

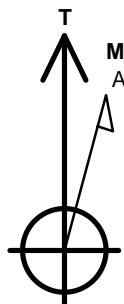
# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Klein 19M-402**

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 1386208.45 3252898.04 40.389990 -104.592080  
 RKB - 13' WELL @ 4641.0ft (RKB - 13')

## 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 105'FNL & 2306'FEL, SEC.21	6815.0	661.7	10679.8	Point



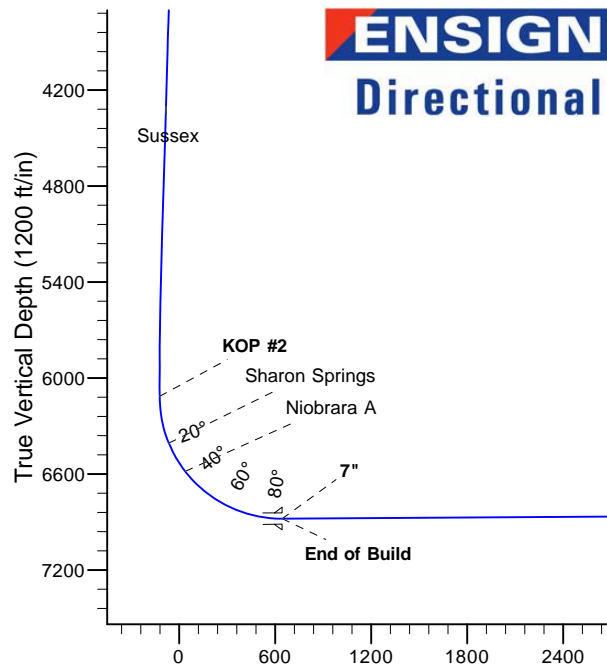
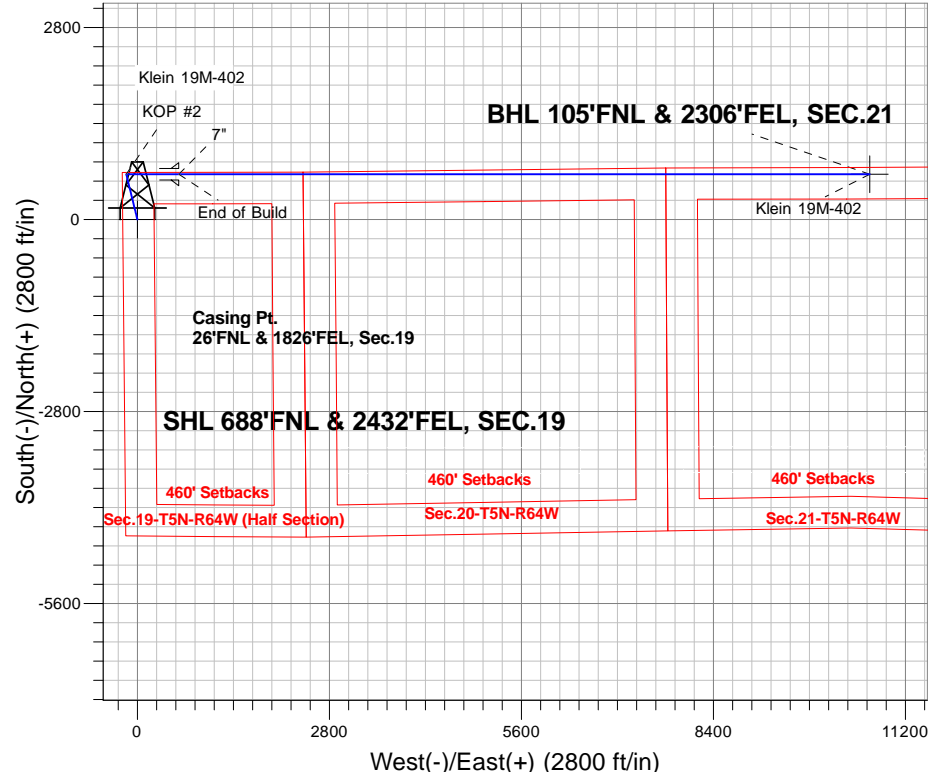
Azimuths to True North  
 Magnetic North: 8.22°

Magnetic Field  
 Strength: 52716.0snT  
 Dip Angle: 66.93°  
 Date: 7/13/2015  
 Model: IGRF2010

## ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP #1
6114.3	6166.2	KOP #2
6878.3	7371.0	End of Build

Klein 19MN-HZ Pad Sec.19-T5N-R64W  
 Klein 19M-402  
 Plan #3 (7-13-15)



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1919.9	9.20	346.15	1915.9	71.5	-17.6	1.00	346.15	-13.2	
4	5491.9	9.20	346.15	5442.0	626.0	-154.3	0.00	0.00	-115.3	
5	5951.9	0.00	0.00	5900.0	661.7	-163.1	2.00	180.00	-121.9	
6	6166.2	0.00	0.00	6114.4	661.7	-163.1	0.00	0.00	-121.9	
7	7371.0	90.36	90.00	6878.3	661.7	605.6	7.50	90.00	645.4	
8	17445.4	90.36	90.00	6815.0	661.7	10679.8	0.00	0.00	10700.3	BHL 105'FNL & 2306'FEL, SEC.21

BHL 105'FNL & 2306'FEL, SEC.21

Vertical Section at 86.45° (1200 ft/in)



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.19-T5N-R64W**

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

**Klein 19M-402**

**Wellbore #1**

**Plan: Plan #3 (7-13-15)**

## **Standard Planning Report**

**14 July, 2015**

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 (7-13-15)		

<b>Project</b>	SEC.19-T5N-R64W		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site	Klein 19MN-HZ Pad Sec.19-T5N-R64W				
Site Position:		Northing:	1,386,208.48 usft	Latitude:	40.389990
From:	Lat/Long	Easting:	3,252,898.04 usft	Longitude:	-104.592080
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.59

Well	Klein 19M-402					
Well Position	+N/-S	0.0 ft	Northing:	1,386,208.45 usft	Latitude:	40.389990
	+E/-W	0.0 ft	Easting:	3,252,898.04 usft	Longitude:	-104.592080
Position Uncertainty		0.0 ft	Wellhead Elevation:		Ground Level:	4,628.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	7/13/2015	8.22	66.93	52,716

<b>Design</b>	Plan #3 (7-13-15)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	86.45

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,919.9	9.20	346.15	1,915.9	71.5	-17.6	1.00	1.00	0.00	346.15	
5,491.9	9.20	346.15	5,442.0	626.0	-154.3	0.00	0.00	0.00	0.00	
5,951.9	0.00	0.00	5,900.0	661.7	-163.1	2.00	-2.00	0.00	180.00	
6,166.2	0.00	0.00	6,114.4	661.7	-163.1	0.00	0.00	0.00	0.00	
7,371.0	90.36	90.00	6,878.3	661.7	605.6	7.50	7.50	0.00	90.00	
17,445.4	90.36	90.00	6,815.0	661.7	10,679.8	0.00	0.00	0.00	0.00	BHL 105'FNL & 2306'

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 (7-13-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
1,100.0	1.00	346.15	1,100.0	0.8	-0.2	-0.2	1.00	1.00	0.00
1,200.0	2.00	346.15	1,200.0	3.4	-0.8	-0.6	1.00	1.00	0.00
1,300.0	3.00	346.15	1,299.9	7.6	-1.9	-1.4	1.00	1.00	0.00
1,400.0	4.00	346.15	1,399.7	13.6	-3.3	-2.5	1.00	1.00	0.00
1,500.0	5.00	346.15	1,499.4	21.2	-5.2	-3.9	1.00	1.00	0.00
1,600.0	6.00	346.15	1,598.9	30.5	-7.5	-5.6	1.00	1.00	0.00
1,700.0	7.00	346.15	1,698.3	41.5	-10.2	-7.6	1.00	1.00	0.00
1,800.0	8.00	346.15	1,797.4	54.1	-13.3	-10.0	1.00	1.00	0.00
1,900.0	9.00	346.15	1,896.3	68.5	-16.9	-12.6	1.00	1.00	0.00
1,919.9	9.20	346.15	1,915.9	71.5	-17.6	-13.2	1.00	1.00	0.00
2,000.0	9.20	346.15	1,995.0	84.0	-20.7	-15.5	0.00	0.00	0.00
2,100.0	9.20	346.15	2,093.7	99.5	-24.5	-18.3	0.00	0.00	0.00
2,200.0	9.20	346.15	2,192.5	115.0	-28.3	-21.2	0.00	0.00	0.00
2,300.0	9.20	346.15	2,291.2	130.5	-32.2	-24.0	0.00	0.00	0.00
2,400.0	9.20	346.15	2,389.9	146.1	-36.0	-26.9	0.00	0.00	0.00
2,500.0	9.20	346.15	2,488.6	161.6	-39.8	-29.8	0.00	0.00	0.00
2,600.0	9.20	346.15	2,587.3	177.1	-43.7	-32.6	0.00	0.00	0.00
2,700.0	9.20	346.15	2,686.0	192.6	-47.5	-35.5	0.00	0.00	0.00
2,800.0	9.20	346.15	2,784.7	208.1	-51.3	-38.3	0.00	0.00	0.00
2,900.0	9.20	346.15	2,883.4	223.7	-55.1	-41.2	0.00	0.00	0.00
3,000.0	9.20	346.15	2,982.2	239.2	-59.0	-44.0	0.00	0.00	0.00
3,100.0	9.20	346.15	3,080.9	254.7	-62.8	-46.9	0.00	0.00	0.00
3,200.0	9.20	346.15	3,179.6	270.2	-66.6	-49.8	0.00	0.00	0.00
3,300.0	9.20	346.15	3,278.3	285.8	-70.4	-52.6	0.00	0.00	0.00
3,400.0	9.20	346.15	3,377.0	301.3	-74.3	-55.5	0.00	0.00	0.00
3,500.0	9.20	346.15	3,475.7	316.8	-78.1	-58.3	0.00	0.00	0.00
3,600.0	9.20	346.15	3,574.4	332.3	-81.9	-61.2	0.00	0.00	0.00
3,700.0	9.20	346.15	3,673.2	347.8	-85.7	-64.1	0.00	0.00	0.00
3,800.0	9.20	346.15	3,771.9	363.4	-89.6	-66.9	0.00	0.00	0.00
3,900.0	9.20	346.15	3,870.6	378.9	-93.4	-69.8	0.00	0.00	0.00
4,000.0	9.20	346.15	3,969.3	394.4	-97.2	-72.6	0.00	0.00	0.00
4,100.0	9.20	346.15	4,068.0	409.9	-101.0	-75.5	0.00	0.00	0.00
4,200.0	9.20	346.15	4,166.7	425.4	-104.9	-78.3	0.00	0.00	0.00
4,300.0	9.20	346.15	4,265.4	441.0	-108.7	-81.2	0.00	0.00	0.00
4,400.0	9.20	346.15	4,364.2	456.5	-112.5	-84.1	0.00	0.00	0.00
4,500.0	9.20	346.15	4,462.9	472.0	-116.3	-86.9	0.00	0.00	0.00
4,600.0	9.20	346.15	4,561.6	487.5	-120.2	-89.8	0.00	0.00	0.00
4,700.0	9.20	346.15	4,660.3	503.1	-124.0	-92.6	0.00	0.00	0.00
4,800.0	9.20	346.15	4,759.0	518.6	-127.8	-95.5	0.00	0.00	0.00
4,900.0	9.20	346.15	4,857.7	534.1	-131.6	-98.4	0.00	0.00	0.00
5,000.0	9.20	346.15	4,956.4	549.6	-135.5	-101.2	0.00	0.00	0.00

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<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 (7-13-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.0	9.20	346.15	5,055.2	565.1	-139.3	-104.1	0.00	0.00	0.00
5,200.0	9.20	346.15	5,153.9	580.7	-143.1	-106.9	0.00	0.00	0.00
5,300.0	9.20	346.15	5,252.6	596.2	-146.9	-109.8	0.00	0.00	0.00
5,400.0	9.20	346.15	5,351.3	611.7	-150.8	-112.6	0.00	0.00	0.00
5,491.9	9.20	346.15	5,442.0	626.0	-154.3	-115.3	0.00	0.00	0.00
5,500.0	9.04	346.15	5,450.0	627.2	-154.6	-115.5	2.00	-2.00	0.00
5,600.0	7.04	346.15	5,549.0	640.8	-157.9	-118.0	2.00	-2.00	0.00
5,700.0	5.04	346.15	5,648.5	651.0	-160.5	-119.9	2.00	-2.00	0.00
5,800.0	3.04	346.15	5,748.2	657.8	-162.1	-121.1	2.00	-2.00	0.00
5,900.0	1.04	346.15	5,848.1	661.3	-163.0	-121.8	2.00	-2.00	0.00
5,951.9	0.00	0.00	5,900.0	661.7	-163.1	-121.9	2.00	-2.00	0.00
6,000.0	0.00	0.00	5,948.1	661.7	-163.1	-121.9	0.00	0.00	0.00
6,100.0	0.00	0.00	6,048.1	661.7	-163.1	-121.9	0.00	0.00	0.00
6,166.2	0.00	0.00	6,114.3	661.7	-163.1	-121.9	0.00	0.00	0.00
KOP #2									
6,200.0	2.53	90.00	6,148.1	661.7	-162.4	-121.1	7.49	7.49	0.00
6,300.0	10.03	90.00	6,247.5	661.7	-151.4	-110.2	7.50	7.50	0.00
6,400.0	17.53	90.00	6,344.5	661.7	-127.6	-86.4	7.50	7.50	0.00
6,500.0	25.03	90.00	6,437.6	661.7	-91.3	-50.2	7.50	7.50	0.00
6,600.0	32.53	90.00	6,525.2	661.7	-43.2	-2.2	7.50	7.50	0.00
6,700.0	40.03	90.00	6,605.8	661.7	15.9	56.8	7.50	7.50	0.00
6,800.0	47.53	90.00	6,677.9	661.7	85.1	125.8	7.50	7.50	0.00
6,900.0	55.03	90.00	6,740.4	661.7	163.0	203.6	7.50	7.50	0.00
7,000.0	62.53	90.00	6,792.2	661.7	248.5	288.9	7.50	7.50	0.00
7,100.0	70.03	90.00	6,832.4	661.7	340.0	380.2	7.50	7.50	0.00
7,200.0	77.53	90.00	6,860.3	661.7	435.9	476.0	7.50	7.50	0.00
7,300.0	85.03	90.00	6,875.4	661.7	534.7	574.6	7.50	7.50	0.00
7,371.0	90.36	90.00	6,878.3	661.7	605.6	645.4	7.50	7.50	0.00
End of Build - 7"									
7,400.0	90.36	90.00	6,878.1	661.7	634.6	674.3	0.01	0.01	0.00
7,500.0	90.36	90.00	6,877.5	661.7	734.6	774.1	0.00	0.00	0.00
7,600.0	90.36	90.00	6,876.9	661.7	834.6	873.9	0.00	0.00	0.00
7,700.0	90.36	90.00	6,876.2	661.7	934.6	973.7	0.00	0.00	0.00
7,800.0	90.36	90.00	6,875.6	661.7	1,034.6	1,073.6	0.00	0.00	0.00
7,900.0	90.36	90.00	6,875.0	661.7	1,134.6	1,173.4	0.00	0.00	0.00
8,000.0	90.36	90.00	6,874.3	661.7	1,234.6	1,273.2	0.00	0.00	0.00
8,100.0	90.36	90.00	6,873.7	661.7	1,334.6	1,373.0	0.00	0.00	0.00
8,200.0	90.36	90.00	6,873.1	661.7	1,434.6	1,472.8	0.00	0.00	0.00
8,300.0	90.36	90.00	6,872.5	661.7	1,534.6	1,572.6	0.00	0.00	0.00
8,400.0	90.36	90.00	6,871.8	661.7	1,634.6	1,672.4	0.00	0.00	0.00
8,500.0	90.36	90.00	6,871.2	661.7	1,734.6	1,772.2	0.00	0.00	0.00
8,600.0	90.36	90.00	6,870.6	661.7	1,834.6	1,872.0	0.00	0.00	0.00
8,700.0	90.36	90.00	6,869.9	661.7	1,934.6	1,971.8	0.00	0.00	0.00
8,800.0	90.36	90.00	6,869.3	661.7	2,034.6	2,071.6	0.00	0.00	0.00
8,900.0	90.36	90.00	6,868.7	661.7	2,134.6	2,171.4	0.00	0.00	0.00
9,000.0	90.36	90.00	6,868.1	661.7	2,234.6	2,271.2	0.00	0.00	0.00
9,100.0	90.36	90.00	6,867.4	661.7	2,334.6	2,371.0	0.00	0.00	0.00
9,200.0	90.36	90.00	6,866.8	661.7	2,434.6	2,470.8	0.00	0.00	0.00
9,300.0	90.36	90.00	6,866.2	661.7	2,534.6	2,570.7	0.00	0.00	0.00
9,400.0	90.36	90.00	6,865.6	661.7	2,634.6	2,670.5	0.00	0.00	0.00
9,500.0	90.36	90.00	6,864.9	661.7	2,734.6	2,770.3	0.00	0.00	0.00
9,600.0	90.36	90.00	6,864.3	661.7	2,834.6	2,870.1	0.00	0.00	0.00
9,700.0	90.36	90.00	6,863.7	661.7	2,934.6	2,969.9	0.00	0.00	0.00

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 (7-13-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,800.0	90.36	90.00	6,863.0	661.7	3,034.6	3,069.7	0.00	0.00	0.00
9,900.0	90.36	90.00	6,862.4	661.7	3,134.6	3,169.5	0.00	0.00	0.00
10,000.0	90.36	90.00	6,861.8	661.7	3,234.6	3,269.3	0.00	0.00	0.00
10,100.0	90.36	90.00	6,861.2	661.7	3,334.6	3,369.1	0.00	0.00	0.00
10,200.0	90.36	90.00	6,860.5	661.7	3,434.6	3,468.9	0.00	0.00	0.00
10,300.0	90.36	90.00	6,859.9	661.7	3,534.6	3,568.7	0.00	0.00	0.00
10,400.0	90.36	90.00	6,859.3	661.7	3,634.6	3,668.5	0.00	0.00	0.00
10,500.0	90.36	90.00	6,858.6	661.7	3,734.6	3,768.3	0.00	0.00	0.00
10,600.0	90.36	90.00	6,858.0	661.7	3,834.6	3,868.1	0.00	0.00	0.00
10,700.0	90.36	90.00	6,857.4	661.7	3,934.6	3,967.9	0.00	0.00	0.00
10,800.0	90.36	90.00	6,856.8	661.7	4,034.6	4,067.8	0.00	0.00	0.00
10,900.0	90.36	90.00	6,856.1	661.7	4,134.5	4,167.6	0.00	0.00	0.00
11,000.0	90.36	90.00	6,855.5	661.7	4,234.5	4,267.4	0.00	0.00	0.00
11,100.0	90.36	90.00	6,854.9	661.7	4,334.5	4,367.2	0.00	0.00	0.00
11,200.0	90.36	90.00	6,854.2	661.7	4,434.5	4,467.0	0.00	0.00	0.00
11,300.0	90.36	90.00	6,853.6	661.7	4,534.5	4,566.8	0.00	0.00	0.00
11,400.0	90.36	90.00	6,853.0	661.7	4,634.5	4,666.6	0.00	0.00	0.00
11,500.0	90.36	90.00	6,852.4	661.7	4,734.5	4,766.4	0.00	0.00	0.00
11,600.0	90.36	90.00	6,851.7	661.7	4,834.5	4,866.2	0.00	0.00	0.00
11,700.0	90.36	90.00	6,851.1	661.7	4,934.5	4,966.0	0.00	0.00	0.00
11,800.0	90.36	90.00	6,850.5	661.7	5,034.5	5,065.8	0.00	0.00	0.00
11,900.0	90.36	90.00	6,849.8	661.7	5,134.5	5,165.6	0.00	0.00	0.00
12,000.0	90.36	90.00	6,849.2	661.7	5,234.5	5,265.4	0.00	0.00	0.00
12,100.0	90.36	90.00	6,848.6	661.7	5,334.5	5,365.2	0.00	0.00	0.00
12,200.0	90.36	90.00	6,848.0	661.7	5,434.5	5,465.0	0.00	0.00	0.00
12,300.0	90.36	90.00	6,847.3	661.7	5,534.5	5,564.9	0.00	0.00	0.00
12,400.0	90.36	90.00	6,846.7	661.7	5,634.5	5,664.7	0.00	0.00	0.00
12,500.0	90.36	90.00	6,846.1	661.7	5,734.5	5,764.5	0.00	0.00	0.00
12,600.0	90.36	90.00	6,845.4	661.7	5,834.5	5,864.3	0.00	0.00	0.00
12,700.0	90.36	90.00	6,844.8	661.7	5,934.5	5,964.1	0.00	0.00	0.00
12,800.0	90.36	90.00	6,844.2	661.7	6,034.5	6,063.9	0.00	0.00	0.00
12,900.0	90.36	90.00	6,843.6	661.7	6,134.5	6,163.7	0.00	0.00	0.00
13,000.0	90.36	90.00	6,842.9	661.7	6,234.5	6,263.5	0.00	0.00	0.00
13,100.0	90.36	90.00	6,842.3	661.7	6,334.5	6,363.3	0.00	0.00	0.00
13,200.0	90.36	90.00	6,841.7	661.7	6,434.5	6,463.1	0.00	0.00	0.00
13,300.0	90.36	90.00	6,841.0	661.7	6,534.5	6,562.9	0.00	0.00	0.00
13,400.0	90.36	90.00	6,840.4	661.7	6,634.5	6,662.7	0.00	0.00	0.00
13,500.0	90.36	90.00	6,839.8	661.7	6,734.5	6,762.5	0.00	0.00	0.00
13,600.0	90.36	90.00	6,839.2	661.7	6,834.5	6,862.3	0.00	0.00	0.00
13,700.0	90.36	90.00	6,838.5	661.7	6,934.5	6,962.1	0.00	0.00	0.00
13,800.0	90.36	90.00	6,837.9	661.7	7,034.5	7,062.0	0.00	0.00	0.00
13,900.0	90.36	90.00	6,837.3	661.7	7,134.5	7,161.8	0.00	0.00	0.00
14,000.0	90.36	90.00	6,836.6	661.7	7,234.5	7,261.6	0.00	0.00	0.00
14,100.0	90.36	90.00	6,836.0	661.7	7,334.5	7,361.4	0.00	0.00	0.00
14,200.0	90.36	90.00	6,835.4	661.7	7,434.5	7,461.2	0.00	0.00	0.00
14,300.0	90.36	90.00	6,834.8	661.7	7,534.5	7,561.0	0.00	0.00	0.00
14,400.0	90.36	90.00	6,834.1	661.7	7,634.5	7,660.8	0.00	0.00	0.00
14,500.0	90.36	90.00	6,833.5	661.7	7,734.5	7,760.6	0.00	0.00	0.00
14,600.0	90.36	90.00	6,832.9	661.7	7,834.5	7,860.4	0.00	0.00	0.00
14,700.0	90.36	90.00	6,832.2	661.7	7,934.5	7,960.2	0.00	0.00	0.00
14,800.0	90.36	90.00	6,831.6	661.7	8,034.5	8,060.0	0.00	0.00	0.00
14,900.0	90.36	90.00	6,831.0	661.7	8,134.5	8,159.8	0.00	0.00	0.00
15,000.0	90.36	90.00	6,830.4	661.7	8,234.5	8,259.6	0.00	0.00	0.00

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 (7-13-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,100.0	90.36	90.00	6,829.7	661.7	8,334.5	8,359.4	0.00	0.00	0.00
15,200.0	90.36	90.00	6,829.1	661.7	8,434.5	8,459.2	0.00	0.00	0.00
15,300.0	90.36	90.00	6,828.5	661.7	8,534.5	8,559.0	0.00	0.00	0.00
15,400.0	90.36	90.00	6,827.9	661.7	8,634.5	8,658.9	0.00	0.00	0.00
15,500.0	90.36	90.00	6,827.2	661.7	8,734.5	8,758.7	0.00	0.00	0.00
15,600.0	90.36	90.00	6,826.6	661.7	8,834.5	8,858.5	0.00	0.00	0.00
15,700.0	90.36	90.00	6,826.0	661.7	8,934.5	8,958.3	0.00	0.00	0.00
15,800.0	90.36	90.00	6,825.3	661.7	9,034.5	9,058.1	0.00	0.00	0.00
15,900.0	90.36	90.00	6,824.7	661.7	9,134.5	9,157.9	0.00	0.00	0.00
16,000.0	90.36	90.00	6,824.1	661.7	9,234.4	9,257.7	0.00	0.00	0.00
16,100.0	90.36	90.00	6,823.5	661.7	9,334.4	9,357.5	0.00	0.00	0.00
16,200.0	90.36	90.00	6,822.8	661.7	9,434.4	9,457.3	0.00	0.00	0.00
16,300.0	90.36	90.00	6,822.2	661.7	9,534.4	9,557.1	0.00	0.00	0.00
16,400.0	90.36	90.00	6,821.6	661.7	9,634.4	9,656.9	0.00	0.00	0.00
16,500.0	90.36	90.00	6,820.9	661.7	9,734.4	9,756.7	0.00	0.00	0.00
16,600.0	90.36	90.00	6,820.3	661.7	9,834.4	9,856.5	0.00	0.00	0.00
16,700.0	90.36	90.00	6,819.7	661.7	9,934.4	9,956.3	0.00	0.00	0.00
16,800.0	90.36	90.00	6,819.1	661.7	10,034.4	10,056.1	0.00	0.00	0.00
16,900.0	90.36	90.00	6,818.4	661.7	10,134.4	10,156.0	0.00	0.00	0.00
17,000.0	90.36	90.00	6,817.8	661.7	10,234.4	10,255.8	0.00	0.00	0.00
17,100.0	90.36	90.00	6,817.2	661.7	10,334.4	10,355.6	0.00	0.00	0.00
17,200.0	90.36	90.00	6,816.5	661.7	10,434.4	10,455.4	0.00	0.00	0.00
17,300.0	90.36	90.00	6,815.9	661.7	10,534.4	10,555.2	0.00	0.00	0.00
17,400.0	90.36	90.00	6,815.3	661.7	10,634.4	10,655.0	0.00	0.00	0.00
17,445.4	90.36	90.00	6,815.0	661.7	10,679.8	10,700.3	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL 688'FNL & 2432'FE	0.00	0.00	1.0	0.0	0.0	1,386,208.48	3,252,898.04	40.389990	-104.592080
- plan hits target center									
- Point									
BHL 105'FNL & 2306'FE	0.00	0.00	6,815.0	661.7	10,679.8	1,386,979.47	3,263,570.09	40.391800	-104.553740
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,371.0	6,878.3	7"	7	7-1/2	

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3 (7-13-15)		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,575.2	3,550.0	Parkman		0.00	
4,335.0	4,300.0	Sussex		0.00	
4,537.6	4,500.0	Shannon		0.00	
6,466.5	6,407.0	Sharon Springs		0.00	
6,670.7	6,583.0	Niobrara A		0.00	

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
6,166.2	6,114.3	661.7	-163.1	KOP #2
7,371.0	6,878.3	661.7	605.6	End of Build





## **Directional**

# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.19-T5N-R64W**

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

**Klein 19M-402**

**Wellbore #1**

**Plan #3 (7-13-15)**

## **Anticollision Report**

**14 July, 2015**



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #3 (7-13-15)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0 ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b> 7/14/2015			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	17,445.4	Plan #3 (7-13-15) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Klein (Existing) Sec.19-T5N-R64W						
Lucille 1-6I (Existi.) - Wellbore #1 - Wellbore #1						Out of range
Lucille 20-1 (Exist.) - Wellbore #1 - Wellbore #1	11,180.8	6,821.5	575.2	438.0	4.193	CC
Lucille 20-1 (Exist.) - Wellbore #1 - Wellbore #1	11,200.0	6,821.7	575.5	437.8	4.179	ES, SF
Paige 1 (D&A) (Exist.) - Wellbore #1 - Wellbore #1	8,543.7	6,844.9	617.9	428.3	3.258	CC, ES
Paige 1 (D&A) (Exist.) - Wellbore #1 - Wellbore #1	8,600.0	6,844.6	620.5	429.4	3.246	SF
Pigeon 1 (Exist.) - Wellbore #1 - Wellbore #1	9,877.9	6,856.5	586.5	484.8	5.770	CC
Pigeon 1 (Exist.) - Wellbore #1 - Wellbore #1	9,900.0	6,857.0	586.9	484.6	5.740	ES
Pigeon 1 (Exist.) - Wellbore #1 - Wellbore #1	10,000.0	6,858.9	599.0	494.0	5.704	SF
Seth 1 (Exist.) - Wellbore #1 - Wellbore #1	7,300.6	6,866.4	515.6	479.8	14.371	CC, ES
Seth 1 (Exist.) - Wellbore #1 - Wellbore #1	7,500.0	6,869.1	552.9	512.9	13.813	SF
Klein 19MN-HZ Pad Sec.19-T5N-R64W						
Klein 19M-232 - Wellbore #1 - Plan #3 (7-14-15)	1,000.0	1,000.0	27.9	23.6	6.523	CC
Klein 19M-232 - Wellbore #1 - Plan #3 (7-14-15)	17,445.4	17,253.9	377.8	-142.6	0.726	Level 1, ES, SF
Klein 19N-202 - Wellbore #1 - Plan #3 (7-14-15)	1,000.0	1,000.0	58.5	54.2	13.698	CC
Klein 19N-202 - Wellbore #1 - Plan #3 (7-14-15)	1,100.0	1,100.0	58.7	54.0	12.441	ES
Klein 19N-202 - Wellbore #1 - Plan #3 (7-14-15)	1,500.0	1,499.4	67.1	60.6	10.301	SF
Klein 19N-312 - Wellbore #1 - Plan #3 (7-14-15)	1,000.0	1,000.0	89.1	84.9	20.873	CC
Klein 19N-312 - Wellbore #1 - Plan #3 (7-14-15)	1,100.0	1,100.0	89.4	84.6	18.934	ES
Klein 19N-312 - Wellbore #1 - Plan #3 (7-14-15)	17,445.4	17,322.0	747.8	153.9	1.259	Level 3, SF

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
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)			
10,400.0	6,859.3	6,808.9	6,807.3	103.8	11.9	87.40	87.0	4,415.0	969.7	854.4	115.32	8.409		
10,500.0	6,858.6	6,810.8	6,809.1	106.6	11.9	87.59	87.0	4,415.0	891.2	773.1	118.11	7.545		
10,600.0	6,858.0	6,812.5	6,810.9	109.4	11.9	87.76	86.9	4,415.1	817.4	696.5	120.91	6.760		
10,700.0	6,857.4	6,814.2	6,812.6	112.1	11.9	87.93	86.9	4,415.1	749.6	625.9	123.71	6.060		
10,800.0	6,856.8	6,815.9	6,814.2	114.9	11.9	88.09	86.8	4,415.1	689.8	563.3	126.51	5.453		
10,900.0	6,856.1	6,817.4	6,815.8	117.7	11.9	88.25	86.8	4,415.2	640.1	510.8	129.31	4.950		
11,000.0	6,855.5	6,818.9	6,817.3	120.5	11.9	88.40	86.8	4,415.2	602.9	470.8	132.11	4.564		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Lucille 20-1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
11,100.0	6,854.9	6,820.4	6,818.7	123.2	11.9	88.54	86.7	4,415.2	580.8	445.9	134.90	4.306	CC ES, SF	
11,180.8	6,854.4	6,821.5	6,819.8	125.5	11.9	88.65	86.7	4,415.3	575.2	438.0	137.17	4.193		
11,200.0	6,854.2	6,821.7	6,820.1	126.0	11.9	88.68	86.7	4,415.3	575.5	437.8	137.70	4.179		
11,300.0	6,853.6	6,823.1	6,821.4	128.8	11.9	88.81	86.7	4,415.3	587.4	446.9	140.50	4.181		
11,400.0	6,853.0	6,824.4	6,822.7	131.6	11.9	88.94	86.6	4,415.3	615.5	472.2	143.30	4.295		
11,500.0	6,852.4	6,825.6	6,824.0	134.4	11.9	89.06	86.6	4,415.3	657.8	511.7	146.10	4.502		
11,600.0	6,851.7	6,826.8	6,825.2	137.2	11.9	89.18	86.6	4,415.4	711.7	562.8	148.90	4.780		
11,700.0	6,851.1	6,827.9	6,826.3	139.9	11.9	89.30	86.6	4,415.4	774.8	623.1	151.70	5.108		
11,800.0	6,850.5	6,829.1	6,827.4	142.7	11.9	89.41	86.5	4,415.4	845.1	690.6	154.50	5.470		
11,900.0	6,849.8	6,830.1	6,828.5	145.5	11.9	89.52	86.5	4,415.4	920.9	763.6	157.30	5.854		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Paige 1 (D&A) (Exist.) - 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 (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
7,800.0	6,875.6	6,849.6	6,849.6	34.1	137.0	90.43	43.8	1,778.3	967.0	796.4	170.52	5.671		
7,900.0	6,875.0	6,849.0	6,849.0	36.5	137.0	90.38	43.8	1,778.3	892.3	719.3	172.98	5.159		
8,000.0	6,874.3	6,848.3	6,848.3	39.0	137.0	90.32	43.8	1,778.3	823.1	647.6	175.49	4.690		
8,100.0	6,873.7	6,847.7	6,847.7	41.6	137.0	90.26	43.8	1,778.3	760.8	582.7	178.04	4.273		
8,200.0	6,873.1	6,847.1	6,847.1	44.1	136.9	90.20	43.8	1,778.3	707.1	526.5	180.62	3.915		
8,300.0	6,872.5	6,846.5	6,846.5	46.7	136.9	90.14	43.8	1,778.3	664.3	481.1	183.22	3.626		
8,400.0	6,871.8	6,845.8	6,845.8	49.3	136.9	90.08	43.8	1,778.3	634.4	448.6	185.84	3.414		
8,500.0	6,871.2	6,845.2	6,845.2	52.0	136.9	90.03	43.8	1,778.3	619.5	431.0	188.49	3.287		
8,543.7	6,870.9	6,844.9	6,844.9	53.1	136.9	90.00	43.8	1,778.3	617.9	428.3	189.65	3.258 CC, ES		
8,600.0	6,870.6	6,844.6	6,844.6	54.6	136.9	89.97	43.8	1,778.3	620.5	429.4	191.14	3.246 SF		
8,700.0	6,869.9	6,843.9	6,843.9	57.3	136.9	89.91	43.8	1,778.3	637.4	443.6	193.81	3.289		
8,800.0	6,869.3	6,843.3	6,843.3	60.0	136.9	89.85	43.8	1,778.3	669.0	472.5	196.50	3.404		
8,900.0	6,868.7	6,842.7	6,842.7	62.7	136.9	89.79	43.8	1,778.3	713.3	514.1	199.19	3.581		
9,000.0	6,868.1	6,842.1	6,842.1	65.4	136.8	89.73	43.8	1,778.3	768.1	566.2	201.89	3.805		
9,100.0	6,867.4	6,841.4	6,841.4	68.1	136.8	89.68	43.8	1,778.3	831.4	626.8	204.60	4.064		
9,200.0	6,866.8	6,840.8	6,840.8	70.8	136.8	89.62	43.8	1,778.3	901.4	694.1	207.31	4.348		
9,300.0	6,866.2	6,840.2	6,840.2	73.5	136.8	89.56	43.8	1,778.3	976.6	766.6	210.03	4.650		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Klein (Existing) Sec.19-T5N-R64W - Pigeon 1 (Exist.) - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 100-NS-GYRO-MS												<b>Offset Well Error:</b>	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
9,100.0	6,867.4	6,841.1	6,840.1	68.1	12.5	89.66	75.1	3,112.2	974.1	893.9	80.22	12.144	
9,200.0	6,866.8	6,843.1	6,842.1	70.8	12.5	89.86	75.1	3,112.2	896.3	813.4	82.96	10.804	
9,300.0	6,866.2	6,845.1	6,844.1	73.5	12.5	90.05	75.1	3,112.3	823.3	737.6	85.70	9.606	
9,400.0	6,865.6	6,847.0	6,846.1	76.3	12.5	90.24	75.2	3,112.3	756.5	668.1	88.45	8.552	
9,500.0	6,864.9	6,849.0	6,848.0	79.0	12.5	90.44	75.2	3,112.4	697.7	606.5	91.21	7.649	
9,600.0	6,864.3	6,851.0	6,850.0	81.7	12.5	90.63	75.3	3,112.4	649.0	555.0	93.97	6.907	
9,700.0	6,863.7	6,853.0	6,852.0	84.5	12.5	90.83	75.3	3,112.5	612.9	516.1	96.73	6.336	
9,800.0	6,863.0	6,855.0	6,854.0	87.2	12.5	91.02	75.3	3,112.5	591.6	492.1	99.49	5.947	
9,877.9	6,862.5	6,856.5	6,855.5	89.4	12.5	91.17	75.4	3,112.6	586.5	484.8	101.64	5.770 CC	
9,900.0	6,862.4	6,857.0	6,856.0	90.0	12.5	91.21	75.4	3,112.6	586.9	484.6	102.25	5.740 ES	
10,000.0	6,861.8	6,858.9	6,857.9	92.8	12.5	91.41	75.4	3,112.6	599.0	494.0	105.02	5.704 SF	
10,100.0	6,861.2	6,860.9	6,859.9	95.5	12.5	91.60	75.5	3,112.7	627.1	519.3	107.79	5.818	
10,200.0	6,860.5	6,862.9	6,861.9	98.3	12.5	91.79	75.5	3,112.8	669.1	558.5	110.55	6.052	
10,300.0	6,859.9	6,864.9	6,863.9	101.0	12.5	91.99	75.5	3,112.8	722.5	609.2	113.32	6.376	
10,400.0	6,859.3	6,866.9	6,865.9	103.8	12.5	92.18	75.6	3,112.9	785.1	669.0	116.09	6.763	
10,500.0	6,858.6	6,868.9	6,867.9	106.6	12.5	92.38	75.6	3,112.9	854.9	736.0	118.86	7.192	
10,600.0	6,858.0	6,870.8	6,869.8	109.4	12.5	92.57	75.7	3,113.0	930.1	808.5	121.63	7.647	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Seth 1 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	76.12	149.4	604.5	622.8				
100.0	100.0	82.5	82.5	0.1	0.1	76.15	149.1	604.8	622.9	622.7	0.22	2,804.814	
200.0	200.0	186.0	186.0	0.3	0.3	76.24	148.3	605.4	623.3	622.6	0.69	907.454	
300.0	300.0	287.7	287.7	0.6	0.6	76.35	147.0	605.5	623.1	622.0	1.17	533.695	
400.0	400.0	389.6	389.6	0.8	0.9	76.47	145.6	605.4	622.7	621.1	1.65	377.772	
464.1	464.1	450.2	450.1	0.9	1.0	76.54	144.8	605.4	622.5	620.5	1.94	320.184	
500.0	500.0	483.5	483.5	1.0	1.1	76.58	144.5	605.6	622.6	620.4	2.11	295.315	
600.0	600.0	582.4	582.3	1.2	1.3	76.71	143.3	606.4	623.1	620.5	2.59	240.963	
700.0	700.0	686.6	686.5	1.5	1.6	76.91	141.2	607.2	623.4	620.4	3.08	202.156	
736.5	736.5	722.6	722.5	1.5	1.7	76.98	140.5	607.4	623.4	620.1	3.26	191.229	
800.0	800.0	782.9	782.8	1.7	1.9	77.08	139.4	607.8	623.6	620.0	3.56	175.155	
900.0	900.0	888.4	888.3	1.9	2.1	77.24	137.7	608.4	623.8	619.7	4.06	153.752	
985.8	985.8	971.9	971.8	2.1	2.4	77.39	136.1	608.5	623.5	619.1	4.47	139.568	
1,000.0	1,000.0	985.5	985.4	2.1	2.4	77.41	135.9	608.6	623.5	619.0	4.54	137.495	
1,100.0	1,100.0	1,091.7	1,091.5	2.4	2.7	91.52	134.0	608.7	623.3	618.3	5.03	123.930	
1,194.7	1,194.6	1,181.5	1,181.3	2.6	2.9	91.87	132.5	608.5	622.8	617.4	5.47	113.877	
1,200.0	1,200.0	1,186.5	1,186.3	2.6	2.9	91.89	132.4	608.5	622.8	617.3	5.49	113.367	
1,300.0	1,299.9	1,292.5	1,292.3	2.8	3.2	92.42	131.3	608.3	622.6	616.6	5.97	104.363	
1,375.8	1,375.5	1,363.7	1,363.5	3.0	3.3	92.85	130.7	607.8	622.2	615.9	6.30	98.723	
1,400.0	1,399.7	1,386.1	1,385.9	3.0	3.4	93.01	130.5	607.8	622.2	615.8	6.41	97.082	
1,500.0	1,499.4	1,487.7	1,487.5	3.3	3.6	93.82	129.6	607.9	622.6	615.7	6.90	90.197	
1,600.0	1,598.9	1,585.5	1,585.4	3.5	3.9	94.77	128.6	607.8	623.1	615.7	7.40	84.197	
1,700.0	1,698.3	1,692.1	1,691.9	3.8	4.1	95.93	127.8	607.3	623.6	615.7	7.90	78.929	
1,800.0	1,797.4	1,785.4	1,785.2	4.0	4.4	97.11	126.8	606.7	624.3	615.9	8.38	74.481	
1,900.0	1,896.3	1,891.3	1,891.1	4.3	4.6	98.63	125.5	606.1	625.6	616.7	8.91	70.214	
1,919.9	1,915.9	1,910.9	1,910.7	4.4	4.6	98.93	125.3	605.8	625.8	616.8	9.01	69.425	
2,000.0	1,995.0	1,984.8	1,984.6	4.6	4.8	100.09	124.2	605.2	627.2	617.7	9.43	66.536	
2,100.0	2,093.7	2,086.2	2,086.0	4.9	5.1	101.72	122.2	604.6	629.5	619.6	9.99	63.044	
2,200.0	2,192.5	2,186.7	2,186.4	5.2	5.3	103.36	119.8	603.5	631.9	621.3	10.55	59.913	
2,300.0	2,291.2	2,288.2	2,287.9	5.6	5.6	104.97	117.7	602.0	634.4	623.3	11.09	57.195	
2,400.0	2,389.9	2,385.7	2,385.4	5.9	5.8	106.47	116.1	600.3	637.1	625.5	11.63	54.804	
2,500.0	2,488.6	2,488.9	2,488.5	6.2	6.0	108.08	114.0	598.4	640.1	627.9	12.18	52.565	
2,600.0	2,587.3	2,583.7	2,583.3	6.6	6.2	109.49	112.7	596.4	643.4	630.7	12.68	50.728	
2,700.0	2,686.0	2,680.8	2,680.4	6.9	6.4	110.85	112.2	595.0	647.6	634.4	13.19	49.091	
2,800.0	2,784.7	2,778.2	2,777.8	7.3	6.6	112.20	111.5	593.7	652.3	638.6	13.69	47.644	
2,900.0	2,883.4	2,879.1	2,878.7	7.6	6.8	113.53	111.4	592.5	657.4	643.2	14.18	46.369	
3,000.0	2,982.2	2,976.3	2,975.9	8.0	7.0	114.82	111.0	591.1	662.6	647.9	14.68	45.131	
3,100.0	3,080.9	3,070.2	3,069.8	8.3	7.2	116.07	110.2	590.1	668.7	653.5	15.22	43.950	
3,200.0	3,179.6	3,171.1	3,170.6	8.7	7.4	117.35	109.7	589.6	675.6	659.8	15.75	42.905	
3,300.0	3,278.3	3,272.6	3,272.2	9.0	7.6	118.60	109.5	588.5	682.1	665.9	16.25	41.965	
3,400.0	3,377.0	3,371.5	3,371.0	9.4	7.8	119.88	108.4	586.9	688.8	672.0	16.78	41.042	
3,500.0	3,475.7	3,477.2	3,476.7	9.7	8.1	121.28	106.7	584.7	695.5	678.2	17.33	40.132	
3,600.0	3,574.4	3,576.1	3,575.5	10.1	8.3	122.59	104.9	581.8	701.7	683.9	17.86	39.296	
3,700.0	3,673.2	3,671.9	3,671.2	10.4	8.6	123.86	102.8	579.1	708.6	690.2	18.38	38.557	
3,800.0	3,771.9	3,772.5	3,771.9	10.8	8.8	125.11	101.4	576.7	716.0	697.1	18.90	37.882	
3,900.0	3,870.6	3,872.0	3,871.3	11.2	9.0	126.30	100.3	574.0	723.4	703.9	19.41	37.261	
4,000.0	3,969.3	3,967.1	3,966.3	11.5	9.3	127.43	99.0	571.6	731.2	711.3	19.92	36.711	
4,100.0	4,068.0	4,061.7	4,060.9	11.9	9.5	128.47	98.2	569.9	739.9	719.5	20.42	36.230	
4,200.0	4,166.7	4,163.2	4,162.4	12.3	9.7	129.53	97.6	568.6	749.1	728.2	20.93	35.791	
4,300.0	4,265.4	4,258.7	4,257.9	12.6	9.9	130.50	97.2	567.0	758.1	736.7	21.42	35.386	
4,400.0	4,364.2	4,354.7	4,353.9	13.0	10.2	131.48	96.2	566.0	768.2	746.3	21.93	35.023	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Seth 1 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
4,500.0	4,462.9	4,455.0	4,454.2	13.3	10.4	132.50	94.9	564.6	778.4	755.9	22.45	34.668	
4,600.0	4,561.6	4,556.6	4,555.7	13.7	10.7	133.46	94.3	563.3	788.5	765.6	22.96	34.343	
4,700.0	4,660.3	4,659.7	4,658.9	14.1	10.9	134.42	93.8	561.4	798.4	775.0	23.45	34.049	
4,800.0	4,759.0	4,757.8	4,756.9	14.4	11.1	135.28	93.9	559.6	808.1	784.2	23.92	33.789	
4,900.0	4,857.7	4,852.8	4,851.9	14.8	11.3	136.11	93.6	558.0	818.4	794.0	24.37	33.584	
5,000.0	4,956.4	4,954.0	4,953.1	15.2	11.5	136.90	93.9	557.1	829.1	804.3	24.80	33.433	
5,100.0	5,055.2	5,056.4	5,055.5	15.5	11.6	137.66	94.9	555.8	839.3	814.1	25.20	33.311	
5,200.0	5,153.9	5,160.9	5,160.0	15.9	11.7	138.40	96.3	554.3	849.4	823.8	25.58	33.207	
5,300.0	5,252.6	5,274.3	5,273.3	16.3	11.9	139.12	99.4	552.1	858.3	832.4	25.95	33.071	
5,400.0	5,351.3	5,385.9	5,384.7	16.6	12.0	139.76	104.2	549.0	865.7	839.4	26.33	32.883	
5,491.9	5,442.0	5,483.0	5,481.7	17.0	12.1	140.29	109.1	545.5	871.6	845.0	26.68	32.675	
5,500.0	5,450.0	5,491.5	5,490.2	17.0	12.1	140.35	109.5	545.2	872.1	845.4	26.71	32.655	
5,600.0	5,549.0	5,582.2	5,580.7	17.3	12.2	140.84	113.9	541.9	877.2	850.2	27.05	32.433	
5,700.0	5,648.5	5,673.0	5,671.4	17.5	12.3	141.15	118.0	539.7	880.7	853.3	27.35	32.198	
5,800.0	5,748.2	5,762.1	5,760.4	17.7	12.4	141.32	121.3	538.1	882.6	855.0	27.63	31.942	
5,900.0	5,848.1	5,850.8	5,849.1	17.9	12.5	141.39	123.3	537.1	883.0	855.2	27.87	31.686	
5,951.9	5,900.0	5,900.0	5,898.3	17.9	12.5	127.51	124.3	537.0	882.7	853.7	29.02	30.420	
6,000.0	5,948.1	5,948.1	5,946.3	18.0	12.6	127.46	125.3	537.1	882.1	853.0	29.12	30.292	
6,100.0	6,048.1	6,053.0	6,051.2	18.2	12.7	127.32	128.0	536.9	880.4	851.0	29.38	29.970	
6,166.2	6,114.4	6,119.1	6,117.3	18.3	12.7	127.27	129.5	536.3	879.1	849.5	29.56	29.743	
6,200.0	6,148.1	6,150.8	6,149.0	18.3	12.8	37.32	130.2	536.1	877.9	849.3	28.60	30.697	
6,250.0	6,198.0	6,200.0	6,198.2	18.4	12.8	37.60	131.3	536.0	874.1	845.5	28.56	30.600	
6,300.0	6,247.5	6,251.1	6,249.3	18.4	12.9	38.13	132.6	536.0	867.7	839.2	28.44	30.507	
6,350.0	6,296.4	6,304.1	6,302.2	18.5	12.9	38.94	134.2	535.9	858.5	830.2	28.24	30.396	
6,400.0	6,344.5	6,354.0	6,352.1	18.5	13.0	40.03	135.9	535.7	846.7	818.7	27.99	30.249	
6,450.0	6,391.7	6,400.0	6,398.1	18.6	13.0	41.40	137.3	535.2	832.5	804.8	27.69	30.063	
6,500.0	6,437.6	6,445.3	6,443.3	18.6	13.1	43.10	138.7	534.8	816.1	788.8	27.37	29.814	
6,550.0	6,482.2	6,487.0	6,485.0	18.6	13.1	45.06	139.9	534.6	797.9	770.8	27.07	29.476	
6,600.0	6,525.2	6,526.7	6,524.7	18.7	13.1	47.34	141.0	534.6	778.0	751.2	26.81	29.021	
6,650.0	6,566.5	6,564.7	6,562.7	18.7	13.2	49.94	142.0	534.7	756.6	729.9	26.63	28.408	
6,700.0	6,605.8	6,601.2	6,599.2	18.7	13.2	52.89	142.8	534.9	734.0	707.4	26.59	27.601	
6,750.0	6,643.0	6,639.3	6,637.3	18.8	13.3	56.34	143.6	535.2	710.3	683.6	26.75	26.559	
6,800.0	6,677.9	6,674.9	6,672.9	18.8	13.3	60.12	144.3	535.2	685.9	658.8	27.10	25.310	
6,850.0	6,710.4	6,707.4	6,705.3	18.9	13.3	64.11	144.9	535.2	661.2	633.5	27.65	23.908	
6,900.0	6,740.4	6,735.6	6,733.6	19.0	13.4	68.12	145.3	535.2	636.6	608.2	28.38	22.435	
6,950.0	6,767.7	6,761.2	6,759.2	19.2	13.4	72.13	145.5	535.1	612.8	583.6	29.22	20.972	
7,000.0	6,792.2	6,784.2	6,782.1	19.4	13.4	76.00	145.7	535.0	590.3	560.1	30.14	19.587	
7,050.0	6,813.8	6,804.5	6,802.5	19.8	13.5	79.61	145.8	535.0	569.6	538.5	31.08	18.325	
7,100.0	6,832.4	6,822.8	6,820.8	20.2	13.5	82.89	145.9	534.9	551.5	519.4	32.04	17.212	
7,150.0	6,847.9	6,838.4	6,836.3	20.8	13.5	85.69	145.9	534.9	536.5	503.5	32.99	16.260	
7,200.0	6,860.3	6,850.9	6,848.9	21.5	13.5	87.90	146.0	535.0	525.2	491.2	33.94	15.473	
7,250.0	6,869.5	6,860.2	6,858.2	22.3	13.5	89.46	146.1	535.0	518.1	483.2	34.90	14.847	
7,300.0	6,875.4	6,866.4	6,864.3	23.2	13.5	90.32	146.1	535.0	515.7	479.8	35.87	14.375	
7,300.6	6,875.5	6,866.4	6,864.4	23.2	13.5	90.32	146.1	535.0	515.6	479.8	35.88	14.371 CC, ES	
7,350.0	6,878.1	6,869.2	6,867.2	24.2	13.5	90.46	146.1	535.0	518.0	481.1	36.87	14.051	
7,371.0	6,878.3	6,869.4	6,867.4	24.6	13.5	90.30	146.1	535.0	520.4	483.2	37.29	13.958	
7,400.0	6,878.1	6,869.4	6,867.3	25.1	13.5	90.29	146.1	535.0	525.2	487.3	37.88	13.863	
7,500.0	6,877.5	6,869.1	6,867.0	27.2	13.5	90.25	146.1	535.0	552.9	512.9	40.03	13.813 SF	
7,600.0	6,876.9	6,868.7	6,866.7	29.4	13.5	90.22	146.1	535.0	596.4	554.1	42.29	14.102	
7,700.0	6,876.2	6,868.4	6,866.4	31.7	13.5	90.18	146.1	535.0	652.4	607.7	44.64	14.614	
7,800.0	6,875.6	6,868.1	6,866.1	34.1	13.5	90.15	146.1	535.0	718.0	670.9	47.06	15.257	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Klein (Existing) Sec.19-T5N-R64W - Seth 1 (Exist.) - Wellbore #1 - Wellbore #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 100-NS-GYRO-MS													<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
7,900.0	6,875.0	6,867.8	6,865.8	36.5	13.5	90.12	146.1	535.0	790.8	741.3	49.54	15.965		
8,000.0	6,874.3	6,867.5	6,865.5	39.0	13.5	90.08	146.1	535.0	869.1	817.0	52.06	16.695		
8,100.0	6,873.7	6,867.2	6,865.2	41.6	13.5	90.05	146.1	535.0	951.5	896.8	54.62	17.420		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	27.9	27.9				
100.0	100.0	100.0	100.0	0.1	0.1	89.99	0.0	27.9	27.9	27.6	0.22	123.935	
200.0	200.0	200.0	200.0	0.3	0.3	89.99	0.0	27.9	27.9	27.2	0.67	41.312	
300.0	300.0	300.0	300.0	0.6	0.6	89.99	0.0	27.9	27.9	26.7	1.12	24.787	
400.0	400.0	400.0	400.0	0.8	0.8	89.99	0.0	27.9	27.9	26.3	1.57	17.705	
500.0	500.0	500.0	500.0	1.0	1.0	89.99	0.0	27.9	27.9	25.8	2.02	13.771	
600.0	600.0	600.0	600.0	1.2	1.2	89.99	0.0	27.9	27.9	25.4	2.47	11.267	
700.0	700.0	700.0	700.0	1.5	1.5	89.99	0.0	27.9	27.9	24.9	2.92	9.533	
800.0	800.0	800.0	800.0	1.7	1.7	89.99	0.0	27.9	27.9	24.5	3.37	8.262	
900.0	900.0	900.0	900.0	1.9	1.9	89.99	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	89.99	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	105.56	0.0	27.9	28.1	23.4	4.72	5.950	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	110.56	0.0	27.9	28.9	23.7	5.17	5.591	
1,300.0	1,299.9	1,300.2	1,300.2	2.8	2.8	117.01	0.8	27.4	30.1	24.5	5.61	5.362	
1,400.0	1,399.7	1,400.5	1,400.5	3.0	3.0	123.44	3.1	26.1	31.3	25.2	6.06	5.166	
1,500.0	1,499.4	1,500.9	1,500.8	3.3	3.3	129.92	6.9	24.0	32.6	26.0	6.51	5.002	
1,600.0	1,598.9	1,601.3	1,601.0	3.5	3.5	136.48	12.3	21.0	33.9	26.9	6.96	4.873	
1,700.0	1,698.3	1,701.8	1,701.1	3.8	3.7	143.12	19.2	17.2	35.4	28.0	7.41	4.782	
1,800.0	1,797.4	1,802.3	1,801.2	4.0	4.0	149.79	27.6	12.5	37.2	29.3	7.86	4.733	
1,900.0	1,896.3	1,902.3	1,900.6	4.3	4.2	156.51	37.1	7.2	39.8	31.5	8.30	4.794	
1,919.9	1,915.9	1,922.1	1,920.3	4.4	4.3	157.85	39.0	6.1	40.6	32.2	8.39	4.834	
2,000.0	1,995.0	2,002.1	1,999.8	4.6	4.5	162.80	46.6	1.9	44.0	35.2	8.75	5.022	
2,100.0	2,093.7	2,101.9	2,099.0	4.9	4.7	167.97	56.1	-3.4	48.6	39.4	9.21	5.274	
2,200.0	2,192.5	2,201.7	2,198.2	5.2	5.0	172.20	65.5	-8.7	53.6	43.9	9.68	5.532	
2,300.0	2,291.2	2,301.5	2,297.4	5.6	5.3	175.71	75.0	-14.0	58.8	48.6	10.16	5.787	
2,400.0	2,389.9	2,401.3	2,396.7	5.9	5.5	178.63	84.5	-19.3	64.2	53.5	10.64	6.032	
2,500.0	2,488.6	2,501.1	2,495.9	6.2	5.8	-178.90	94.0	-24.5	69.7	58.6	11.12	6.266	
2,600.0	2,587.3	2,600.9	2,595.1	6.6	6.1	-176.80	103.5	-29.8	75.3	63.7	11.61	6.486	
2,700.0	2,686.0	2,700.7	2,694.3	6.9	6.4	-174.99	113.0	-35.1	81.1	68.9	12.11	6.693	
2,800.0	2,784.7	2,800.5	2,793.5	7.3	6.6	-173.43	122.4	-40.4	86.9	74.2	12.61	6.886	
2,900.0	2,883.4	2,900.3	2,892.7	7.6	6.9	-172.06	131.9	-45.7	92.7	79.6	13.12	7.067	
3,000.0	2,982.2	3,000.1	2,991.9	8.0	7.2	-170.85	141.4	-51.0	98.6	85.0	13.63	7.235	
3,100.0	3,080.9	3,100.0	3,091.1	8.3	7.5	-169.78	150.9	-56.3	104.5	90.4	14.14	7.393	
3,200.0	3,179.6	3,199.8	3,190.4	8.7	7.8	-168.82	160.4	-61.5	110.5	95.9	14.66	7.540	
3,300.0	3,278.3	3,299.6	3,289.6	9.0	8.1	-167.97	169.8	-66.8	116.5	101.3	15.17	7.678	
3,400.0	3,377.0	3,399.4	3,388.8	9.4	8.4	-167.20	179.3	-72.1	122.5	106.8	15.70	7.807	
3,500.0	3,475.7	3,499.2	3,488.0	9.7	8.7	-166.50	188.8	-77.4	128.6	112.4	16.22	7.928	
3,600.0	3,574.4	3,599.0	3,587.2	10.1	8.9	-165.86	198.3	-82.7	134.6	117.9	16.74	8.041	
3,700.0	3,673.2	3,698.8	3,686.4	10.4	9.2	-165.28	207.8	-88.0	140.7	123.4	17.27	8.148	
3,800.0	3,771.9	3,798.6	3,785.6	10.8	9.5	-164.74	217.3	-93.3	146.8	129.0	17.80	8.248	
3,900.0	3,870.6	3,898.4	3,884.9	11.2	9.8	-164.25	226.7	-98.6	152.9	134.6	18.33	8.343	
4,000.0	3,969.3	3,998.2	3,984.1	11.5	10.1	-163.80	236.2	-103.8	159.0	140.1	18.86	8.432	
4,100.0	4,068.0	4,098.0	4,083.3	11.9	10.4	-163.38	245.7	-109.1	165.1	145.7	19.39	8.516	
4,200.0	4,166.7	4,197.8	4,182.5	12.3	10.7	-162.99	255.2	-114.4	171.3	151.3	19.92	8.596	
4,300.0	4,265.4	4,297.6	4,281.7	12.6	11.0	-162.62	264.7	-119.7	177.4	156.9	20.46	8.671	
4,400.0	4,364.2	4,397.4	4,380.9	13.0	11.3	-162.28	274.2	-125.0	183.5	162.5	20.99	8.742	
4,500.0	4,462.9	4,497.2	4,480.1	13.3	11.6	-161.97	283.6	-130.3	189.7	168.1	21.53	8.810	
4,600.0	4,561.6	4,597.0	4,579.3	13.7	11.9	-161.67	293.1	-135.6	195.8	173.8	22.07	8.875	
4,700.0	4,660.3	4,696.8	4,678.6	14.1	12.2	-161.39	302.6	-140.8	202.0	179.4	22.60	8.936	
4,800.0	4,759.0	4,796.6	4,777.8	14.4	12.5	-161.13	312.1	-146.1	208.1	185.0	23.14	8.994	
4,900.0	4,857.7	4,896.5	4,877.0	14.8	12.8	-160.88	321.6	-151.4	214.3	190.6	23.68	9.050	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-232 - Wellbore #1 - Plan #3 (7-14-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.0	4,956.4	4,991.0	4,971.1	15.2	13.0	-160.84	329.5	-155.8	221.5	197.4	24.16	9.169		
5,100.0	5,055.2	5,084.4	5,064.3	15.5	13.2	-161.22	334.7	-158.7	231.4	206.9	24.57	9.420		
5,200.0	5,153.9	5,177.1	5,156.9	15.9	13.3	-161.97	337.2	-160.1	244.1	219.1	24.94	9.787		
5,300.0	5,252.6	5,272.7	5,252.6	16.3	13.5	-162.99	337.5	-160.3	259.0	233.7	25.29	10.241		
5,400.0	5,351.3	5,371.4	5,351.3	16.6	13.7	-163.97	337.5	-160.3	274.4	248.7	25.68	10.682		
5,491.9	5,442.0	5,462.2	5,442.0	17.0	13.9	-164.77	337.5	-160.3	288.5	262.5	26.06	11.074		
5,500.0	5,450.0	5,470.2	5,450.0	17.0	13.9	-164.85	337.5	-160.3	289.8	263.7	26.09	11.106		
5,600.0	5,549.0	5,569.2	5,549.0	17.3	14.1	-165.60	337.5	-160.3	303.3	276.8	26.48	11.455		
5,700.0	5,648.5	5,668.6	5,648.5	17.5	14.2	-166.13	337.5	-160.3	313.5	286.6	26.85	11.677		
5,800.0	5,748.2	5,768.4	5,748.2	17.7	14.4	-166.46	337.5	-160.3	320.3	293.1	27.19	11.780		
5,900.0	5,848.1	5,868.3	5,848.1	17.9	14.6	-166.63	337.5	-160.3	323.8	296.3	27.51	11.768		
5,951.9	5,900.0	5,920.1	5,900.0	17.9	14.7	179.51	337.5	-160.3	324.2	292.2	32.04	10.120		
6,000.0	5,948.1	5,968.3	5,948.1	18.0	14.8	179.51	337.5	-160.3	324.2	292.0	32.21	10.068		
6,010.8	5,958.9	5,979.1	5,958.9	18.0	14.9	179.51	337.5	-160.3	324.2	292.0	32.25	10.056		
6,100.0	6,048.1	6,067.6	6,047.2	18.2	15.0	178.60	337.5	-155.2	324.3	291.7	32.59	9.952		
6,166.2	6,114.4	6,131.9	6,110.7	18.3	15.1	176.82	337.5	-145.1	324.8	291.9	32.89	9.875		
6,200.0	6,148.1	6,164.1	6,142.1	18.3	15.1	85.67	337.5	-138.0	325.2	296.9	28.34	11.474		
6,250.0	6,198.0	6,211.3	6,187.6	18.4	15.1	83.99	337.5	-125.3	326.1	297.7	28.39	11.485		
6,300.0	6,247.5	6,257.9	6,231.6	18.4	15.2	82.35	337.5	-110.0	327.3	298.8	28.44	11.505		
6,350.0	6,296.4	6,304.1	6,274.2	18.5	15.2	80.76	337.5	-92.2	328.6	300.1	28.50	11.530		
6,400.0	6,344.5	6,350.0	6,315.5	18.5	15.2	79.22	337.5	-72.1	330.2	301.7	28.57	11.558		
6,450.0	6,391.7	6,395.1	6,354.7	18.6	15.2	77.75	337.5	-49.9	332.0	303.4	28.66	11.584		
6,500.0	6,437.6	6,439.9	6,392.3	18.6	15.3	76.34	337.5	-25.5	333.9	305.2	28.77	11.608		
6,550.0	6,482.2	6,484.3	6,428.2	18.6	15.3	75.00	337.5	0.7	336.0	307.1	28.90	11.625		
6,600.0	6,525.2	6,528.4	6,462.2	18.7	15.3	73.73	337.5	28.8	338.1	309.0	29.06	11.632		
6,650.0	6,566.5	6,572.2	6,494.3	18.7	15.3	72.54	337.5	58.5	340.2	310.9	29.26	11.626		
6,700.0	6,605.8	6,615.7	6,524.4	18.7	15.4	71.43	337.5	89.8	342.4	312.9	29.50	11.607		
6,750.0	6,643.0	6,658.9	6,552.5	18.8	15.5	70.39	337.5	122.6	344.5	314.7	29.79	11.565		
6,800.0	6,677.9	6,700.0	6,577.6	18.8	15.8	69.47	337.5	155.3	346.6	316.5	30.13	11.503		
6,850.0	6,710.4	6,744.5	6,602.6	18.9	16.2	68.57	337.5	192.0	348.6	318.0	30.57	11.402		
6,900.0	6,740.4	6,786.9	6,624.5	19.0	16.6	67.78	337.5	228.4	350.5	319.4	31.09	11.273		
6,950.0	6,767.7	6,829.2	6,644.2	19.2	17.1	67.07	337.5	265.8	352.3	320.6	31.70	11.113		
7,000.0	6,792.2	6,871.4	6,661.8	19.4	17.7	66.45	337.5	304.1	353.9	321.5	32.40	10.921		
7,050.0	6,813.8	6,913.3	6,677.2	19.8	18.3	65.91	337.5	343.1	355.3	322.1	33.22	10.697		
7,100.0	6,832.4	6,955.2	6,690.4	20.2	18.9	65.45	337.5	382.8	356.6	322.4	34.14	10.445		
7,150.0	6,847.9	7,000.0	6,702.1	20.8	19.7	65.05	337.5	426.1	357.6	322.4	35.22	10.155		
7,200.0	6,860.3	7,038.6	6,710.1	21.5	20.4	64.78	337.5	463.9	358.4	322.1	36.33	9.867		
7,250.0	6,869.5	7,080.3	6,716.6	22.3	21.2	64.57	337.5	505.0	359.0	321.4	37.59	9.552		
7,300.0	6,875.4	7,121.8	6,720.8	23.2	22.0	64.45	337.5	546.3	359.4	320.5	38.95	9.228		
7,350.0	6,878.1	7,163.4	6,722.8	24.2	22.8	64.40	337.5	587.8	359.5	319.1	40.40	8.899		
7,371.0	6,878.3	7,180.9	6,723.0	24.6	23.2	64.41	337.5	605.3	359.5	318.5	41.04	8.760		
7,374.5	6,878.3	7,183.8	6,723.0	24.6	23.2	64.41	337.5	608.2	359.5	318.3	41.16	8.734		
7,400.0	6,878.1	7,208.6	6,722.7	25.1	23.7	64.39	337.5	633.0	359.5	317.4	42.11	8.538		
7,500.0	6,877.5	7,308.6	6,721.7	27.2	25.9	64.34	337.5	733.0	359.7	313.7	46.04	7.813		
7,600.0	6,876.9	7,408.6	6,720.7	29.4	28.2	64.28	337.5	833.0	359.9	309.7	50.17	7.173		
7,700.0	6,876.2	7,508.6	6,719.7	31.7	30.5	64.23	337.5	933.0	360.0	305.6	54.46	6.611		
7,800.0	6,875.6	7,608.6	6,718.7	34.1	33.0	64.17	337.5	1,033.0	360.2	301.3	58.87	6.119		
7,900.0	6,875.0	7,708.6	6,717.7	36.5	35.5	64.12	337.5	1,133.0	360.4	297.0	63.37	5.687		
8,000.0	6,874.3	7,808.6	6,716.7	39.0	38.0	64.06	337.5	1,233.0	360.5	292.6	67.95	5.306		
8,100.0	6,873.7	7,908.6	6,715.6	41.6	40.6	64.01	337.5	1,333.0	360.7	288.1	72.60	4.969		
8,200.0	6,873.1	8,008.6	6,714.6	44.1	43.2	63.95	337.5	1,433.0	360.9	283.6	77.28	4.670		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-232 - Wellbore #1 - Plan #3 (7-14-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,300.0	6,872.5	8,108.6	6,713.6	46.7	45.8	63.90	337.5	1,533.0	361.1	279.0	82.01	4.402	
8,400.0	6,871.8	8,208.6	6,712.6	49.3	48.4	63.85	337.5	1,633.0	361.2	274.5	86.77	4.163	
8,500.0	6,871.2	8,308.6	6,711.6	52.0	51.1	63.79	337.5	1,733.0	361.4	269.8	91.56	3.947	
8,600.0	6,870.6	8,408.6	6,710.6	54.6	53.8	63.74	337.5	1,833.0	361.6	265.2	96.37	3.752	
8,700.0	6,869.9	8,508.6	6,709.6	57.3	56.5	63.68	337.5	1,933.0	361.7	260.5	101.19	3.575	
8,800.0	6,869.3	8,608.6	6,708.6	60.0	59.2	63.63	337.5	2,033.0	361.9	255.9	106.03	3.413	
8,900.0	6,868.7	8,708.6	6,707.6	62.7	61.9	63.57	337.5	2,133.0	362.1	251.2	110.89	3.265	
9,000.0	6,868.1	8,808.6	6,706.5	65.4	64.6	63.52	337.5	2,233.0	362.2	246.5	115.75	3.130	
9,100.0	6,867.4	8,908.6	6,705.5	68.1	67.3	63.46	337.5	2,332.9	362.4	241.8	120.62	3.005	
9,200.0	6,866.8	9,008.6	6,704.5	70.8	70.1	63.41	337.5	2,432.9	362.6	237.1	125.50	2.889	
9,300.0	6,866.2	9,108.6	6,703.5	73.5	72.8	63.36	337.5	2,532.9	362.8	232.4	130.39	2.782	
9,400.0	6,865.6	9,208.6	6,702.5	76.3	75.5	63.30	337.5	2,632.9	362.9	227.7	135.27	2.683	
9,500.0	6,864.9	9,308.6	6,701.5	79.0	78.3	63.25	337.5	2,732.9	363.1	222.9	140.17	2.591	
9,600.0	6,864.3	9,408.6	6,700.5	81.7	81.0	63.19	337.5	2,832.9	363.3	218.2	145.06	2.504	
9,700.0	6,863.7	9,508.6	6,699.5	84.5	83.8	63.14	337.5	2,932.9	363.5	213.5	149.96	2.424	
9,800.0	6,863.0	9,608.6	6,698.4	87.2	86.6	63.08	337.5	3,032.9	363.6	208.8	154.86	2.348	
9,900.0	6,862.4	9,708.6	6,697.4	90.0	89.3	63.03	337.5	3,132.9	363.8	204.0	159.76	2.277	
10,000.0	6,861.8	9,808.6	6,696.4	92.8	92.1	62.98	337.5	3,232.9	364.0	199.3	164.66	2.211	
10,100.0	6,861.2	9,908.6	6,695.4	95.5	94.9	62.92	337.5	3,332.9	364.1	194.6	169.56	2.148	
10,200.0	6,860.5	10,008.6	6,694.4	98.3	97.6	62.87	337.5	3,432.9	364.3	189.9	174.45	2.088	
10,300.0	6,859.9	10,108.6	6,693.4	101.0	100.4	62.82	337.5	3,532.9	364.5	185.1	179.35	2.032	
10,400.0	6,859.3	10,208.6	6,692.4	103.8	103.2	62.76	337.5	3,632.9	364.7	180.4	184.25	1.979	
10,500.0	6,858.6	10,308.6	6,691.4	106.6	105.9	62.71	337.5	3,732.9	364.9	175.7	189.14	1.929	
10,600.0	6,858.0	10,408.6	6,690.3	109.4	108.7	62.65	337.5	3,832.9	365.0	171.0	194.04	1.881	
10,700.0	6,857.4	10,508.6	6,689.3	112.1	111.5	62.60	337.5	3,932.9	365.2	166.3	198.93	1.836	
10,800.0	6,856.8	10,608.6	6,688.3	114.9	114.3	62.55	337.5	4,032.8	365.4	161.6	203.82	1.793	
10,900.0	6,856.1	10,708.6	6,687.3	117.7	117.1	62.49	337.5	4,132.8	365.6	156.8	208.71	1.752	
11,000.0	6,855.5	10,808.6	6,686.3	120.5	119.9	62.44	337.5	4,232.8	365.7	152.1	213.59	1.712	
11,100.0	6,854.9	10,908.6	6,685.3	123.2	122.6	62.39	337.5	4,332.8	365.9	147.4	218.47	1.675	
11,200.0	6,854.2	11,008.6	6,684.3	126.0	125.4	62.33	337.5	4,432.8	366.1	142.7	223.35	1.639	
11,300.0	6,853.6	11,108.6	6,683.3	128.8	128.2	62.28	337.5	4,532.8	366.3	138.0	228.23	1.605	
11,400.0	6,853.0	11,208.6	6,682.2	131.6	131.0	62.23	337.5	4,632.8	366.4	133.3	233.11	1.572	
11,500.0	6,852.4	11,308.6	6,681.2	134.4	133.8	62.18	337.5	4,732.8	366.6	128.6	237.98	1.541	
11,600.0	6,851.7	11,408.6	6,680.2	137.2	136.6	62.12	337.5	4,832.8	366.8	124.0	242.84	1.510	
11,700.0	6,851.1	11,508.6	6,679.2	139.9	139.4	62.07	337.5	4,932.8	367.0	119.3	247.71	1.482 Level 3	
11,800.0	6,850.5	11,608.6	6,678.2	142.7	142.2	62.02	337.5	5,032.8	367.2	114.6	252.57	1.454 Level 3	
11,900.0	6,849.8	11,708.6	6,677.2	145.5	145.0	61.96	337.5	5,132.8	367.3	109.9	257.43	1.427 Level 3	
12,000.0	6,849.2	11,808.6	6,676.2	148.3	147.7	61.91	337.5	5,232.8	367.5	105.2	262.28	1.401 Level 3	
12,100.0	6,848.6	11,908.6	6,675.2	151.1	150.5	61.86	337.5	5,332.8	367.7	100.6	267.13	1.376 Level 3	
12,200.0	6,848.0	12,008.6	6,674.1	153.9	153.3	61.80	337.5	5,432.8	367.9	95.9	271.98	1.353 Level 3	
12,300.0	6,847.3	12,108.6	6,673.1	156.7	156.1	61.75	337.5	5,532.8	368.1	91.2	276.82	1.330 Level 3	
12,400.0	6,846.7	12,208.6	6,672.1	159.5	158.9	61.70	337.5	5,632.8	368.3	86.6	281.66	1.307 Level 3	
12,500.0	6,846.1	12,308.6	6,671.1	162.3	161.7	61.65	337.5	5,732.7	368.4	81.9	286.50	1.286 Level 3	
12,600.0	6,845.4	12,408.6	6,670.1	165.1	164.5	61.59	337.5	5,832.7	368.6	77.3	291.33	1.265 Level 3	
12,700.0	6,844.8	12,508.6	6,669.1	167.9	167.3	61.54	337.5	5,932.7	368.8	72.6	296.16	1.245 Level 2	
12,800.0	6,844.2	12,608.6	6,668.1	170.6	170.1	61.49	337.5	6,032.7	369.0	68.0	300.99	1.226 Level 2	
12,900.0	6,843.6	12,708.6	6,667.1	173.4	172.9	61.44	337.5	6,132.7	369.2	63.4	305.81	1.207 Level 2	
13,000.0	6,842.9	12,808.6	6,666.0	176.2	175.7	61.38	337.5	6,232.7	369.4	58.7	310.62	1.189 Level 2	
13,100.0	6,842.3	12,908.6	6,665.0	179.0	178.5	61.33	337.5	6,332.7	369.5	54.1	315.44	1.172 Level 2	
13,200.0	6,841.7	13,008.6	6,664.0	181.8	181.3	61.28	337.5	6,432.7	369.7	49.5	320.25	1.154 Level 2	
13,300.0	6,841.0	13,108.6	6,663.0	184.6	184.1	61.23	337.5	6,532.7	369.9	44.9	325.05	1.138 Level 2	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-232 - Wellbore #1 - Plan #3 (7-14-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
13,400.0	6,840.4	13,208.6	6,662.0	187.4	186.9	61.18	337.5	6,632.7	370.1	40.2	329.85	1.122	Level 2	
13,500.0	6,839.8	13,308.6	6,661.0	190.2	189.7	61.12	337.5	6,732.7	370.3	35.6	334.65	1.106	Level 2	
13,600.0	6,839.2	13,408.6	6,660.0	193.0	192.5	61.07	337.5	6,832.7	370.5	31.0	339.44	1.091	Level 2	
13,700.0	6,838.5	13,508.6	6,659.0	195.8	195.3	61.02	337.5	6,932.7	370.6	26.4	344.23	1.077	Level 2	
13,800.0	6,837.9	13,608.6	6,658.0	198.6	198.1	60.97	337.5	7,032.7	370.8	21.8	349.01	1.063	Level 2	
13,900.0	6,837.3	13,708.6	6,656.9	201.4	200.9	60.92	337.5	7,132.7	371.0	17.2	353.79	1.049	Level 2	
14,000.0	6,836.6	13,808.6	6,655.9	204.2	203.7	60.86	337.5	7,232.7	371.2	12.6	358.57	1.035	Level 2	
14,100.0	6,836.0	13,908.6	6,654.9	207.0	206.5	60.81	337.5	7,332.7	371.4	8.1	363.34	1.022	Level 2	
14,200.0	6,835.4	14,008.6	6,653.9	209.8	209.3	60.76	337.5	7,432.6	371.6	3.5	368.10	1.009	Level 2	
14,300.0	6,834.8	14,108.6	6,652.9	212.6	212.1	60.71	337.5	7,532.6	371.8	-1.1	372.87	0.997	Level 1	
14,400.0	6,834.1	14,208.6	6,651.9	215.4	214.9	60.66	337.5	7,632.6	372.0	-5.7	377.62	0.985	Level 1	
14,500.0	6,833.5	14,308.6	6,650.9	218.2	217.7	60.61	337.5	7,732.6	372.1	-10.2	382.38	0.973	Level 1	
14,600.0	6,832.9	14,408.5	6,649.9	221.0	220.5	60.55	337.5	7,832.6	372.3	-14.8	387.13	0.962	Level 1	
14,700.0	6,832.2	14,508.5	6,648.8	223.8	223.3	60.50	337.5	7,932.6	372.5	-19.4	391.87	0.951	Level 1	
14,800.0	6,831.6	14,608.5	6,647.8	226.6	226.1	60.45	337.5	8,032.6	372.7	-23.9	396.61	0.940	Level 1	
14,900.0	6,831.0	14,708.5	6,646.8	229.4	228.9	60.40	337.5	8,132.6	372.9	-28.5	401.35	0.929	Level 1	
15,000.0	6,830.4	14,808.5	6,645.8	232.2	231.7	60.35	337.5	8,232.6	373.1	-33.0	406.08	0.919	Level 1	
15,100.0	6,829.7	14,908.5	6,644.8	235.0	234.5	60.30	337.5	8,332.6	373.3	-37.5	410.81	0.909	Level 1	
15,200.0	6,829.1	15,008.5	6,643.8	237.8	237.3	60.25	337.5	8,432.6	373.5	-42.1	415.53	0.899	Level 1	
15,300.0	6,828.5	15,108.5	6,642.8	240.6	240.1	60.20	337.5	8,532.6	373.7	-46.6	420.25	0.889	Level 1	
15,400.0	6,827.9	15,208.5	6,641.8	243.4	242.9	60.15	337.5	8,632.6	373.9	-51.1	424.97	0.880	Level 1	
15,500.0	6,827.2	15,308.5	6,640.7	246.2	245.7	60.09	337.5	8,732.6	374.0	-55.6	429.68	0.871	Level 1	
15,600.0	6,826.6	15,408.5	6,639.7	249.0	248.5	60.04	337.5	8,832.6	374.2	-60.1	434.38	0.862	Level 1	
15,700.0	6,826.0	15,508.5	6,638.7	251.8	251.3	59.99	337.5	8,932.6	374.4	-64.7	439.08	0.853	Level 1	
15,800.0	6,825.3	15,608.5	6,637.7	254.6	254.1	59.94	337.5	9,032.6	374.6	-69.2	443.78	0.844	Level 1	
15,900.0	6,824.7	15,708.5	6,636.7	257.4	256.9	59.89	337.5	9,132.5	374.8	-73.7	448.47	0.836	Level 1	
16,000.0	6,824.1	15,808.5	6,635.7	260.2	259.8	59.84	337.5	9,232.5	375.0	-78.2	453.16	0.828	Level 1	
16,100.0	6,823.5	15,908.5	6,634.7	263.0	262.6	59.79	337.5	9,332.5	375.2	-82.6	457.84	0.819	Level 1	
16,200.0	6,822.8	16,008.5	6,633.7	265.9	265.4	59.74	337.5	9,432.5	375.4	-87.1	462.52	0.812	Level 1	
16,300.0	6,822.2	16,108.5	6,632.6	268.7	268.2	59.69	337.5	9,532.5	375.6	-91.6	467.19	0.804	Level 1	
16,400.0	6,821.6	16,208.5	6,631.6	271.5	271.0	59.64	337.5	9,632.5	375.8	-96.1	471.86	0.796	Level 1	
16,500.0	6,820.9	16,308.5	6,630.6	274.3	273.8	59.59	337.5	9,732.5	376.0	-100.6	476.53	0.789	Level 1	
16,600.0	6,820.3	16,408.5	6,629.6	277.1	276.6	59.54	337.5	9,832.5	376.2	-105.0	481.19	0.782	Level 1	
16,700.0	6,819.7	16,508.5	6,628.6	279.9	279.4	59.49	337.5	9,932.5	376.4	-109.5	485.84	0.775	Level 1	
16,800.0	6,819.1	16,608.5	6,627.6	282.7	282.2	59.44	337.5	10,032.5	376.6	-113.9	490.49	0.768	Level 1	
16,900.0	6,818.4	16,708.5	6,626.6	285.5	285.0	59.39	337.5	10,132.5	376.8	-118.4	495.14	0.761	Level 1	
17,000.0	6,817.8	16,808.5	6,625.6	288.3	287.8	59.34	337.5	10,232.5	376.9	-122.8	499.78	0.754	Level 1	
17,100.0	6,817.2	16,908.5	6,624.5	291.1	290.6	59.28	337.5	10,332.5	377.1	-127.3	504.42	0.748	Level 1	
17,200.0	6,816.5	17,008.5	6,623.5	293.9	293.4	59.23	337.5	10,432.5	377.3	-131.7	509.05	0.741	Level 1	
17,300.0	6,815.9	17,108.5	6,622.5	296.7	296.2	59.18	337.5	10,532.5	377.5	-136.1	513.68	0.735	Level 1	
17,400.0	6,815.3	17,208.5	6,621.5	299.5	299.0	59.13	337.5	10,632.5	377.7	-140.6	518.30	0.729	Level 1	
17,445.4	6,815.0	17,253.9	6,621.0	300.8	300.3	59.11	337.5	10,677.9	377.8	-142.6	520.40	0.726	Level 1, ES, SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-202 - Wellbore #1 - Plan #3 (7-14-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	58.5	58.5				
100.0	100.0	100.0	100.0	0.1	0.1	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	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	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	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	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	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	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	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	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	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	104.67	0.0	58.5	58.7	54.0	4.72	12.441 ES	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	107.10	0.0	58.5	59.4	54.3	5.17	11.502	
1,300.0	1,299.9	1,299.9	1,299.9	2.8	2.8	111.02	0.0	58.5	60.9	55.2	5.62	10.838	
1,400.0	1,399.7	1,399.7	1,399.7	3.0	3.0	116.15	0.0	58.5	63.3	57.2	6.07	10.437	
1,500.0	1,499.4	1,499.4	1,499.4	3.3	3.3	122.13	0.0	58.5	67.1	60.6	6.52	10.301 SF	
1,600.0	1,598.9	1,599.0	1,598.9	3.5	3.5	129.15	-0.8	58.1	72.7	65.7	6.94	10.465	
1,700.0	1,698.3	1,698.0	1,698.0	3.8	3.6	137.15	-3.0	56.9	80.5	73.2	7.35	10.965	
1,800.0	1,797.4	1,796.4	1,796.2	4.0	3.8	145.26	-6.8	55.0	91.5	83.8	7.75	11.814	
1,900.0	1,896.3	1,893.9	1,893.6	4.3	4.0	152.80	-12.0	52.2	106.1	98.0	8.15	13.019	
1,919.9	1,915.9	1,913.2	1,912.8	4.4	4.0	154.19	-13.2	51.6	109.5	101.3	8.23	13.299	
2,000.0	1,995.0	1,990.6	1,990.0	4.6	4.2	159.35	-18.6	48.8	124.0	115.5	8.57	14.477	
2,100.0	2,093.7	2,086.6	2,085.5	4.9	4.4	164.78	-26.6	44.6	144.1	135.1	8.99	16.025	
2,200.0	2,192.5	2,181.8	2,180.2	5.2	4.6	169.29	-35.9	39.8	166.1	156.7	9.42	17.630	
2,300.0	2,291.2	2,276.3	2,273.9	5.6	4.8	173.10	-46.6	34.2	189.9	180.1	9.86	19.268	
2,400.0	2,389.9	2,372.0	2,368.7	5.9	5.1	176.31	-58.3	28.1	215.2	204.9	10.30	20.886	
2,500.0	2,488.6	2,468.1	2,463.9	6.2	5.3	178.87	-70.1	22.0	241.1	230.3	10.76	22.403	
2,600.0	2,587.3	2,564.2	2,559.0	6.6	5.6	-179.07	-81.9	15.9	267.2	256.0	11.22	23.823	
2,700.0	2,686.0	2,660.3	2,654.2	6.9	5.8	-177.37	-93.7	9.7	293.7	282.0	11.68	25.144	
2,800.0	2,784.7	2,756.4	2,749.4	7.3	6.1	-175.95	-105.5	3.6	320.3	308.2	12.15	26.372	
2,900.0	2,883.4	2,852.5	2,844.6	7.6	6.4	-174.75	-117.3	-2.6	347.2	334.5	12.62	27.514	
3,000.0	2,982.2	2,948.6	2,939.8	8.0	6.7	-173.73	-129.1	-8.7	374.1	361.0	13.09	28.576	
3,100.0	3,080.9	3,044.7	3,034.9	8.3	7.0	-172.84	-140.9	-14.9	401.1	387.6	13.57	29.565	
3,200.0	3,179.6	3,140.8	3,130.1	8.7	7.3	-172.06	-152.7	-21.0	428.2	414.2	14.05	30.488	
3,300.0	3,278.3	3,236.9	3,225.3	9.0	7.6	-171.37	-164.5	-27.2	455.4	440.9	14.53	31.349	
3,400.0	3,377.0	3,333.0	3,320.5	9.4	7.9	-170.76	-176.3	-33.3	482.6	467.6	15.01	32.154	
3,500.0	3,475.7	3,429.1	3,415.6	9.7	8.2	-170.22	-188.1	-39.5	509.9	494.4	15.49	32.909	
3,600.0	3,574.4	3,525.2	3,510.8	10.1	8.5	-169.73	-199.9	-45.6	537.2	521.2	15.98	33.616	
3,700.0	3,673.2	3,621.3	3,606.0	10.4	8.8	-169.29	-211.7	-51.7	564.5	548.1	16.47	34.280	
3,800.0	3,771.9	3,717.4	3,701.2	10.8	9.1	-168.89	-223.5	-57.9	591.9	575.0	16.96	34.905	
3,900.0	3,870.6	3,813.5	3,796.4	11.2	9.4	-168.53	-235.3	-64.0	619.3	601.9	17.45	35.494	
4,000.0	3,969.3	3,909.6	3,891.5	11.5	9.7	-168.19	-247.1	-70.2	646.7	628.8	17.94	36.049	
4,100.0	4,068.0	4,005.7	3,986.7	11.9	10.1	-167.89	-258.9	-76.3	674.2	655.7	18.43	36.574	
4,200.0	4,166.7	4,101.8	4,081.9	12.3	10.4	-167.60	-270.7	-82.5	701.6	682.7	18.93	37.070	
4,300.0	4,265.4	4,197.9	4,177.1	12.6	10.7	-167.34	-282.5	-88.6	729.1	709.7	19.42	37.540	
4,400.0	4,364.2	4,294.0	4,272.2	13.0	11.0	-167.10	-294.3	-94.8	756.6	736.6	19.92	37.986	
4,500.0	4,462.9	4,390.1	4,367.4	13.3	11.3	-166.87	-306.1	-100.9	784.1	763.6	20.41	38.409	
4,600.0	4,561.6	4,486.2	4,462.6	13.7	11.7	-166.66	-317.9	-107.0	811.6	790.6	20.91	38.811	
4,700.0	4,660.3	4,582.3	4,557.8	14.1	12.0	-166.47	-329.7	-113.2	839.1	817.7	21.41	39.193	
4,800.0	4,759.0	4,678.4	4,653.0	14.4	12.3	-166.28	-341.5	-119.3	866.6	844.7	21.91	39.557	
4,900.0	4,857.7	4,774.5	4,748.1	14.8	12.6	-166.11	-353.3	-125.5	894.1	871.7	22.41	39.905	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-202 - Wellbore #1 - Plan #3 (7-14-15)												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,000.0	4,956.4	4,870.7	4,843.3	15.2	13.0	-165.95	-365.0	-131.6	921.6	898.7	22.91	40.236	
5,100.0	5,055.2	4,966.8	4,938.5	15.5	13.3	-165.79	-376.8	-137.8	949.2	925.8	23.41	40.553	
5,200.0	5,153.9	5,076.1	5,046.8	15.9	13.6	-165.64	-390.0	-144.6	976.5	952.6	23.93	40.807	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-312 - Wellbore #1 - Plan #3 (7-14-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	89.1	89.1				
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	89.1	89.1	88.9	0.22	396.591	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	89.1	89.1	88.5	0.67	132.197	
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	89.1	89.1	88.0	1.12	79.318	
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	89.1	89.1	87.6	1.57	56.656	
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	89.1	89.1	87.1	2.02	44.066	
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	89.1	89.1	86.7	2.47	36.054	
700.0	700.0	700.0	700.0	1.5	1.5	90.00	0.0	89.1	89.1	86.2	2.92	30.507	
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	89.1	89.1	85.8	3.37	26.439	
900.0	900.0	900.0	900.0	1.9	1.9	90.00	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	90.00	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	104.39	0.0	89.1	89.4	84.6	4.72	18.934 ES	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	106.00	0.0	89.1	90.0	84.9	5.17	17.426	
1,300.0	1,299.9	1,299.9	1,299.9	2.8	2.8	108.61	0.0	89.1	91.3	85.7	5.62	16.266	
1,400.0	1,399.7	1,399.7	1,399.7	3.0	3.0	112.14	0.0	89.1	93.5	87.4	6.07	15.409	
1,500.0	1,499.4	1,499.4	1,499.4	3.3	3.3	116.41	0.0	89.1	96.7	90.2	6.52	14.833	
1,600.0	1,598.9	1,598.9	1,598.9	3.5	3.5	121.21	0.0	89.1	101.3	94.4	6.98	14.526	
1,700.0	1,698.3	1,698.3	1,698.3	3.8	3.7	126.30	0.0	89.1	107.7	100.2	7.44	14.479	
1,800.0	1,797.4	1,797.4	1,797.4	4.0	3.9	131.42	0.0	89.1	115.9	108.0	7.90	14.678	
1,900.0	1,896.3	1,896.3	1,896.3	4.3	4.1	136.36	0.0	89.1	126.2	117.9	8.36	15.106	
1,919.9	1,915.9	1,915.9	1,915.9	4.4	4.2	137.30	0.0	89.1	128.5	120.1	8.45	15.216	
2,000.0	1,995.0	1,995.0	1,995.0	4.6	4.4	140.88	0.0	89.1	138.3	129.4	8.82	15.680	
2,100.0	2,093.7	2,093.7	2,093.7	4.9	4.6	144.70	0.0	89.1	151.1	141.8	9.28	16.277	
2,200.0	2,192.5	2,192.5	2,192.5	5.2	4.8	147.91	0.0	89.1	164.4	154.7	9.74	16.876	
2,300.0	2,291.2	2,291.2	2,291.2	5.6	5.0	150.63	0.0	89.1	178.2	168.0	10.20	17.465	
2,400.0	2,389.9	2,389.9	2,389.9	5.9	5.3	152.96	0.0	89.1	192.3	181.7	10.66	18.035	
2,500.0	2,488.6	2,488.6	2,488.6	6.2	5.5	154.97	0.0	89.1	206.7	195.6	11.13	18.583	
2,600.0	2,587.3	2,588.4	2,588.4	6.6	5.7	156.90	-0.2	88.5	221.1	209.6	11.57	19.113	
2,700.0	2,686.0	2,688.3	2,688.3	6.9	5.9	159.00	-0.9	86.2	235.3	223.3	11.99	19.613	
2,800.0	2,784.7	2,788.0	2,787.9	7.3	6.1	161.25	-2.2	82.2	249.2	236.8	12.42	20.068	
2,900.0	2,883.4	2,887.6	2,887.3	7.6	6.3	163.62	-4.0	76.7	263.1	250.2	12.84	20.486	
3,000.0	2,982.2	2,986.8	2,986.2	8.0	6.5	166.09	-6.3	69.5	277.1	263.8	13.27	20.878	
3,100.0	3,080.9	3,085.7	3,084.7	8.3	6.7	168.66	-9.1	60.6	291.3	277.6	13.71	21.251	
3,200.0	3,179.6	3,184.3	3,182.6	8.7	6.9	171.29	-12.4	50.3	305.9	291.7	14.15	21.611	
3,300.0	3,278.3	3,282.3	3,279.9	9.0	7.1	173.95	-16.2	38.4	321.0	306.4	14.61	21.965	
3,400.0	3,377.0	3,380.0	3,376.8	9.4	7.4	176.44	-20.1	26.2	336.7	321.6	15.09	22.318	
3,500.0	3,475.7	3,477.7	3,473.6	9.7	7.6	178.71	-24.0	14.0	353.0	337.4	15.57	22.668	
3,600.0	3,574.4	3,575.5	3,570.5	10.1	7.9	-179.22	-27.9	1.7	369.8	353.8	16.07	23.013	
3,700.0	3,673.2	3,673.2	3,667.4	10.4	8.1	-177.33	-31.8	-10.5	387.1	370.5	16.58	23.350	
3,800.0	3,771.9	3,770.9	3,764.2	10.8	8.4	-175.60	-35.7	-22.7	404.7	387.6	17.09	23.677	
3,900.0	3,870.6	3,868.6	3,861.1	11.2	8.7	-174.01	-39.6	-34.9	422.7	405.0	17.61	23.994	
4,000.0	3,969.3	3,966.3	3,958.0	11.5	8.9	-172.55	-43.5	-47.1	440.9	422.8	18.14	24.300	
4,100.0	4,068.0	4,064.0	4,054.9	11.9	9.2	-171.21	-47.4	-59.4	459.4	440.7	18.68	24.595	
4,200.0	4,166.7	4,161.8	4,151.7	12.3	9.5	-169.97	-51.3	-71.6	478.1	458.9	19.22	24.878	
4,300.0	4,265.4	4,259.5	4,248.6	12.6	9.8	-168.83	-55.2	-83.8	497.1	477.3	19.76	25.151	
4,400.0	4,364.2	4,357.2	4,345.5	13.0	10.1	-167.76	-59.1	-96.0	516.2	495.9	20.31	25.413	
4,500.0	4,462.9	4,454.9	4,442.4	13.3	10.3	-166.78	-63.0	-108.2	535.5	514.6	20.86	25.665	
4,600.0	4,561.6	4,552.6	4,539.2	13.7	10.6	-165.86	-66.9	-120.5	554.9	533.5	21.42	25.906	
4,700.0	4,660.3	4,651.2	4,636.9	14.1	10.9	-165.00	-70.8	-132.8	574.4	552.4	21.97	26.140	
4,800.0	4,759.0	4,756.2	4,741.3	14.4	11.2	-164.36	-74.3	-143.6	593.3	570.8	22.50	26.373	
4,900.0	4,857.7	4,862.0	4,846.8	14.8	11.4	-164.11	-76.6	-150.9	611.1	588.1	22.99	26.584	

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-312 - Wellbore #1 - Plan #3 (7-14-15)													Offset Site Error: 0.0 ft			
Survey Program: 0-MWD															Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
5,000.0	4,956.4	4,968.3	4,953.0	15.2	11.6	-164.22	-77.7	-154.4	627.6	604.2	23.45	26.762				
5,100.0	5,055.2	5,070.4	5,055.2	15.5	11.8	-164.59	-77.9	-154.8	643.2	619.3	23.89	26.920				
5,200.0	5,153.9	5,169.1	5,153.9	15.9	12.0	-164.96	-77.9	-154.8	658.6	634.3	24.33	27.065				
5,300.0	5,252.6	5,267.8	5,252.6	16.3	12.2	-165.31	-77.9	-154.8	674.1	649.3	24.78	27.200				
5,400.0	5,351.3	5,366.5	5,351.3	16.6	12.4	-165.65	-77.9	-154.8	689.6	664.3	25.23	27.331				
5,491.9	5,442.0	5,457.3	5,442.0	17.0	12.6	-165.94	-77.9	-154.8	703.8	678.2	25.64	27.448				
5,500.0	5,450.0	5,465.3	5,450.0	17.0	12.6	-165.97	-77.9	-154.8	705.1	679.4	25.68	27.453				
5,600.0	5,549.0	5,564.3	5,549.0	17.3	12.8	-166.31	-77.9	-154.8	718.6	692.5	26.14	27.496				
5,700.0	5,648.5	5,663.7	5,648.5	17.5	13.0	-166.55	-77.9	-154.8	728.9	702.3	26.56	27.445				
5,800.0	5,748.2	5,763.5	5,748.2	17.7	13.2	-166.71	-77.9	-154.8	735.7	708.8	26.95	27.304				
5,900.0	5,848.1	5,863.4	5,848.1	17.9	13.4	-166.79	-77.9	-154.8	739.2	711.9	27.30	27.078				
5,951.9	5,900.0	5,915.2	5,900.0	17.9	13.5	179.35	-77.9	-154.8	739.6	709.2	30.43	24.304				
6,000.0	5,948.1	5,963.4	5,948.1	18.0	13.6	179.35	-77.9	-154.8	739.6	709.0	30.61	24.166				
6,062.4	6,010.5	6,025.8	6,010.5	18.1	13.7	179.35	-77.9	-154.8	739.6	708.8	30.84	23.983				
6,100.0	6,048.1	6,063.3	6,048.0	18.2	13.8	179.35	-77.9	-154.7	739.6	708.7	30.98	23.875				
6,166.2	6,114.4	6,128.5	6,113.1	18.3	13.9	179.06	-77.9	-150.9	739.7	708.5	31.22	23.693				
6,200.0	6,148.1	6,161.5	6,145.9	18.3	14.0	88.80	-77.9	-146.9	739.8	711.4	28.40	26.052				
6,250.0	6,198.0	6,210.1	6,193.8	18.4	14.0	88.42	-77.9	-138.4	739.9	711.4	28.52	25.944				
6,300.0	6,247.5	6,258.5	6,240.7	18.4	14.1	88.05	-77.9	-127.0	740.0	711.4	28.62	25.853				
6,350.0	6,296.4	6,306.5	6,286.6	18.5	14.1	87.69	-77.9	-112.8	740.2	711.5	28.72	25.772				
6,400.0	6,344.5	6,354.3	6,331.2	18.5	14.1	87.34	-77.9	-95.7	740.4	711.6	28.82	25.695				
6,450.0	6,391.7	6,401.8	6,374.5	18.6	14.2	87.00	-77.9	-76.1	740.6	711.7	28.91	25.614				
6,500.0	6,437.6	6,450.0	6,417.0	18.6	14.2	86.66	-77.9	-53.4	740.8	711.8	29.03	25.519				
6,550.0	6,482.2	6,496.1	6,456.3	18.6	14.3	86.36	-77.9	-29.3	741.1	711.9	29.17	25.402				
6,600.0	6,525.2	6,543.0	6,494.6	18.7	14.4	86.06	-77.9	-2.4	741.3	712.0	29.36	25.249				
6,650.0	6,566.5	6,589.6	6,531.1	18.7	14.5	85.78	-77.9	26.7	741.6	712.0	29.61	25.048				
6,700.0	6,605.8	6,636.0	6,565.6	18.7	14.7	85.52	-77.9	57.8	741.9	711.9	29.93	24.790				
6,750.0	6,643.0	6,682.3	6,598.0	18.8	14.9	85.27	-77.9	90.9	742.1	711.8	30.33	24.465				
6,800.0	6,677.9	6,728.5	6,628.2	18.8	15.1	85.05	-77.9	125.7	742.4	711.5	30.85	24.065				
6,850.0	6,710.4	6,774.4	6,656.2	18.9	15.5	84.84	-77.9	162.1	742.6	711.1	31.48	23.589				
6,900.0	6,740.4	6,820.3	6,681.9	19.0	15.8	84.66	-77.9	200.1	742.8	710.6	32.24	23.039				
6,950.0	6,767.7	6,866.0	6,705.3	19.2	16.3	84.49	-77.9	239.4	743.0	709.9	33.14	22.419				
7,000.0	6,792.2	6,911.7	6,726.1	19.4	16.8	84.35	-77.9	280.0	743.2	709.0	34.18	21.741				
7,050.0	6,813.8	6,957.3	6,744.5	19.8	17.4	84.23	-77.9	321.7	743.4	708.0	35.37	21.017				
7,100.0	6,832.4	7,002.7	6,760.4	20.2	18.1	84.13	-77.8	364.3	743.5	706.8	36.69	20.263				
7,150.0	6,847.9	7,050.0	6,774.1	20.8	18.8	84.06	-77.8	409.5	743.6	705.4	38.18	19.477				
7,150.6	6,848.1	7,050.0	6,774.1	20.8	18.8	84.06	-77.8	409.5	743.6	705.4	38.19	19.471				
7,200.0	6,860.3	7,093.6	6,784.3	21.5	19.6	84.01	-77.8	451.9	743.7	703.9	39.73	18.717				
7,250.0	6,869.5	7,139.0	6,792.3	22.3	20.4	83.98	-77.8	496.6	743.7	702.3	41.42	17.955				
7,300.0	6,875.4	7,184.3	6,797.7	23.2	21.3	83.98	-77.8	541.6	743.7	700.5	43.20	17.215				
7,350.0	6,878.1	7,229.7	6,800.4	24.2	22.2	83.99	-77.8	586.9	743.7	698.6	45.06	16.505				
7,371.0	6,878.3	7,250.0	6,800.7	24.6	22.6	84.01	-77.8	607.2	743.6	697.8	45.88	16.210				
7,379.9	6,878.2	7,256.8	6,800.7	24.7	22.7	84.01	-77.8	614.0	743.6	697.4	46.20	16.097				
7,400.0	6,878.1	7,276.7	6,800.5	25.1	23.1	84.01	-77.8	633.9	743.6	696.6	47.02	15.815				
7,500.0	6,877.5	7,376.7	6,799.5	27.2	25.3	83.98	-77.8	733.9	743.7	692.4	51.31	14.494				
7,600.0	6,876.9	7,476.7	6,798.6	29.4	27.6	83.96	-77.8	833.9	743.7	687.9	55.82	13.324				
7,700.0	6,876.2	7,576.7	6,797.6	31.7	29.9	83.93	-77.8	933.9	743.8	683.2	60.51	12.292				
7,800.0	6,875.6	7,676.7	6,796.7	34.1	32.4	83.91	-77.8	1,033.9	743.8	678.5	65.34	11.384				
7,900.0	6,875.0	7,776.7	6,795.7	36.5	34.9	83.88	-77.8	1,133.8	743.8	673.5	70.28	10.584				
8,000.0	6,874.3	7,876.7	6,794.7	39.0	37.4	83.86	-77.8	1,233.8	743.9	668.5	75.31	9.877				
8,100.0	6,873.7	7,976.7	6,793.8	41.6	40.0	83.83	-77.8	1,333.8	743.9	663.5	80.41	9.251				

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-312 - Wellbore #1 - Plan #3 (7-14-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,200.0	6,873.1	8,076.7	6,792.8	44.1	42.6	83.81	-77.8	1,433.8	743.9	658.4	85.58	8.693	
8,300.0	6,872.5	8,176.7	6,791.9	46.7	45.2	83.78	-77.8	1,533.8	744.0	653.2	90.79	8.194	
8,400.0	6,871.8	8,276.7	6,790.9	49.3	47.9	83.75	-77.8	1,633.8	744.0	648.0	96.04	7.747	
8,500.0	6,871.2	8,376.7	6,789.9	52.0	50.5	83.73	-77.8	1,733.8	744.0	642.7	101.33	7.343	
8,600.0	6,870.6	8,476.7	6,789.0	54.6	53.2	83.70	-77.8	1,833.8	744.1	637.4	106.65	6.977	
8,700.0	6,869.9	8,576.7	6,788.0	57.3	55.9	83.68	-77.8	1,933.8	744.1	632.1	111.99	6.644	
8,800.0	6,869.3	8,676.7	6,787.1	60.0	58.6	83.65	-77.8	2,033.8	744.1	626.8	117.36	6.341	
8,900.0	6,868.7	8,776.7	6,786.1	62.7	61.3	83.63	-77.8	2,133.8	744.2	621.4	122.74	6.063	
9,000.0	6,868.1	8,876.7	6,785.1	65.4	64.0	83.60	-77.8	2,233.8	744.2	616.1	128.14	5.808	
9,100.0	6,867.4	8,976.7	6,784.2	68.1	66.8	83.58	-77.8	2,333.8	744.3	610.7	133.55	5.573	
9,200.0	6,866.8	9,076.7	6,783.2	70.8	69.5	83.55	-77.8	2,433.8	744.3	605.3	138.98	5.355	
9,300.0	6,866.2	9,176.7	6,782.3	73.5	72.2	83.53	-77.8	2,533.8	744.3	599.9	144.42	5.154	
9,400.0	6,865.6	9,276.7	6,781.3	76.3	75.0	83.50	-77.8	2,633.8	744.4	594.5	149.87	4.967	
9,500.0	6,864.9	9,376.7	6,780.3	79.0	77.7	83.48	-77.8	2,733.8	744.4	589.1	155.32	4.793	
9,600.0	6,864.3	9,476.7	6,779.4	81.7	80.5	83.45	-77.8	2,833.8	744.4	583.7	160.79	4.630	
9,700.0	6,863.7	9,576.7	6,778.4	84.5	83.2	83.42	-77.8	2,933.8	744.5	578.2	166.26	4.478	
9,800.0	6,863.0	9,676.7	6,777.5	87.2	86.0	83.40	-77.8	3,033.8	744.5	572.8	171.73	4.335	
9,900.0	6,862.4	9,776.7	6,776.5	90.0	88.8	83.37	-77.8	3,133.7	744.6	567.3	177.21	4.201	
10,000.0	6,861.8	9,876.7	6,775.5	92.8	91.5	83.35	-77.8	3,233.7	744.6	561.9	182.70	4.075	
10,100.0	6,861.2	9,976.7	6,774.6	95.5	94.3	83.32	-77.8	3,333.7	744.6	556.4	188.19	3.957	
10,200.0	6,860.5	10,076.7	6,773.6	98.3	97.1	83.30	-77.8	3,433.7	744.7	551.0	193.69	3.845	
10,300.0	6,859.9	10,176.7	6,772.7	101.0	99.9	83.27	-77.8	3,533.7	744.7	545.5	199.19	3.739	
10,400.0	6,859.3	10,276.7	6,771.7	103.8	102.6	83.25	-77.8	3,633.7	744.7	540.1	204.69	3.638	
10,500.0	6,858.6	10,376.7	6,770.7	106.6	105.4	83.22	-77.8	3,733.7	744.8	534.6	210.20	3.543	
10,600.0	6,858.0	10,476.7	6,769.8	109.4	108.2	83.20	-77.8	3,833.7	744.8	529.1	215.71	3.453	
10,700.0	6,857.4	10,576.7	6,768.8	112.1	111.0	83.17	-77.8	3,933.7	744.9	523.6	221.22	3.367	
10,800.0	6,856.8	10,676.7	6,767.9	114.9	113.8	83.15	-77.8	4,033.7	744.9	518.2	226.73	3.285	
10,900.0	6,856.1	10,776.7	6,766.9	117.7	116.5	83.12	-77.8	4,133.7	744.9	512.7	232.25	3.208	
11,000.0	6,855.5	10,876.7	6,765.9	120.5	119.3	83.09	-77.8	4,233.7	745.0	507.2	237.76	3.133	
11,100.0	6,854.9	10,976.7	6,765.0	123.2	122.1	83.07	-77.8	4,333.7	745.0	501.7	243.28	3.062	
11,200.0	6,854.2	11,076.7	6,764.0	126.0	124.9	83.04	-77.8	4,433.7	745.1	496.3	248.80	2.995	
11,300.0	6,853.6	11,176.7	6,763.1	128.8	127.7	83.02	-77.8	4,533.7	745.1	490.8	254.33	2.930	
11,400.0	6,853.0	11,276.7	6,762.1	131.6	130.5	82.99	-77.8	4,633.7	745.1	485.3	259.85	2.868	
11,500.0	6,852.4	11,376.7	6,761.1	134.4	133.3	82.97	-77.8	4,733.7	745.2	479.8	265.37	2.808	
11,600.0	6,851.7	11,476.7	6,760.2	137.2	136.1	82.94	-77.8	4,833.7	745.2	474.3	270.90	2.751	
11,700.0	6,851.1	11,576.7	6,759.2	139.9	138.8	82.92	-77.8	4,933.7	745.3	468.8	276.43	2.696	
11,800.0	6,850.5	11,676.7	6,758.3	142.7	141.6	82.89	-77.8	5,033.6	745.3	463.3	281.95	2.643	
11,900.0	6,849.8	11,776.7	6,757.3	145.5	144.4	82.87	-77.8	5,133.6	745.3	457.9	287.48	2.593	
12,000.0	6,849.2	11,876.7	6,756.3	148.3	147.2	82.84	-77.8	5,233.6	745.4	452.4	293.01	2.544	
12,100.0	6,848.6	11,976.7	6,755.4	151.1	150.0	82.82	-77.8	5,333.6	745.4	446.9	298.54	2.497	
12,200.0	6,848.0	12,076.7	6,754.4	153.9	152.8	82.79	-77.8	5,433.6	745.5	441.4	304.07	2.452	
12,300.0	6,847.3	12,176.7	6,753.5	156.7	155.6	82.77	-77.8	5,533.6	745.5	435.9	309.60	2.408	
12,400.0	6,846.7	12,276.7	6,752.5	159.5	158.4	82.74	-77.8	5,633.6	745.5	430.4	315.13	2.366	
12,500.0	6,846.1	12,376.7	6,751.5	162.3	161.2	82.72	-77.8	5,733.6	745.6	424.9	320.66	2.325	
12,600.0	6,845.4	12,476.7	6,750.6	165.1	164.0	82.69	-77.8	5,833.6	745.6	419.4	326.19	2.286	
12,700.0	6,844.8	12,576.7	6,749.6	167.9	166.8	82.66	-77.8	5,933.6	745.7	413.9	331.72	2.248	
12,800.0	6,844.2	12,676.7	6,748.7	170.6	169.6	82.64	-77.8	6,033.6	745.7	408.5	337.25	2.211	
12,900.0	6,843.6	12,776.7	6,747.7	173.4	172.4	82.61	-77.8	6,133.6	745.8	403.0	342.79	2.176	
13,000.0	6,842.9	12,876.7	6,746.7	176.2	175.2	82.59	-77.8	6,233.6	745.8	397.5	348.32	2.141	
13,100.0	6,842.3	12,976.7	6,745.8	179.0	178.0	82.56	-77.8	6,333.6	745.8	392.0	353.85	2.108	
13,200.0	6,841.7	13,076.7	6,744.8	181.8	180.8	82.54	-77.8	6,433.6	745.9	386.5	359.38	2.075	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference	Offset												
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,300.0	6,841.0	13,176.7	6,743.9	184.6	183.6	82.51	-77.8	6,533.6	745.9	381.0	364.91	2.044	
13,400.0	6,840.4	13,276.7	6,742.9	187.4	186.4	82.49	-77.8	6,633.6	746.0	375.5	370.45	2.014	
13,500.0	6,839.8	13,376.6	6,741.9	190.2	189.2	82.46	-77.8	6,733.6	746.0	370.0	375.98	1.984	
13,600.0	6,839.2	13,476.6	6,741.0	193.0	192.0	82.44	-77.8	6,833.6	746.1	364.5	381.51	1.956	
13,700.0	6,838.5	13,576.6	6,740.0	195.8	194.8	82.41	-77.8	6,933.6	746.1	359.1	387.04	1.928	
13,800.0	6,837.9	13,676.6	6,739.1	198.6	197.6	82.39	-77.8	7,033.5	746.1	353.6	392.57	1.901	
13,900.0	6,837.3	13,776.6	6,738.1	201.4	200.4	82.36	-77.8	7,133.5	746.2	348.1	398.10	1.874	
14,000.0	6,836.6	13,876.6	6,737.1	204.2	203.2	82.34	-77.8	7,233.5	746.2	342.6	403.63	1.849	
14,100.0	6,836.0	13,976.6	6,736.2	207.0	206.0	82.31	-77.8	7,333.5	746.3	337.1	409.16	1.824	
14,200.0	6,835.4	14,076.6	6,735.2	209.8	208.8	82.29	-77.8	7,433.5	746.3	331.6	414.70	1.800	
14,300.0	6,834.8	14,176.6	6,734.3	212.6	211.6	82.26	-77.8	7,533.5	746.4	326.1	420.23	1.776	
14,400.0	6,834.1	14,276.6	6,733.3	215.4	214.4	82.24	-77.8	7,633.5	746.4	320.6	425.76	1.753	
14,500.0	6,833.5	14,376.6	6,732.3	218.2	217.2	82.21	-77.8	7,733.5	746.4	315.2	431.29	1.731	
14,600.0	6,832.9	14,476.6	6,731.4	221.0	220.0	82.19	-77.8	7,833.5	746.5	309.7	436.82	1.709	
14,700.0	6,832.2	14,576.6	6,730.4	223.8	222.8	82.16	-77.8	7,933.5	746.5	304.2	442.34	1.688	
14,800.0	6,831.6	14,676.6	6,729.5	226.6	225.6	82.13	-77.8	8,033.5	746.6	298.7	447.87	1.667	
14,900.0	6,831.0	14,776.6	6,728.5	229.4	228.4	82.11	-77.8	8,133.5	746.6	293.2	453.40	1.647	
15,000.0	6,830.4	14,876.6	6,727.5	232.2	231.2	82.08	-77.8	8,233.5	746.7	287.7	458.93	1.627	
15,100.0	6,829.7	14,976.6	6,726.6	235.0	234.0	82.06	-77.8	8,333.5	746.7	282.3	464.46	1.608	
15,200.0	6,829.1	15,076.6	6,725.6	237.8	236.8	82.03	-77.8	8,433.5	746.8	276.8	469.98	1.589	
15,300.0	6,828.5	15,176.6	6,724.7	240.6	239.6	82.01	-77.8	8,533.5	746.8	271.3	475.51	1.571	
15,400.0	6,827.9	15,276.6	6,723.7	243.4	242.4	81.98	-77.8	8,633.5	746.9	265.8	481.04	1.553	
15,500.0	6,827.2	15,376.6	6,722.7	246.2	245.2	81.96	-77.8	8,733.5	746.9	260.3	486.56	1.535	
15,600.0	6,826.6	15,476.6	6,721.8	249.0	248.0	81.93	-77.8	8,833.5	746.9	254.9	492.09	1.518	
15,700.0	6,826.0	15,576.6	6,720.8	251.8	250.8	81.91	-77.8	8,933.4	747.0	249.4	497.61	1.501	
15,800.0	6,825.3	15,676.6	6,719.9	254.6	253.6	81.88	-77.8	9,033.4	747.0	243.9	503.14	1.485 Level 3	
15,900.0	6,824.7	15,776.6	6,718.9	257.4	256.4	81.86	-77.8	9,133.4	747.1	238.4	508.66	1.469 Level 3	
16,000.0	6,824.1	15,876.6	6,717.9	260.2	259.3	81.83	-77.8	9,233.4	747.1	232.9	514.18	1.453 Level 3	
16,100.0	6,823.5	15,976.6	6,717.0	263.0	262.1	81.81	-77.8	9,333.4	747.2	227.5	519.71	1.438 Level 3	
16,200.0	6,822.8	16,076.6	6,716.0	265.9	264.9	81.78	-77.8	9,433.4	747.2	222.0	525.23	1.423 Level 3	
16,300.0	6,822.2	16,176.6	6,715.1	268.7	267.7	81.76	-77.8	9,533.4	747.3	216.5	530.75	1.408 Level 3	
16,400.0	6,821.6	16,276.6	6,714.1	271.5	270.5	81.73	-77.8	9,633.4	747.3	211.0	536.27	1.394 Level 3	
16,500.0	6,820.9	16,376.6	6,713.1	274.3	273.3	81.71	-77.8	9,733.4	747.4	205.6	541.79	1.379 Level 3	
16,600.0	6,820.3	16,476.6	6,712.2	277.1	276.1	81.68	-77.8	9,833.4	747.4	200.1	547.31	1.366 Level 3	
16,700.0	6,819.7	16,576.6	6,711.2	279.9	278.9	81.66	-77.8	9,933.4	747.5	194.6	552.83	1.352 Level 3	
16,800.0	6,819.1	16,676.6	6,710.3	282.7	281.7	81.63	-77.8	10,033.4	747.5	189.2	558.35	1.339 Level 3	
16,900.0	6,818.4	16,776.6	6,709.3	285.5	284.5	81.61	-77.8	10,133.4	747.6	183.7	563.87	1.326 Level 3	
17,000.0	6,817.8	16,876.6	6,708.3	288.3	287.3	81.58	-77.8	10,233.4	747.6	178.2	569.39	1.313 Level 3	
17,100.0	6,817.2	16,976.6	6,707.4	291.1	290.1	81.56	-77.8	10,333.4	747.7	172.8	574.90	1.300 Level 3	
17,200.0	6,816.5	17,076.6	6,706.4	293.9	292.9	81.53	-77.8	10,433.4	747.7	167.3	580.42	1.288 Level 3	
17,300.0	6,815.9	17,176.6	6,705.5	296.7	295.7	81.51	-77.8	10,533.4	747.8	161.8	585.94	1.276 Level 3	
17,400.0	6,815.3	17,276.6	6,704.5	299.5	298.5	81.48	-77.8	10,633.4	747.8	156.4	591.45	1.264 Level 3	
17,445.4	6,815.0	17,322.0	6,704.1	300.8	299.8	81.47	-77.8	10,678.8	747.8	153.9	593.96	1.259 Level 3, SF	

Reference Depths are relative to WELL @ 4641.0ft (RKB - 13')	Coordinates are relative to: Klein 19M-402
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000	Grid Convergence at Surface is: 0.59°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19M-402
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 13')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19M-402	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #3 (7-13-15)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4641.0ft (RKB - 13')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Klein 19M-402

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.59°

