90	7.431	
5,500.0	5,447.9	5,431.9	5,431.9	17.3	108.6	136.53	149.4	604.5	908.5	785.2	123.34	7.366	
5,600.0	5,547.3	5,531.3	5,531.3	17.5	110.6	137.08	149.4	604.5	916.3	790.6	125.70	7.289	
5,700.0	5,647.1	5,631.1	5,631.1	17.7	112.6	137.45	149.4	604.5	921.5	793.5	127.99	7.199	
5,800.0	5,747.0	5,731.0	5,731.0	17.9	114.6	137.64	149.4	604.5	924.1	793.9	130.20	7.097	
5,900.0	5,847.0	5,831.0	5,831.0	18.0	116.6	124.65	149.4	604.5	924.5	791.6	132.89	6.957	
6,000.0	5,947.0	5,931.0	5,931.0	18.2	118.6	124.65	149.4	604.5	924.5	789.4	135.06	6.845	
6,100.0	6,046.8	6,030.8	6,030.8	18.3	120.6	35.04	149.4	604.5	920.0	784.0	135.93	6.768	
6,200.0	6,145.0	6,129.0	6,129.0	18.4	122.6	36.38	149.4	604.5	904.9	769.1	135.77	6.665	
6,300.0	6,240.0	6,224.0	6,224.0	18.5	124.5	38.76	149.4	604.5	879.8	745.4	134.39	6.547	
6,400.0	6,330.1	6,314.1	6,314.1	18.6	126.3	42.33	149.4	604.5	845.5	713.0	132.51	6.381	
6,500.0	6,413.8	6,397.8	6,397.8	18.6	128.0	47.24	149.4	604.5	803.5	672.1	131.33	6.118	
6,600.0	6,489.6	6,473.6	6,473.6	18.7	129.5	53.58	149.4	604.5	755.5	623.2	132.24	5.713	
6,700.0	6,556.3	6,540.3	6,540.3	18.9	130.8	61.20	149.4	604.5	703.9	567.9	136.02	5.175	
6,800.0	6,612.7	6,596.7	6,596.7	19.2	131.9	69.51	149.4	604.5	652.0	510.1	141.89	4.595	
6,900.0	6,657.9	6,641.9	6,641.9	19.8	132.8	77.51	149.4	604.5	603.6	455.7	147.81	4.083	
7,000.0	6,691.1	6,675.1	6,675.1	20.9	133.5	84.08	149.4	604.5	563.3	411.0	152.25	3.700	
7,100.0	6,711.6	6,695.6	6,695.6	22.4	133.9	88.39	149.4	604.5	536.0	380.8	155.18	3.454	
7,200.0	6,719.3	6,703.3	6,703.3	24.2	134.1	89.99	149.4	604.5	525.7	368.3	157.40	3.340	
7,204.9	6,719.3	6,703.3	6,703.3	24.3	134.1	90.00	149.4	604.5	525.7	368.2	157.50	3.338	CC, ES, SF
7,300.0	6,718.4	6,702.4	6,702.4	26.3	134.0	89.89	149.4	604.5	534.2	374.7	159.48	3.350	
7,400.0	6,717.3	6,701.3	6,701.3	28.4	134.0	89.77	149.4	604.5	560.7	399.0	161.69	3.468	
7,500.0	6,716.2	6,700.2	6,700.2	30.7	134.0	89.66	149.4	604.5	602.8	438.9	163.99	3.676	
7,600.0	6,715.2	6,699.2	6,699.2	33.0	134.0	89.54	149.4	604.5	657.6	491.2	166.37	3.953	
7,700.0	6,714.1	6,698.1	6,698.1	35.5	134.0	89.43	149.4	604.5	722.1	553.3	168.80	4.278	
7,800.0	6,713.0	6,697.0	6,697.0	37.9	133.9	89.31	149.4	604.5	794.0	622.7	171.29	4.636	
7,900.0	6,712.0	6,696.0	6,696.0	40.5	133.9	89.19	149.4	604.5	871.5	697.7	173.81	5.014	
8,000.0	6,710.9	6,694.9	6,694.9	43.0	133.9	89.08	149.4	604.5	953.1	776.8	176.37	5.404	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-432 - Wellbore #1 - Plan #1 (2-26-14)													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	27.9	27.9					
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	27.9	27.9	27.6	0.22	123.935		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	27.9	27.9	27.2	0.67	41.312		
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	27.9	27.9	26.7	1.12	24.787		
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	27.9	27.9	26.3	1.57	17.705		
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	27.9	27.9	25.8	2.02	13.771		
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	27.9	27.9	25.4	2.47	11.267		
700.0	700.0	700.0	700.0	1.5	1.5	90.00	0.0	27.9	27.9	24.9	2.92	9.533		
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	27.9	27.9	24.5	3.37	8.262		
900.0	900.0	900.0	900.0	1.9	1.9	90.00	0.0	27.9	27.9	24.0	3.82	7.290		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.00	0.0	27.9	27.9	23.6	4.27	6.523 CC		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	106.45	0.0	27.9	28.3	23.6	4.72	5.998		
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	115.97	0.0	27.9	30.2	25.0	5.17	5.847		
1,300.0	1,299.5	1,300.4	1,300.4	2.8	2.8	127.21	1.5	27.0	33.5	27.9	5.61	5.973		
1,400.0	1,398.7	1,401.2	1,401.0	3.1	3.0	137.33	6.2	24.5	37.3	31.2	6.05	6.163		
1,500.0	1,497.5	1,502.2	1,501.6	3.3	3.3	146.25	14.0	20.3	41.3	34.8	6.50	6.349		
1,600.0	1,596.3	1,602.0	1,600.9	3.6	3.5	153.26	23.2	15.3	44.7	37.8	6.95	6.437		
1,700.0	1,695.0	1,701.8	1,700.1	3.9	3.8	159.18	32.4	10.3	48.8	41.4	7.41	6.588		
1,800.0	1,793.8	1,801.6	1,799.4	4.2	4.0	164.15	41.7	5.3	53.3	45.4	7.87	6.776		
1,900.0	1,892.5	1,901.4	1,898.6	4.5	4.3	168.32	50.9	0.3	58.1	49.8	8.33	6.979		
2,000.0	1,991.3	2,001.2	1,997.9	4.9	4.5	171.84	60.1	-4.7	63.2	54.4	8.80	7.187		
2,100.0	2,090.0	2,101.0	2,097.1	5.2	4.8	174.82	69.3	-9.7	68.5	59.3	9.27	7.392		
2,200.0	2,188.8	2,200.8	2,196.4	5.5	5.1	177.37	78.5	-14.7	74.0	64.2	9.75	7.589		
2,300.0	2,287.6	2,300.6	2,295.6	5.9	5.3	179.56	87.8	-19.7	79.6	69.3	10.23	7.776		
2,400.0	2,386.3	2,400.4	2,394.9	6.2	5.6	-178.53	97.0	-24.7	85.2	74.5	10.72	7.951		
2,500.0	2,485.1	2,500.2	2,494.1	6.6	5.9	-176.86	106.2	-29.6	91.0	79.8	11.21	8.116		
2,600.0	2,583.8	2,600.0	2,593.4	6.9	6.2	-175.40	115.4	-34.6	96.8	85.1	11.71	8.269		
2,700.0	2,682.6	2,699.8	2,692.6	7.3	6.5	-174.10	124.6	-39.6	102.7	90.5	12.21	8.413		
2,800.0	2,781.3	2,799.6	2,791.9	7.6	6.7	-172.94	133.8	-44.6	108.7	96.0	12.72	8.546		
2,900.0	2,880.1	2,899.4	2,891.1	8.0	7.0	-171.90	143.1	-49.6	114.7	101.4	13.22	8.670		
3,000.0	2,978.8	2,999.2	2,990.4	8.3	7.3	-170.97	152.3	-54.6	120.7	106.9	13.73	8.785		
3,100.0	3,077.6	3,099.0	3,089.6	8.7	7.6	-170.12	161.5	-59.6	126.7	112.5	14.25	8.893		
3,200.0	3,176.3	3,198.8	3,188.9	9.0	7.9	-169.35	170.7	-64.6	132.8	118.0	14.76	8.994		
3,300.0	3,275.1	3,298.6	3,288.1	9.4	8.2	-168.65	179.9	-69.6	138.8	123.6	15.28	9.088		
3,400.0	3,373.8	3,398.4	3,387.4	9.7	8.4	-168.01	189.2	-74.6	145.0	129.2	15.80	9.176		
3,500.0	3,472.6	3,498.2	3,486.6	10.1	8.7	-167.42	198.4	-79.6	151.1	134.8	16.32	9.258		
3,600.0	3,571.3	3,598.0	3,585.9	10.5	9.0	-166.87	207.6	-84.6	157.2	140.4	16.84	9.336		
3,700.0	3,670.1	3,697.8	3,685.1	10.8	9.3	-166.37	216.8	-89.5	163.4	146.0	17.36	9.409		
3,800.0	3,768.9	3,797.6	3,784.4	11.2	9.6	-165.90	226.0	-94.5	169.5	151.6	17.89	9.477		
3,900.0	3,867.6	3,897.4	3,883.6	11.5	9.9	-165.47	235.3	-99.5	175.7	157.3	18.41	9.542		
4,000.0	3,966.4	3,997.2	3,982.9	11.9	10.2	-165.06	244.5	-104.5	181.9	162.9	18.94	9.603		
4,100.0	4,065.1	4,097.0	4,082.1	12.3	10.5	-164.69	253.7	-109.5	188.1	168.6	19.47	9.660		
4,200.0	4,163.9	4,196.8	4,181.4	12.6	10.8	-164.33	262.9	-114.5	194.3	174.3	20.00	9.715		
4,300.0	4,262.6	4,296.6	4,280.6	13.0	11.0	-164.00	272.1	-119.5	200.5	179.9	20.53	9.766		
4,400.0	4,361.4	4,396.4	4,379.9	13.3	11.3	-163.69	281.3	-124.5	206.7	185.6	21.06	9.815		
4,500.0	4,460.1	4,496.2	4,479.1	13.7	11.6	-163.39	290.6	-129.5	212.9	191.3	21.59	9.862		
4,600.0	4,558.9	4,596.0	4,578.4	14.1	11.9	-163.12	299.8	-134.5	219.1	197.0	22.12	9.906		
4,700.0	4,657.6	4,695.8	4,677.6	14.4	12.2	-162.85	309.0	-139.5	225.3	202.7	22.65	9.948		
4,800.0	4,756.4	4,795.6	4,776.8	14.8	12.5	-162.61	318.2	-144.4	231.6	208.4	23.18	9.988		
4,900.0	4,855.1	4,895.4	4,876.1	15.2	12.8	-162.37	327.4	-149.4	237.8	214.1	23.72	10.026		
5,000.0	4,953.9	4,990.1	4,970.3	15.5	13.0	-162.27	335.4	-153.8	244.8	220.6	24.20	10.116		

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 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-432 - Wellbore #1 - Plan #1 (2-26-14)													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	
5,100.0	5,052.6	5,082.9	5,062.9	15.9	13.2	-162.55	340.6	-156.6	254.5	229.9	24.61	10.340		
5,200.0	5,151.4	5,175.0	5,154.9	16.3	13.4	-163.15	343.2	-158.0	266.9	241.9	24.99	10.682		
5,300.0	5,250.1	5,270.2	5,250.1	16.6	13.5	-164.00	343.5	-158.1	281.7	256.4	25.35	11.111		
5,400.0	5,348.9	5,368.9	5,348.9	17.0	13.7	-164.84	343.5	-158.1	296.9	271.1	25.75	11.529		
5,500.0	5,447.9	5,467.9	5,447.9	17.3	13.9	-165.58	343.5	-158.1	310.4	284.3	26.16	11.867		
5,600.0	5,547.3	5,567.4	5,547.3	17.5	14.1	-166.10	343.5	-158.1	320.7	294.2	26.52	12.090		
5,700.0	5,647.1	5,667.1	5,647.1	17.7	14.3	-166.43	343.5	-158.1	327.6	300.7	26.87	12.191		
5,800.0	5,747.0	5,767.0	5,747.0	17.9	14.5	-166.60	343.5	-158.1	331.1	303.9	27.19	12.174		
5,900.0	5,847.0	5,867.0	5,847.0	18.0	14.7	-179.63	343.5	-158.1	331.5	299.5	32.05	10.344		
6,000.0	5,947.0	5,967.0	5,947.0	18.2	14.9	-179.63	343.5	-158.1	331.5	299.1	32.41	10.231		
6,013.6	5,960.6	5,980.6	5,960.6	18.2	14.9	90.39	343.5	-158.1	331.5	303.5	28.01	11.837		
6,100.0	6,046.8	6,066.8	6,046.8	18.3	15.1	91.31	343.5	-158.1	331.6	303.2	28.40	11.675		
6,200.0	6,145.0	6,166.2	6,146.2	18.4	15.2	94.26	343.5	-157.3	332.5	303.5	28.95	11.486		
6,300.0	6,240.0	6,269.0	6,248.2	18.5	15.4	97.63	343.5	-145.5	334.6	305.2	29.42	11.372		
6,400.0	6,330.1	6,374.7	6,350.5	18.6	15.5	100.86	343.5	-119.3	337.8	308.0	29.79	11.339		
6,500.0	6,413.8	6,483.5	6,451.0	18.6	15.6	103.90	343.5	-77.8	341.9	311.8	30.08	11.365		
6,600.0	6,489.6	6,595.5	6,547.2	18.7	15.6	106.67	343.5	-20.7	346.5	316.1	30.40	11.398		
6,700.0	6,556.3	6,710.7	6,636.4	18.9	15.7	109.12	343.5	52.1	351.3	320.4	30.94	11.354		
6,800.0	6,612.7	6,828.8	6,715.4	19.2	16.0	111.19	343.5	139.8	355.9	324.0	31.96	11.138		
6,900.0	6,657.9	6,949.6	6,781.2	19.8	17.1	112.85	343.5	240.9	360.0	326.3	33.67	10.693		
7,000.0	6,691.1	7,072.5	6,831.0	20.9	18.7	114.05	343.5	353.1	363.2	326.9	36.25	10.019		
7,100.0	6,711.6	7,197.0	6,862.4	22.4	20.8	114.78	343.5	473.4	365.2	325.5	39.68	9.203		
7,200.0	6,719.3	7,307.6	6,875.8	24.2	22.9	115.30	343.5	583.2	367.0	323.5	43.51	8.435		
7,300.0	6,718.4	7,421.0	6,883.6	26.3	25.3	116.48	343.5	696.3	370.4	323.1	47.29	7.833		
7,400.0	6,717.3	7,525.8	6,883.1	28.4	27.6	116.57	343.5	801.1	370.7	319.3	51.36	7.218		
7,500.0	6,716.2	7,625.8	6,882.2	30.7	29.9	116.60	343.5	901.1	370.8	315.2	55.52	6.678		
7,600.0	6,715.2	7,725.8	6,881.3	33.0	32.3	116.62	343.5	1,001.1	370.8	311.0	59.82	6.200		
7,700.0	6,714.1	7,825.8	6,880.4	35.5	34.8	116.65	343.5	1,101.1	370.9	306.7	64.23	5.775		
7,800.0	6,713.0	7,925.8	6,879.6	37.9	37.3	116.67	343.5	1,201.1	371.0	302.3	68.72	5.399		
7,900.0	6,712.0	8,025.8	6,878.7	40.5	39.9	116.69	343.5	1,301.1	371.1	297.8	73.29	5.063		
8,000.0	6,710.9	8,125.8	6,877.8	43.0	42.4	116.72	343.5	1,401.0	371.2	293.2	77.92	4.764		
8,100.0	6,709.8	8,225.8	6,876.9	45.6	45.0	116.74	343.5	1,501.0	371.2	288.6	82.59	4.495		
8,200.0	6,708.8	8,325.8	6,876.0	48.2	47.7	116.77	343.5	1,601.0	371.3	284.0	87.31	4.253		
8,300.0	6,707.7	8,425.8	6,875.1	50.8	50.3	116.79	343.5	1,701.0	371.4	279.3	92.05	4.034		
8,400.0	6,706.7	8,525.8	6,874.2	53.5	53.0	116.81	343.5	1,801.0	371.5	274.6	96.83	3.836		
8,500.0	6,705.6	8,625.8	6,873.3	56.2	55.7	116.84	343.5	1,901.0	371.6	269.9	101.63	3.656		
8,600.0	6,704.5	8,725.8	6,872.4	58.8	58.3	116.86	343.5	2,001.0	371.6	265.2	106.45	3.491		
8,700.0	6,703.5	8,825.8	6,871.5	61.5	61.0	116.89	343.5	2,101.0	371.7	260.4	111.29	3.340		
8,800.0	6,702.4	8,925.8	6,870.7	64.2	63.8	116.91	343.5	2,201.0	371.8	255.6	116.15	3.201		
8,900.0	6,701.3	9,025.8	6,869.8	66.9	66.5	116.93	343.5	2,301.0	371.9	250.8	121.02	3.073		
9,000.0	6,700.3	9,125.8	6,868.9	69.7	69.2	116.96	343.5	2,401.0	371.9	246.1	125.90	2.954		
9,100.0	6,699.2	9,225.8	6,868.0	72.4	71.9	116.98	343.5	2,501.0	372.0	241.2	130.78	2.845		
9,200.0	6,698.1	9,325.8	6,867.1	75.1	74.7	117.01	343.5	2,601.0	372.1	236.4	135.68	2.742		
9,300.0	6,697.1	9,425.8	6,866.2	77.8	77.4	117.03	343.5	2,701.0	372.2	231.6	140.59	2.647		
9,400.0	6,696.0	9,525.8	6,865.3	80.6	80.2	117.05	343.5	2,801.0	372.3	226.8	145.50	2.559		
9,500.0	6,694.9	9,625.8	6,864.4	83.3	82.9	117.08	343.5	2,901.0	372.3	221.9	150.41	2.475		
9,600.0	6,693.9	9,725.8	6,863.5	86.1	85.7	117.10	343.5	3,001.0	372.4	217.1	155.34	2.398		
9,700.0	6,692.8	9,825.8	6,862.6	88.8	88.4	117.13	343.5	3,101.0	372.5	212.2	160.26	2.324		
9,800.0	6,691.7	9,925.8	6,861.8	91.6	91.2	117.15	343.5	3,201.0	372.6	207.4	165.19	2.255		
9,900.0	6,690.7	10,025.8	6,860.9	94.3	94.0	117.17	343.5	3,301.0	372.7	202.5	170.13	2.190		
10,000.0	6,689.6	10,125.8	6,860.0	97.1	96.7	117.20	343.5	3,401.0	372.7	197.7	175.06	2.129		

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 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-432 - Wellbore #1 - Plan #1 (2-26-14)													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	
10,100.0	6,688.6	10,225.8	6,859.1	99.9	99.5	117.22	343.5	3,501.0	372.8	192.8	180.00	2.071		
10,200.0	6,687.5	10,325.8	6,858.2	102.6	102.3	117.24	343.5	3,601.0	372.9	188.0	184.94	2.016		
10,300.0	6,686.4	10,425.8	6,857.3	105.4	105.0	117.27	343.5	3,701.0	373.0	183.1	189.88	1.964		
10,400.0	6,685.4	10,525.8	6,856.4	108.2	107.8	117.29	343.5	3,800.9	373.1	178.2	194.83	1.915		
10,500.0	6,684.3	10,625.8	6,855.5	110.9	110.6	117.32	343.5	3,900.9	373.1	173.4	199.77	1.868		
10,600.0	6,683.2	10,725.8	6,854.6	113.7	113.4	117.34	343.5	4,000.9	373.2	168.5	204.72	1.823		
10,700.0	6,682.2	10,825.8	6,853.7	116.5	116.1	117.36	343.5	4,100.9	373.3	163.6	209.66	1.780		
10,800.0	6,681.1	10,925.8	6,852.9	119.3	118.9	117.39	343.5	4,200.9	373.4	158.8	214.61	1.740		
10,900.0	6,680.0	11,025.8	6,852.0	122.1	121.7	117.41	343.5	4,300.9	373.5	153.9	219.56	1.701		
11,000.0	6,679.0	11,125.8	6,851.1	124.8	124.5	117.43	343.5	4,400.9	373.5	149.0	224.50	1.664		
11,100.0	6,677.9	11,225.8	6,850.2	127.6	127.3	117.46	343.5	4,500.9	373.6	144.2	229.45	1.628		
11,200.0	6,676.8	11,325.8	6,849.3	130.4	130.1	117.48	343.5	4,600.9	373.7	139.3	234.40	1.594		
11,300.0	6,675.8	11,425.8	6,848.4	133.2	132.9	117.51	343.5	4,700.9	373.8	134.4	239.35	1.562		
11,400.0	6,674.7	11,525.8	6,847.5	136.0	135.6	117.53	343.5	4,800.9	373.9	129.6	244.29	1.530		
11,500.0	6,673.7	11,625.8	6,846.6	138.8	138.4	117.55	343.5	4,900.9	373.9	124.7	249.24	1.500		
11,600.0	6,672.6	11,725.8	6,845.7	141.5	141.2	117.58	343.5	5,000.9	374.0	119.8	254.19	1.471 Level 3		
11,700.0	6,671.5	11,825.8	6,844.8	144.3	144.0	117.60	343.5	5,100.9	374.1	115.0	259.13	1.444 Level 3		
11,800.0	6,670.5	11,925.8	6,844.0	147.1	146.8	117.62	343.5	5,200.9	374.2	110.1	264.08	1.417 Level 3		
11,900.0	6,669.4	12,025.8	6,843.1	149.9	149.6	117.65	343.5	5,300.9	374.3	105.2	269.02	1.391 Level 3		
12,000.0	6,668.3	12,125.8	6,842.2	152.7	152.4	117.67	343.5	5,400.9	374.3	100.4	273.96	1.366 Level 3		
12,100.0	6,667.3	12,225.8	6,841.3	155.5	155.2	117.70	343.5	5,500.9	374.4	95.5	278.91	1.342 Level 3		
12,200.0	6,666.2	12,325.8	6,840.4	158.3	158.0	117.72	343.5	5,600.9	374.5	90.7	283.85	1.319 Level 3		
12,300.0	6,665.1	12,425.8	6,839.5	161.1	160.8	117.74	343.5	5,700.9	374.6	85.8	288.79	1.297 Level 3		
12,400.0	6,664.1	12,525.8	6,838.6	163.9	163.6	117.77	343.5	5,800.9	374.7	80.9	293.73	1.276 Level 3		
12,500.0	6,663.0	12,625.8	6,837.7	166.7	166.4	117.79	343.5	5,900.9	374.8	76.1	298.66	1.255 Level 3		
12,600.0	6,661.9	12,725.8	6,836.8	169.4	169.1	117.81	343.5	6,000.9	374.8	71.2	303.60	1.235 Level 2		
12,700.0	6,660.9	12,825.8	6,835.9	172.2	171.9	117.84	343.5	6,100.9	374.9	66.4	308.54	1.215 Level 2		
12,800.0	6,659.8	12,925.8	6,835.0	175.0	174.7	117.86	343.5	6,200.8	375.0	61.5	313.47	1.196 Level 2		
12,900.0	6,658.7	13,025.8	6,834.2	177.8	177.5	117.88	343.5	6,300.8	375.1	56.7	318.41	1.178 Level 2		
13,000.0	6,657.7	13,125.8	6,833.3	180.6	180.3	117.91	343.5	6,400.8	375.2	51.8	323.34	1.160 Level 2		
13,100.0	6,656.6	13,225.8	6,832.4	183.4	183.1	117.93	343.5	6,500.8	375.2	47.0	328.27	1.143 Level 2		
13,200.0	6,655.6	13,325.8	6,831.5	186.2	185.9	117.96	343.5	6,600.8	375.3	42.1	333.20	1.126 Level 2		
13,300.0	6,654.5	13,425.8	6,830.6	189.0	188.7	117.98	343.5	6,700.8	375.4	37.3	338.13	1.110 Level 2		
13,400.0	6,653.4	13,525.8	6,829.7	191.8	191.5	118.00	343.5	6,800.8	375.5	32.4	343.05	1.095 Level 2		
13,500.0	6,652.4	13,625.8	6,828.8	194.6	194.3	118.03	343.5	6,900.8	375.6	27.6	347.98	1.079 Level 2		
13,600.0	6,651.3	13,725.8	6,827.9	197.4	197.1	118.05	343.5	7,000.8	375.7	22.8	352.90	1.064 Level 2		
13,700.0	6,650.2	13,825.8	6,827.0	200.2	199.9	118.07	343.5	7,100.8	375.7	17.9	357.83	1.050 Level 2		
13,800.0	6,649.2	13,925.8	6,826.1	203.0	202.7	118.10	343.5	7,200.8	375.8	13.1	362.75	1.036 Level 2		
13,815.4	6,649.0	13,941.1	6,826.0	203.4	203.1	118.10	343.5	7,216.2	375.8	12.3	363.50	1.034 Level 2, ES, SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-312 - Wellbore #1 - Plan #1 (2-26-14)												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	90.01	0.0	89.1	89.1				
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	89.1	89.1	88.9	0.22	396.591	
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	89.1	89.1	88.5	0.67	132.197	
300.0	300.0	300.0	300.0	0.6	0.6	90.01	0.0	89.1	89.1	88.0	1.12	79.318	
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	89.1	89.1	87.6	1.57	56.656	
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	89.1	89.1	87.1	2.02	44.066	
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	89.1	89.1	86.7	2.47	36.054	
700.0	700.0	700.0	700.0	1.5	1.5	90.01	0.0	89.1	89.1	86.2	2.92	30.507	
800.0	800.0	800.0	800.0	1.7	1.7	90.01	0.0	89.1	89.1	85.8	3.37	26.439	
900.0	900.0	900.0	900.0	1.9	1.9	90.01	0.0	89.1	89.1	85.3	3.82	23.329	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.01	0.0	89.1	89.1	84.9	4.27	20.873 CC	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	104.10	0.0	89.1	89.5	84.8	4.72	18.978 ES	
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	107.26	0.0	89.1	91.0	85.8	5.17	17.608	
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	112.28	0.0	89.1	93.9	88.3	5.62	16.722	
1,400.0	1,398.7	1,398.7	1,398.7	3.1	3.0	118.67	0.0	89.1	99.2	93.1	6.07	16.333	
1,500.0	1,497.5	1,497.5	1,497.5	3.3	3.3	125.71	0.0	89.1	107.4	100.9	6.54	16.428	
1,600.0	1,596.3	1,596.3	1,596.3	3.6	3.5	131.92	0.0	89.1	117.4	110.4	7.01	16.747	
1,700.0	1,695.0	1,695.0	1,695.0	3.9	3.7	137.12	0.0	89.1	128.5	121.0	7.48	17.183	
1,800.0	1,793.8	1,793.8	1,793.8	4.2	3.9	141.47	0.0	89.1	140.5	132.6	7.95	17.684	
1,900.0	1,892.5	1,892.5	1,892.5	4.5	4.1	145.13	0.0	89.1	153.2	144.8	8.41	18.213	
2,000.0	1,991.3	1,991.3	1,991.3	4.9	4.4	148.22	0.0	89.1	166.4	157.5	8.87	18.749	
2,100.0	2,090.0	2,090.0	2,090.0	5.2	4.6	150.85	0.0	89.1	180.0	170.7	9.34	19.277	
2,200.0	2,188.8	2,188.8	2,188.8	5.5	4.8	153.11	0.0	89.1	193.9	184.1	9.80	19.790	
2,300.0	2,287.6	2,287.6	2,287.6	5.9	5.0	155.06	0.0	89.1	208.1	197.9	10.26	20.282	
2,400.0	2,386.3	2,386.3	2,386.3	6.2	5.3	156.77	0.0	89.1	222.5	211.8	10.72	20.752	
2,500.0	2,485.1	2,485.1	2,485.1	6.6	5.5	158.27	0.0	89.1	237.1	225.9	11.19	21.197	
2,600.0	2,583.8	2,586.3	2,586.3	6.9	5.7	159.91	-0.3	87.9	251.4	239.8	11.64	21.608	
2,700.0	2,682.6	2,687.8	2,687.7	7.3	5.9	162.10	-1.5	83.2	264.8	252.8	12.06	21.958	
2,800.0	2,781.3	2,788.8	2,788.3	7.6	6.1	164.78	-3.4	75.0	277.7	265.2	12.49	22.242	
2,900.0	2,880.1	2,888.0	2,886.9	8.0	6.3	167.74	-6.1	64.2	290.5	277.6	12.91	22.493	
3,000.0	2,978.8	2,986.0	2,984.3	8.3	6.5	170.49	-8.8	53.1	303.9	290.6	13.36	22.755	
3,100.0	3,077.6	3,084.1	3,081.7	8.7	6.7	173.00	-11.4	42.0	318.0	304.2	13.81	23.024	
3,200.0	3,176.3	3,182.2	3,179.1	9.0	7.0	175.29	-14.1	31.0	332.6	318.3	14.28	23.296	
3,300.0	3,275.1	3,280.2	3,276.5	9.4	7.2	177.40	-16.8	19.9	347.7	333.0	14.76	23.566	
3,400.0	3,373.8	3,378.3	3,373.9	9.7	7.5	179.32	-19.5	8.9	363.3	348.0	15.24	23.831	
3,500.0	3,472.6	3,476.4	3,471.3	10.1	7.7	-178.91	-22.2	-2.2	379.2	363.4	15.74	24.090	
3,600.0	3,571.3	3,574.4	3,568.7	10.5	8.0	-177.28	-24.9	-13.3	395.4	379.2	16.24	24.341	
3,700.0	3,670.1	3,672.5	3,666.1	10.8	8.2	-175.78	-27.5	-24.3	411.9	395.2	16.76	24.584	
3,800.0	3,768.9	3,770.6	3,763.5	11.2	8.5	-174.39	-30.2	-35.4	428.7	411.5	17.27	24.819	
3,900.0	3,867.6	3,868.6	3,860.9	11.5	8.7	-173.11	-32.9	-46.5	445.7	427.9	17.80	25.045	
4,000.0	3,966.4	3,966.7	3,958.3	11.9	9.0	-171.92	-35.6	-57.5	463.0	444.6	18.33	25.262	
4,100.0	4,065.1	4,064.8	4,055.7	12.3	9.3	-170.82	-38.3	-68.6	480.4	461.5	18.86	25.471	
4,200.0	4,163.9	4,162.8	4,153.1	12.6	9.5	-169.80	-41.0	-79.6	497.9	478.5	19.40	25.671	
4,300.0	4,262.6	4,260.9	4,250.5	13.0	9.8	-168.84	-43.7	-90.7	515.6	495.7	19.94	25.864	
4,400.0	4,361.4	4,359.0	4,347.9	13.3	10.1	-167.95	-46.3	-101.8	533.4	513.0	20.48	26.048	
4,500.0	4,460.1	4,457.0	4,445.3	13.7	10.4	-167.11	-49.0	-112.8	551.4	530.4	21.03	26.226	
4,600.0	4,558.9	4,555.1	4,542.7	14.1	10.7	-166.33	-51.7	-123.9	569.5	547.9	21.57	26.396	
4,700.0	4,657.6	4,653.2	4,640.1	14.4	10.9	-165.60	-54.4	-134.9	587.6	565.5	22.12	26.560	
4,800.0	4,756.4	4,755.4	4,741.8	14.8	11.2	-164.97	-57.0	-145.5	605.6	583.0	22.65	26.741	
4,900.0	4,855.1	4,860.0	4,846.1	15.2	11.4	-164.69	-58.7	-152.8	622.7	599.6	23.14	26.917	
5,000.0	4,953.9	4,964.9	4,950.9	15.5	11.6	-164.76	-59.6	-156.5	638.9	615.3	23.60	27.075	

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 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-312 - Wellbore #1 - Plan #1 (2-26-14)													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
5,100.0	5,052.6	5,066.6	5,052.6	15.9	11.8	-165.10		-59.7	-156.9	654.2	630.2	24.03	27.220	
5,200.0	5,151.4	5,165.4	5,151.4	16.3	12.0	-165.44		-59.7	-156.9	669.4	645.0	24.48	27.351	
5,300.0	5,250.1	5,264.1	5,250.1	16.6	12.2	-165.78		-59.7	-156.9	684.7	659.8	24.92	27.473	
5,400.0	5,348.9	5,362.9	5,348.9	17.0	12.4	-166.09		-59.7	-156.9	700.0	674.6	25.37	27.591	
5,500.0	5,447.9	5,461.9	5,447.9	17.3	12.6	-166.43		-59.7	-156.9	713.6	687.8	25.84	27.617	
5,600.0	5,547.3	5,561.3	5,547.3	17.5	12.8	-166.67		-59.7	-156.9	723.9	697.6	26.25	27.575	
5,700.0	5,647.1	5,661.1	5,647.1	17.7	13.0	-166.83		-59.7	-156.9	730.8	704.1	26.63	27.439	
5,800.0	5,747.0	5,761.0	5,747.0	17.9	13.2	-166.91		-59.7	-156.9	734.3	707.3	26.98	27.212	
5,900.0	5,847.0	5,861.0	5,847.0	18.0	13.4	-179.93		-59.7	-156.9	734.7	704.3	30.41	24.163	
6,000.0	5,947.0	5,961.0	5,947.0	18.2	13.6	-179.93		-59.7	-156.9	734.7	704.0	30.78	23.870	
6,014.8	5,961.9	5,975.8	5,961.9	18.2	13.6	90.08		-59.7	-156.9	734.7	706.9	27.81	26.424	
6,100.0	6,046.8	6,060.9	6,046.9	18.3	13.8	90.49		-59.7	-156.8	734.8	706.6	28.14	26.111	
6,200.0	6,145.0	6,161.8	6,147.5	18.4	14.0	91.31		-59.7	-148.7	734.9	706.5	28.46	25.825	
6,300.0	6,240.0	6,264.3	6,247.5	18.5	14.1	92.11		-59.7	-127.1	735.2	706.5	28.71	25.608	
6,400.0	6,330.1	6,368.1	6,345.1	18.6	14.2	92.88		-59.7	-91.7	735.7	706.7	28.96	25.402	
6,500.0	6,413.8	6,473.5	6,438.2	18.6	14.3	93.60		-59.7	-42.7	736.2	706.9	29.31	25.120	
6,600.0	6,489.6	6,580.2	6,524.7	18.7	14.5	94.26		-59.7	19.6	736.8	706.9	29.90	24.642	
6,700.0	6,556.3	6,688.2	6,602.7	18.9	14.9	94.85		-59.7	94.3	737.4	706.5	30.91	23.854	
6,800.0	6,612.7	6,797.4	6,669.9	19.2	15.7	95.35		-59.7	180.2	738.0	705.5	32.52	22.693	
6,900.0	6,657.9	6,907.6	6,724.7	19.8	16.8	95.76		-59.7	275.7	738.5	703.6	34.85	21.192	
7,000.0	6,691.1	7,018.6	6,765.4	20.9	18.4	96.05		-59.7	378.9	738.9	701.0	37.90	19.495	
7,100.0	6,711.6	7,130.2	6,790.9	22.4	20.3	96.23		-59.7	487.4	739.1	697.5	41.59	17.771	
7,200.0	6,719.3	7,242.0	6,800.3	24.2	22.5	96.29		-59.7	598.7	739.2	693.4	45.75	16.156	
7,300.0	6,718.4	7,343.9	6,799.2	26.3	24.6	96.28		-59.7	700.6	739.2	689.2	50.00	14.783	
7,400.0	6,717.3	7,443.9	6,797.9	28.4	26.8	96.26		-59.7	800.6	739.2	684.7	54.44	13.578	
7,500.0	6,716.2	7,543.9	6,796.6	30.7	29.2	96.24		-59.7	900.6	739.1	680.1	59.07	12.513	
7,600.0	6,715.2	7,643.9	6,795.3	33.0	31.6	96.22		-59.7	1,000.6	739.1	675.2	63.85	11.575	
7,700.0	6,714.1	7,743.9	6,794.0	35.5	34.1	96.21		-59.7	1,100.6	739.1	670.3	68.76	10.748	
7,800.0	6,713.0	7,843.9	6,792.7	37.9	36.6	96.19		-59.7	1,200.6	739.1	665.3	73.77	10.019	
7,900.0	6,712.0	7,943.9	6,791.4	40.5	39.1	96.17		-59.7	1,300.6	739.0	660.2	78.85	9.372	
8,000.0	6,710.9	8,043.9	6,790.1	43.0	41.7	96.15		-59.7	1,400.6	739.0	655.0	84.00	8.798	
8,100.0	6,709.8	8,143.9	6,788.8	45.6	44.3	96.14		-59.7	1,500.6	739.0	649.8	89.20	8.284	
8,200.0	6,708.8	8,243.9	6,787.5	48.2	47.0	96.12		-59.7	1,600.6	739.0	644.5	94.45	7.824	
8,300.0	6,707.7	8,343.9	6,786.3	50.8	49.6	96.10		-59.7	1,700.6	738.9	639.2	99.73	7.409	
8,400.0	6,706.7	8,443.9	6,785.0	53.5	52.3	96.08		-59.7	1,800.6	738.9	633.9	105.05	7.034	
8,500.0	6,705.6	8,543.9	6,783.7	56.2	55.0	96.07		-59.7	1,900.5	738.9	628.5	110.39	6.693	
8,600.0	6,704.5	8,643.9	6,782.4	58.8	57.7	96.05		-59.7	2,000.5	738.9	623.1	115.76	6.383	
8,700.0	6,703.5	8,743.9	6,781.1	61.5	60.4	96.03		-59.7	2,100.5	738.8	617.7	121.15	6.099	
8,800.0	6,702.4	8,843.9	6,779.8	64.2	63.1	96.01		-59.7	2,200.5	738.8	612.3	126.56	5.838	
8,900.0	6,701.3	8,943.9	6,778.5	66.9	65.9	96.00		-59.7	2,300.5	738.8	606.8	131.98	5.598	
9,000.0	6,700.3	9,043.9	6,777.2	69.7	68.6	95.98		-59.7	2,400.5	738.8	601.4	137.41	5.376	
9,100.0	6,699.2	9,143.9	6,775.9	72.4	71.3	95.96		-59.7	2,500.5	738.7	595.9	142.86	5.171	
9,200.0	6,698.1	9,243.9	6,774.6	75.1	74.1	95.94		-59.7	2,600.5	738.7	590.4	148.32	4.981	
9,300.0	6,697.1	9,343.9	6,773.3	77.8	76.8	95.93		-59.7	2,700.5	738.7	584.9	153.79	4.803	
9,400.0	6,696.0	9,443.9	6,772.1	80.6	79.6	95.91		-59.7	2,800.5	738.7	579.4	159.27	4.638	
9,500.0	6,694.9	9,543.9	6,770.8	83.3	82.3	95.89		-59.7	2,900.5	738.6	573.9	164.76	4.483	
9,600.0	6,693.9	9,643.9	6,769.5	86.1	85.1	95.87		-59.7	3,000.4	738.6	568.4	170.25	4.338	
9,700.0	6,692.8	9,743.9	6,768.2	88.8	87.8	95.86		-59.7	3,100.4	738.6	562.9	175.75	4.203	
9,800.0	6,691.7	9,843.9	6,766.9	91.6	90.6	95.84		-59.7	3,200.4	738.6	557.3	181.26	4.075	
9,900.0	6,690.7	9,943.9	6,765.6	94.3	93.4	95.82		-59.7	3,300.4	738.6	551.8	186.77	3.954	
10,000.0	6,689.6	10,043.9	6,764.3	97.1	96.1	95.80		-59.7	3,400.4	738.5	546.2	192.29	3.841	

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 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-312 - Wellbore #1 - Plan #1 (2-26-14)													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
10,100.0	6,688.6	10,143.9	6,763.0	99.9	98.9	95.79		-59.7	3,500.4	738.5	540.7	197.81	3.733	
10,200.0	6,687.5	10,243.9	6,761.7	102.6	101.7	95.77		-59.7	3,600.4	738.5	535.2	203.34	3.632	
10,300.0	6,686.4	10,343.9	6,760.4	105.4	104.5	95.75		-59.7	3,700.4	738.5	529.6	208.87	3.536	
10,400.0	6,685.4	10,443.9	6,759.1	108.2	107.2	95.73		-59.7	3,800.4	738.4	524.0	214.40	3.444	
10,500.0	6,684.3	10,543.9	6,757.8	110.9	110.0	95.72		-59.7	3,900.4	738.4	518.5	219.94	3.357	
10,600.0	6,683.2	10,643.9	6,756.6	113.7	112.8	95.70		-59.7	4,000.4	738.4	512.9	225.48	3.275	
10,700.0	6,682.2	10,743.9	6,755.3	116.5	115.6	95.68		-59.7	4,100.4	738.4	507.4	231.02	3.196	
10,800.0	6,681.1	10,843.9	6,754.0	119.3	118.4	95.66		-59.7	4,200.3	738.4	501.8	236.57	3.121	
10,900.0	6,680.0	10,943.9	6,752.7	122.1	121.2	95.65		-59.7	4,300.3	738.3	496.2	242.12	3.049	
11,000.0	6,679.0	11,043.9	6,751.4	124.8	123.9	95.63		-59.7	4,400.3	738.3	490.6	247.67	2.981	
11,100.0	6,677.9	11,143.9	6,750.1	127.6	126.7	95.61		-59.7	4,500.3	738.3	485.1	253.22	2.916	
11,200.0	6,676.8	11,243.9	6,748.8	130.4	129.5	95.59		-59.7	4,600.3	738.3	479.5	258.78	2.853	
11,300.0	6,675.8	11,343.9	6,747.5	133.2	132.3	95.58		-59.7	4,700.3	738.2	473.9	264.34	2.793	
11,400.0	6,674.7	11,443.9	6,746.2	136.0	135.1	95.56		-59.7	4,800.3	738.2	468.3	269.90	2.735	
11,500.0	6,673.7	11,543.9	6,744.9	138.8	137.9	95.54		-59.7	4,900.3	738.2	462.7	275.46	2.680	
11,600.0	6,672.6	11,643.9	6,743.6	141.5	140.7	95.52		-59.7	5,000.3	738.2	457.1	281.03	2.627	
11,700.0	6,671.5	11,743.9	6,742.3	144.3	143.5	95.51		-59.7	5,100.3	738.2	451.6	286.59	2.576	
11,800.0	6,670.5	11,843.9	6,741.1	147.1	146.3	95.49		-59.7	5,200.3	738.1	446.0	292.16	2.526	
11,900.0	6,669.4	11,943.9	6,739.8	149.9	149.1	95.47		-59.7	5,300.2	738.1	440.4	297.73	2.479	
12,000.0	6,668.3	12,043.9	6,738.5	152.7	151.8	95.45		-59.7	5,400.2	738.1	434.8	303.30	2.434	
12,100.0	6,667.3	12,143.9	6,737.2	155.5	154.6	95.44		-59.7	5,500.2	738.1	429.2	308.87	2.390	
12,200.0	6,666.2	12,243.9	6,735.9	158.3	157.4	95.42		-59.7	5,600.2	738.0	423.6	314.45	2.347	
12,300.0	6,665.1	12,343.9	6,734.6	161.1	160.2	95.40		-59.7	5,700.2	738.0	418.0	320.02	2.306	
12,400.0	6,664.1	12,443.9	6,733.3	163.9	163.0	95.38		-59.7	5,800.2	738.0	412.4	325.60	2.267	
12,500.0	6,663.0	12,543.9	6,732.0	166.7	165.8	95.37		-59.7	5,900.2	738.0	406.8	331.17	2.228	
12,600.0	6,661.9	12,643.9	6,730.7	169.4	168.6	95.35		-59.7	6,000.2	738.0	401.2	336.75	2.191	
12,700.0	6,660.9	12,743.9	6,729.4	172.2	171.4	95.33		-59.7	6,100.2	737.9	395.6	342.33	2.156	
12,800.0	6,659.8	12,843.9	6,728.1	175.0	174.2	95.31		-59.7	6,200.2	737.9	390.0	347.91	2.121	
12,900.0	6,658.7	12,943.9	6,726.8	177.8	177.0	95.30		-59.7	6,300.2	737.9	384.4	353.49	2.087	
13,000.0	6,657.7	13,043.9	6,725.6	180.6	179.8	95.28		-59.7	6,400.2	737.9	378.8	359.07	2.055	
13,100.0	6,656.6	13,143.9	6,724.3	183.4	182.6	95.26		-59.7	6,500.1	737.9	373.2	364.66	2.023	
13,200.0	6,655.6	13,243.9	6,723.0	186.2	185.4	95.24		-59.7	6,600.1	737.8	367.6	370.24	1.993	
13,300.0	6,654.5	13,343.9	6,721.7	189.0	188.2	95.23		-59.7	6,700.1	737.8	362.0	375.83	1.963	
13,400.0	6,653.4	13,443.9	6,720.4	191.8	191.0	95.21		-59.7	6,800.1	737.8	356.4	381.41	1.934	
13,500.0	6,652.4	13,543.9	6,719.1	194.6	193.8	95.19		-59.7	6,900.1	737.8	350.8	387.00	1.906	
13,600.0	6,651.3	13,643.9	6,717.8	197.4	196.6	95.17		-59.7	7,000.1	737.8	345.2	392.59	1.879	
13,700.0	6,650.2	13,743.9	6,716.5	200.2	199.4	95.16		-59.7	7,100.1	737.7	339.6	398.17	1.853	
13,800.0	6,649.2	13,843.9	6,715.2	203.0	202.2	95.14		-59.7	7,200.1	737.7	334.0	403.76	1.827	
13,815.4	6,649.0	13,859.3	6,715.0	203.4	202.6	95.14		-59.7	7,215.4	737.7	333.1	404.62	1.823 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-412 - Wellbore #1 - Plan #1 (2-26-14)													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	90.00	90.00	0.0	58.5	58.5				
100.0	100.0	100.0	100.0	0.1	0.1	90.00	90.00	0.0	58.5	58.5	58.3	0.22	260.263	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	90.00	0.0	58.5	58.5	57.8	0.67	86.754	
300.0	300.0	300.0	300.0	0.6	0.6	90.00	90.00	0.0	58.5	58.5	57.4	1.12	52.053	
400.0	400.0	400.0	400.0	0.8	0.8	90.00	90.00	0.0	58.5	58.5	56.9	1.57	37.180	
500.0	500.0	500.0	500.0	1.0	1.0	90.00	90.00	0.0	58.5	58.5	56.5	2.02	28.918	
600.0	600.0	600.0	600.0	1.2	1.2	90.00	90.00	0.0	58.5	58.5	56.0	2.47	23.660	
700.0	700.0	700.0	700.0	1.5	1.5	90.00	90.00	0.0	58.5	58.5	55.6	2.92	20.020	
800.0	800.0	800.0	800.0	1.7	1.7	90.00	90.00	0.0	58.5	58.5	55.1	3.37	17.351	
900.0	900.0	900.0	900.0	1.9	1.9	90.00	90.00	0.0	58.5	58.5	54.7	3.82	15.310	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.00	90.00	0.0	58.5	58.5	54.2	4.27	13.698 CC	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	104.66	104.66	0.0	58.5	58.9	54.2	4.72	12.486 ES	
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	109.43	109.43	0.0	58.5	60.5	55.3	5.17	11.702	
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	116.74	116.74	0.0	58.5	63.9	58.3	5.62	11.377 SF	
1,400.0	1,398.7	1,398.7	1,398.7	3.1	3.0	125.50	125.50	0.0	58.5	70.2	64.2	6.07	11.576	
1,500.0	1,497.5	1,497.5	1,497.5	3.3	3.3	134.30	134.30	0.0	58.5	80.1	73.6	6.52	12.283	
1,600.0	1,596.3	1,596.0	1,596.0	3.6	3.5	142.29	142.29	-1.3	57.6	92.0	85.1	6.95	13.230	
1,700.0	1,695.0	1,693.6	1,693.4	3.9	3.6	150.12	150.12	-5.4	54.8	106.0	98.6	7.36	14.402	
1,800.0	1,793.8	1,789.9	1,789.4	4.2	3.8	157.47	157.47	-12.1	50.2	122.6	114.8	7.77	15.784	
1,900.0	1,892.5	1,885.8	1,884.7	4.5	4.0	164.09	164.09	-21.2	44.0	142.1	133.9	8.19	17.357	
2,000.0	1,991.3	1,982.6	1,980.8	4.9	4.2	169.32	169.32	-30.8	37.4	163.3	154.7	8.62	18.953	
2,100.0	2,090.0	2,079.3	2,076.8	5.2	4.4	173.34	173.34	-40.4	30.9	185.6	176.5	9.06	20.487	
2,200.0	2,188.8	2,176.1	2,172.8	5.5	4.7	176.50	176.50	-50.1	24.3	208.6	199.0	9.51	21.932	
2,300.0	2,287.6	2,272.8	2,268.9	5.9	4.9	179.03	179.03	-59.7	17.7	232.0	222.0	9.96	23.281	
2,400.0	2,386.3	2,369.6	2,364.9	6.2	5.2	-178.90	-178.90	-69.3	11.1	255.8	245.4	10.43	24.529	
2,500.0	2,485.1	2,466.3	2,461.0	6.6	5.4	-177.18	-177.18	-78.9	4.5	279.8	268.9	10.89	25.687	
2,600.0	2,583.8	2,563.1	2,557.0	6.9	5.7	-175.74	-175.74	-88.5	-2.0	304.1	292.7	11.36	26.757	
2,700.0	2,682.6	2,659.8	2,653.1	7.3	6.0	-174.51	-174.51	-98.2	-8.6	328.5	316.7	11.84	27.746	
2,800.0	2,781.3	2,756.6	2,749.1	7.6	6.2	-173.44	-173.44	-107.8	-15.2	353.0	340.7	12.32	28.662	
2,900.0	2,880.1	2,853.3	2,845.2	8.0	6.5	-172.52	-172.52	-117.4	-21.8	377.7	364.9	12.80	29.511	
3,000.0	2,978.8	2,950.1	2,941.2	8.3	6.8	-171.71	-171.71	-127.0	-28.4	402.4	389.1	13.28	30.299	
3,100.0	3,077.6	3,046.8	3,037.3	8.7	7.1	-170.99	-170.99	-136.6	-34.9	427.2	413.4	13.77	31.031	
3,200.0	3,176.3	3,143.6	3,133.3	9.0	7.4	-170.35	-170.35	-146.3	-41.5	452.0	437.8	14.25	31.713	
3,300.0	3,275.1	3,240.3	3,229.3	9.4	7.6	-169.78	-169.78	-155.9	-48.1	476.9	462.1	14.74	32.349	
3,400.0	3,373.8	3,337.1	3,325.4	9.7	7.9	-169.26	-169.26	-165.5	-54.7	501.8	486.6	15.23	32.943	
3,500.0	3,472.6	3,433.8	3,421.4	10.1	8.2	-168.80	-168.80	-175.1	-61.2	526.8	511.1	15.72	33.500	
3,600.0	3,571.3	3,530.6	3,517.5	10.5	8.5	-168.37	-168.37	-184.8	-67.8	551.8	535.5	16.22	34.021	
3,700.0	3,670.1	3,627.3	3,613.5	10.8	8.8	-167.98	-167.98	-194.4	-74.4	576.8	560.1	16.71	34.511	
3,800.0	3,768.9	3,724.1	3,709.6	11.2	9.1	-167.63	-167.63	-204.0	-81.0	601.8	584.6	17.21	34.972	
3,900.0	3,867.6	3,820.8	3,805.6	11.5	9.4	-167.30	-167.30	-213.6	-87.6	626.9	609.2	17.71	35.406	
4,000.0	3,966.4	3,917.6	3,901.7	11.9	9.7	-167.00	-167.00	-223.2	-94.1	652.0	633.8	18.20	35.815	
4,100.0	4,065.1	4,014.3	3,997.7	12.3	10.0	-166.72	-166.72	-232.9	-100.7	677.0	658.3	18.70	36.201	
4,200.0	4,163.9	4,111.1	4,093.7	12.6	10.3	-166.46	-166.46	-242.5	-107.3	702.2	683.0	19.20	36.567	
4,300.0	4,262.6	4,207.8	4,189.8	13.0	10.6	-166.22	-166.22	-252.1	-113.9	727.3	707.6	19.70	36.913	
4,400.0	4,361.4	4,304.6	4,285.8	13.3	10.9	-165.99	-165.99	-261.7	-120.4	752.4	732.2	20.20	37.242	
4,500.0	4,460.1	4,401.3	4,381.9	13.7	11.2	-165.78	-165.78	-271.3	-127.0	777.5	756.8	20.71	37.553	
4,600.0	4,558.9	4,498.1	4,477.9	14.1	11.5	-165.58	-165.58	-281.0	-133.6	802.7	781.5	21.21	37.850	
4,700.0	4,657.6	4,594.8	4,574.0	14.4	11.8	-165.40	-165.40	-290.6	-140.2	827.9	806.1	21.71	38.132	
4,800.0	4,756.4	4,696.7	4,675.1	14.8	12.1	-165.21	-165.21	-300.7	-147.1	853.0	830.8	22.22	38.384	
4,900.0	4,855.1	4,827.2	4,805.0	15.2	12.4	-165.14	-165.14	-310.4	-153.8	875.7	853.0	22.75	38.494	
5,000.0	4,953.9	4,959.8	4,937.5	15.5	12.7	-165.27	-165.27	-315.4	-157.1	894.7	871.4	23.26	38.462	

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 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-412 - Wellbore #1 - Plan #1 (2-26-14)													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 Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,100.0	5,052.6	5,074.9	5,052.6	15.9	12.9	-165.54	-315.9	-157.5	910.3	886.6	23.73	38.358		
5,200.0	5,151.4	5,173.7	5,151.4	16.3	13.0	-165.79	-315.9	-157.5	925.6	901.4	24.17	38.288		
5,300.0	5,250.1	5,272.4	5,250.1	16.6	13.2	-166.02	-315.9	-157.5	940.9	916.3	24.62	38.222		
5,400.0	5,348.9	5,371.2	5,348.9	17.0	13.4	-166.25	-315.9	-157.5	956.2	931.1	25.06	38.157		
5,500.0	5,447.9	5,470.2	5,447.9	17.3	13.5	-166.51	-315.9	-157.5	969.8	944.3	25.54	37.973		
5,600.0	5,547.3	5,569.6	5,547.3	17.5	13.7	-166.70	-315.9	-157.5	980.1	954.1	25.96	37.752		
5,700.0	5,647.1	5,669.4	5,647.1	17.7	13.9	-166.83	-315.9	-157.5	987.0	960.6	26.35	37.456		
5,800.0	5,747.0	5,769.3	5,747.0	17.9	14.1	-166.89	-315.9	-157.5	990.5	963.8	26.71	37.086		
5,900.0	5,847.0	5,869.3	5,847.0	18.0	14.2	-179.91	-315.9	-157.5	991.0	959.5	31.49	31.464		
6,000.0	5,947.0	5,969.3	5,947.0	18.2	14.4	-179.91	-315.9	-157.5	991.0	959.1	31.83	31.129		
6,019.1	5,966.1	5,988.4	5,966.1	18.2	14.4	90.10	-315.9	-157.5	991.0	963.4	27.53	35.997		
6,100.0	6,046.8	6,069.1	6,046.8	18.3	14.6	90.40	-315.9	-157.5	991.0	963.2	27.83	35.609		
6,200.0	6,145.0	6,168.5	6,146.2	18.4	14.8	91.39	-315.9	-156.6	991.3	963.1	28.16	35.196		
6,300.0	6,240.0	6,271.2	6,248.1	18.5	14.9	92.52	-315.9	-144.7	992.0	963.5	28.44	34.881		
6,400.0	6,330.1	6,376.8	6,350.3	18.6	15.0	93.62	-315.9	-118.4	993.0	964.3	28.69	34.615		
6,500.0	6,413.8	6,485.5	6,450.6	18.6	15.0	94.67	-315.9	-76.8	994.4	965.4	28.99	34.297		
6,600.0	6,489.6	6,597.3	6,546.6	18.7	15.1	95.66	-315.9	-19.7	995.9	966.4	29.49	33.771		
6,700.0	6,556.3	6,712.3	6,635.5	18.9	15.1	96.55	-315.9	53.1	997.6	967.2	30.37	32.844		
6,800.0	6,612.7	6,830.2	6,714.4	19.2	15.2	97.32	-315.9	140.6	999.2	967.4	31.85	31.374		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19M-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (2-26-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4643.0ft (Original Well Elev) Coordinates are relative to: Klein 19M-202
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.59°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19M-202
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4643.0ft (Original Well Elev)
Reference Site:	Klein 19MN-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4643.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
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