

# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Klein 19N-312**

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	1386209.37	3252987.17	40.389990	-104.591760	
RKB - 15' WELL @ 4643.0ft (RKB - 15')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 689'FNL & 2342'FEL, SEC.19	1.0	0.0	0.0	Point
BHL 810'FNL & 500'FEL, Sec.20	6715.0	-59.7	7128.4	Point



Azimuths to True North  
Magnetic North: 8.40°

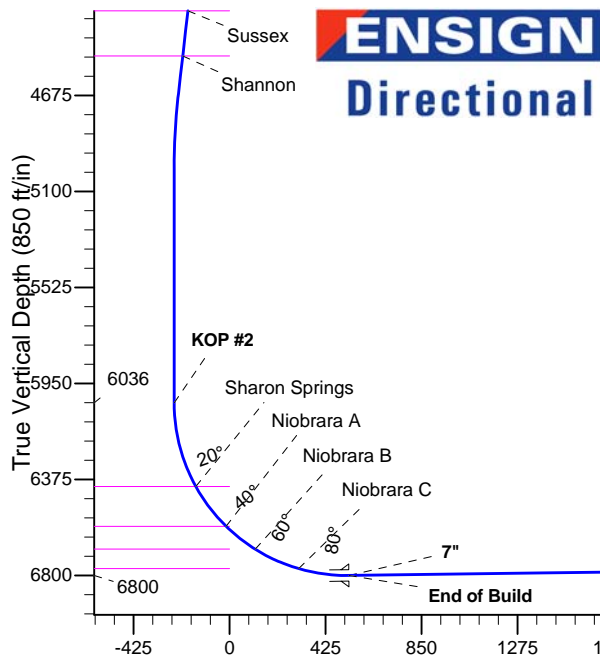
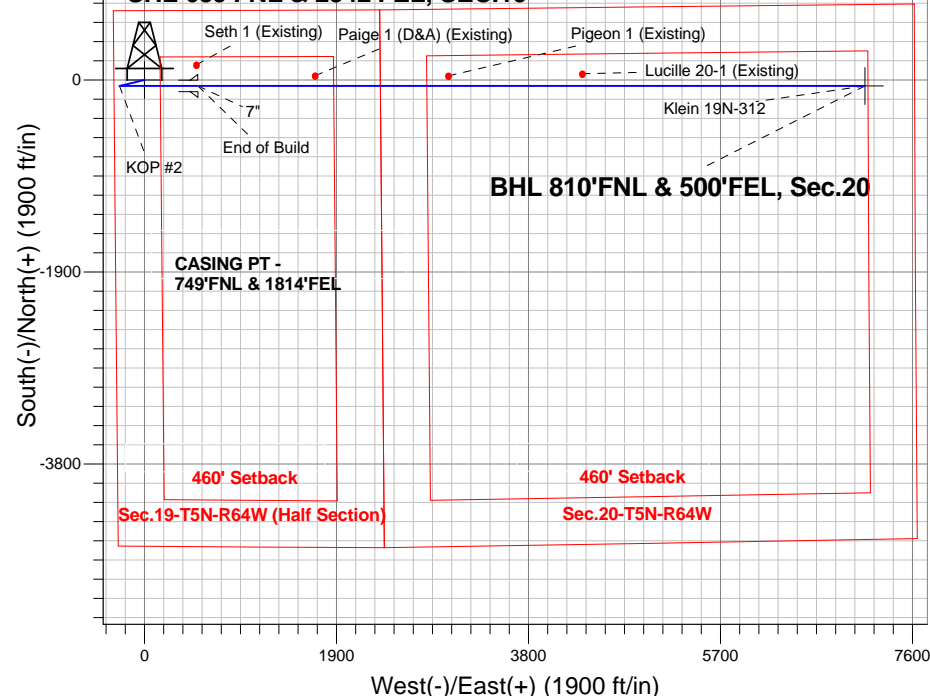
Magnetic Field  
Strength: 52859.4nT  
Dip Angle: 66.98°  
Date: 3/4/2014  
Model: IGRF2010

Klein 19MN-HZ Pad Sec.19-T5N-R64W  
Klein 19N-312  
Plan #1 (2-26-14)  
11:23, March 06 2014

## ANNOTATIONS

TVD	MD	Annotation
2500.0	2500.0	KOP #1
6036.4	6050.4	KOP #2
6800.3	7260.2	End of Build

## SHL 689'FNL & 2342'FEL, SEC.19



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2500.0	0.00	0.00	2500.0	0.0	0.0	0.00	0.00	0.0	
3	2833.2	6.66	256.36	2832.5	-4.6	-18.8	2.00	256.36	-18.8	
4	4680.7	6.66	256.36	4667.5	-55.1	-227.2	0.00	0.00	-226.7	
5	5014.0	0.00	0.00	5000.0	-59.7	-246.0	2.00	180.00	-245.5	
6	6050.4	0.00	0.00	6036.4	-59.7	-246.0	0.00	0.00	-245.5	
7	7260.2	90.74	90.00	6800.3	-59.7	527.8	7.50	90.00	528.3	
8	13861.4	90.74	90.00	6715.0	-59.7	7128.4	0.00	0.00	7128.6	BHL 810'FNL & 500'FEL, Sec.20

**BHL 810'FNL & 500'FEL, Sec.20**

Vertical Section at 90.48° (850 ft/in)



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.19-T5N-R64W**

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

**Klein 19N-312**

**Wellbore #1**

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

## **Standard Planning Report**

**06 March, 2014**

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Klein 19N-312
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-26-14)		

<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

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

<b>Well</b>	Klein 19N-312		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>
	<b>+E/-W</b>	89.1 ft	<b>Easting:</b>
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>
			<b>Latitude:</b>
			<b>Longitude:</b>
			<b>Ground Level:</b>

<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	3/4/2014	8.40	66.98	52,859

<b>Design</b>	Plan #1 (2-26-14)			
<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	90.48

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,833.2	6.66	256.36	2,832.5	-4.6	-18.8	2.00	2.00	0.00	256.36	
4,680.7	6.66	256.36	4,667.5	-55.1	-227.2	0.00	0.00	0.00	0.00	
5,014.0	0.00	0.00	5,000.0	-59.7	-246.0	2.00	-2.00	0.00	180.00	
6,050.4	0.00	0.00	6,036.4	-59.7	-246.0	0.00	0.00	0.00	0.00	
7,260.2	90.74	90.00	6,800.3	-59.7	527.8	7.50	7.50	0.00	90.00	
13,861.4	90.74	90.00	6,715.0	-59.7	7,128.4	0.00	0.00	0.00	0.00	BHL 810'FNL & 50C

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Klein 19N-312
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-26-14)		

#### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>SHL 689'FNL &amp; 2342'FEL, SEC.19 - SHL 689'FNL &amp; 2372'FEL, Sec.19</b>									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP #1</b>									
2,600.0	2.00	256.36	2,600.0	-0.4	-1.7	-1.7	2.00	2.00	0.00
2,700.0	4.00	256.36	2,699.8	-1.6	-6.8	-6.8	2.00	2.00	0.00
2,800.0	6.00	256.36	2,799.5	-3.7	-15.3	-15.2	2.00	2.00	0.00
2,833.2	6.66	256.36	2,832.5	-4.6	-18.8	-18.8	2.00	2.00	0.00
2,900.0	6.66	256.36	2,898.8	-6.4	-26.3	-26.3	0.00	0.00	0.00
3,000.0	6.66	256.36	2,998.1	-9.1	-37.6	-37.5	0.00	0.00	0.00
3,100.0	6.66	256.36	3,097.4	-11.9	-48.9	-48.8	0.00	0.00	0.00
3,200.0	6.66	256.36	3,196.8	-14.6	-60.2	-60.1	0.00	0.00	0.00
3,300.0	6.66	256.36	3,296.1	-17.3	-71.5	-71.3	0.00	0.00	0.00
3,400.0	6.66	256.36	3,395.4	-20.1	-82.7	-82.6	0.00	0.00	0.00
3,500.0	6.66	256.36	3,494.7	-22.8	-94.0	-93.8	0.00	0.00	0.00
3,555.6	6.66	256.36	3,550.0	-24.3	-100.3	-100.1	0.00	0.00	0.00
<b>Parkman</b>									
3,600.0	6.66	256.36	3,594.1	-25.6	-105.3	-105.1	0.00	0.00	0.00
3,700.0	6.66	256.36	3,693.4	-28.3	-116.6	-116.3	0.00	0.00	0.00
3,800.0	6.66	256.36	3,792.7	-31.0	-127.9	-127.6	0.00	0.00	0.00
3,900.0	6.66	256.36	3,892.0	-33.8	-139.1	-138.8	0.00	0.00	0.00
4,000.0	6.66	256.36	3,991.4	-36.5	-150.4	-150.1	0.00	0.00	0.00
4,100.0	6.66	256.36	4,090.7	-39.2	-161.7	-161.4	0.00	0.00	0.00
4,200.0	6.66	256.36	4,190.0	-42.0	-173.0	-172.6	0.00	0.00	0.00
4,300.0	6.66	256.36	4,289.3	-44.7	-184.2	-183.9	0.00	0.00	0.00
4,310.7	6.66	256.36	4,300.0	-45.0	-185.5	-185.1	0.00	0.00	0.00
<b>Sussex</b>									
4,400.0	6.66	256.36	4,388.7	-47.4	-195.5	-195.1	0.00	0.00	0.00

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<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-26-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	6.66	256.36	4,488.0	-50.2	-206.8	-206.4	0.00	0.00	0.00
4,512.1	6.66	256.36	4,500.0	-50.5	-208.2	-207.7	0.00	0.00	0.00
<b>Shannon</b>									
4,600.0	6.66	256.36	4,587.3	-52.9	-218.1	-217.6	0.00	0.00	0.00
4,680.7	6.66	256.36	4,667.5	-55.1	-227.2	-226.7	0.00	0.00	0.00
4,700.0	6.28	256.36	4,686.6	-55.6	-229.3	-228.8	2.00	-2.00	0.00
4,800.0	4.28	256.36	4,786.2	-57.8	-238.2	-237.7	2.00	-2.00	0.00
4,900.0	2.28	256.36	4,886.0	-59.2	-243.8	-243.3	2.00	-2.00	0.00
5,000.0	0.28	256.36	4,986.0	-59.7	-246.0	-245.5	2.00	-2.00	0.00
5,014.0	0.00	0.00	5,000.0	-59.7	-246.0	-245.5	2.00	-2.00	0.00
5,100.0	0.00	0.00	5,086.0	-59.7	-246.0	-245.5	0.00	0.00	0.00
5,200.0	0.00	0.00	5,186.0	-59.7	-246.0	-245.5	0.00	0.00	0.00
5,300.0	0.00	0.00	5,286.0	-59.7	-246.0	-245.5	0.00	0.00	0.00
5,400.0	0.00	0.00	5,386.0	-59.7	-246.0	-245.5	0.00	0.00	0.00
5,500.0	0.00	0.00	5,486.0	-59.7	-246.0	-245.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,586.0	-59.7	-246.0	-245.5	0.00	0.00	0.00
5,700.0	0.00	0.00	5,686.0	-59.7	-246.0	-245.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,786.0	-59.7	-246.0	-245.5	0.00	0.00	0.00
5,900.0	0.00	0.00	5,886.0	-59.7	-246.0	-245.5	0.00	0.00	0.00
6,000.0	0.00	0.00	5,986.0	-59.7	-246.0	-245.5	0.00	0.00	0.00
6,050.4	0.00	0.00	6,036.4	-59.7	-246.0	-245.5	0.00	0.00	0.00
<b>KOP #2</b>									
6,100.0	3.72	90.00	6,086.0	-59.7	-244.4	-243.9	7.51	7.51	0.00
6,200.0	11.22	90.00	6,185.1	-59.7	-231.4	-230.9	7.50	7.50	0.00
6,300.0	18.72	90.00	6,281.6	-59.7	-205.6	-205.1	7.50	7.50	0.00
6,400.0	26.22	90.00	6,373.9	-59.7	-167.4	-166.9	7.50	7.50	0.00
6,437.3	29.02	90.00	6,407.0	-59.7	-150.1	-149.6	7.50	7.50	0.00
<b>Sharon Springs</b>									
6,500.0	33.72	90.00	6,460.5	-59.7	-117.5	-116.9	7.50	7.50	0.00
6,600.0	41.22	90.00	6,539.8	-59.7	-56.7	-56.2	7.50	7.50	0.00
6,659.5	45.69	90.00	6,583.0	-59.7	-15.7	-15.2	7.50	7.50	0.00
<b>Niobrara A</b>									
6,700.0	48.72	90.00	6,610.5	-59.7	14.0	14.5	7.50	7.50	0.00
6,800.0	56.22	90.00	6,671.4	-59.7	93.2	93.7	7.50	7.50	0.00
6,823.3	57.97	90.00	6,684.0	-59.7	112.7	113.2	7.50	7.50	0.00
<b>Niobrara B</b>									
6,900.0	63.72	90.00	6,721.4	-59.7	179.7	180.2	7.50	7.50	0.00
7,000.0	71.22	90.00	6,759.7	-59.7	272.0	272.5	7.50	7.50	0.00
7,034.4	73.80	90.00	6,770.0	-59.7	304.9	305.4	7.50	7.50	0.00
<b>Niobrara C</b>									
7,100.0	78.72	90.00	6,785.6	-59.7	368.6	369.0	7.50	7.50	0.00
7,200.0	86.22	90.00	6,798.7	-59.7	467.6	468.1	7.50	7.50	0.00
7,260.2	90.74	90.00	6,800.3	-59.7	527.8	528.3	7.50	7.50	0.00
<b>End of Build - 7"</b>									
7,300.0	90.74	90.00	6,799.7	-59.7	567.6	568.1	0.01	0.01	0.00
7,400.0	90.74	90.00	6,798.4	-59.7	667.6	668.0	0.00	0.00	0.00
7,500.0	90.74	90.00	6,797.2	-59.7	767.6	768.0	0.00	0.00	0.00
7,600.0	90.74	90.00	6,795.9	-59.7	867.6	868.0	0.00	0.00	0.00
7,700.0	90.74	90.00	6,794.6	-59.7	967.5	968.0	0.00	0.00	0.00
7,800.0	90.74	90.00	6,793.3	-59.7	1,067.5	1,068.0	0.00	0.00	0.00
7,900.0	90.74	90.00	6,792.0	-59.7	1,167.5	1,168.0	0.00	0.00	0.00
8,000.0	90.74	90.00	6,790.7	-59.7	1,267.5	1,268.0	0.00	0.00	0.00

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Klein 19N-312
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-26-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,100.0	90.74	90.00	6,789.4	-59.7	1,367.5	1,368.0	0.00	0.00	0.00
8,200.0	90.74	90.00	6,788.1	-59.7	1,467.5	1,468.0	0.00	0.00	0.00
8,300.0	90.74	90.00	6,786.8	-59.7	1,567.5	1,567.9	0.00	0.00	0.00
8,400.0	90.74	90.00	6,785.5	-59.7	1,667.5	1,667.9	0.00	0.00	0.00
8,500.0	90.74	90.00	6,784.2	-59.7	1,767.5	1,767.9	0.00	0.00	0.00
8,600.0	90.74	90.00	6,783.0	-59.7	1,867.5	1,867.9	0.00	0.00	0.00
8,700.0	90.74	90.00	6,781.7	-59.7	1,967.5	1,967.9	0.00	0.00	0.00
8,800.0	90.74	90.00	6,780.4	-59.7	2,067.5	2,067.9	0.00	0.00	0.00
8,900.0	90.74	90.00	6,779.1	-59.7	2,167.4	2,167.9	0.00	0.00	0.00
9,000.0	90.74	90.00	6,777.8	-59.7	2,267.4	2,267.9	0.00	0.00	0.00
9,100.0	90.74	90.00	6,776.5	-59.7	2,367.4	2,367.8	0.00	0.00	0.00
9,200.0	90.74	90.00	6,775.2	-59.7	2,467.4	2,467.8	0.00	0.00	0.00
9,300.0	90.74	90.00	6,773.9	-59.7	2,567.4	2,567.8	0.00	0.00	0.00
9,400.0	90.74	90.00	6,772.6	-59.7	2,667.4	2,667.8	0.00	0.00	0.00
9,500.0	90.74	90.00	6,771.3	-59.7	2,767.4	2,767.8	0.00	0.00	0.00
9,600.0	90.74	90.00	6,770.0	-59.7	2,867.4	2,867.8	0.00	0.00	0.00
9,700.0	90.74	90.00	6,768.7	-59.7	2,967.4	2,967.8	0.00	0.00	0.00
9,800.0	90.74	90.00	6,767.5	-59.7	3,067.4	3,067.8	0.00	0.00	0.00
9,900.0	90.74	90.00	6,766.2	-59.7	3,167.4	3,167.8	0.00	0.00	0.00
10,000.0	90.74	90.00	6,764.9	-59.7	3,267.4	3,267.7	0.00	0.00	0.00
10,100.0	90.74	90.00	6,763.6	-59.7	3,367.3	3,367.7	0.00	0.00	0.00
10,200.0	90.74	90.00	6,762.3	-59.7	3,467.3	3,467.7	0.00	0.00	0.00
10,300.0	90.74	90.00	6,761.0	-59.7	3,567.3	3,567.7	0.00	0.00	0.00
10,400.0	90.74	90.00	6,759.7	-59.7	3,667.3	3,667.7	0.00	0.00	0.00
10,500.0	90.74	90.00	6,758.4	-59.7	3,767.3	3,767.7	0.00	0.00	0.00
10,600.0	90.74	90.00	6,757.1	-59.7	3,867.3	3,867.7	0.00	0.00	0.00
10,700.0	90.74	90.00	6,755.8	-59.7	3,967.3	3,967.7	0.00	0.00	0.00
10,800.0	90.74	90.00	6,754.5	-59.7	4,067.3	4,067.6	0.00	0.00	0.00
10,900.0	90.74	90.00	6,753.2	-59.7	4,167.3	4,167.6	0.00	0.00	0.00
11,000.0	90.74	90.00	6,752.0	-59.7	4,267.3	4,267.6	0.00	0.00	0.00
11,100.0	90.74	90.00	6,750.7	-59.7	4,367.3	4,367.6	0.00	0.00	0.00
11,200.0	90.74	90.00	6,749.4	-59.7	4,467.3	4,467.6	0.00	0.00	0.00
11,300.0	90.74	90.00	6,748.1	-59.7	4,567.2	4,567.6	0.00	0.00	0.00
11,400.0	90.74	90.00	6,746.8	-59.7	4,667.2	4,667.6	0.00	0.00	0.00
11,500.0	90.74	90.00	6,745.5	-59.7	4,767.2	4,767.6	0.00	0.00	0.00
11,600.0	90.74	90.00	6,744.2	-59.7	4,867.2	4,867.6	0.00	0.00	0.00
11,700.0	90.74	90.00	6,742.9	-59.7	4,967.2	4,967.5	0.00	0.00	0.00
11,800.0	90.74	90.00	6,741.6	-59.7	5,067.2	5,067.5	0.00	0.00	0.00
11,900.0	90.74	90.00	6,740.3	-59.7	5,167.2	5,167.5	0.00	0.00	0.00
12,000.0	90.74	90.00	6,739.0	-59.7	5,267.2	5,267.5	0.00	0.00	0.00
12,100.0	90.74	90.00	6,737.7	-59.7	5,367.2	5,367.5	0.00	0.00	0.00
12,200.0	90.74	90.00	6,736.5	-59.7	5,467.2	5,467.5	0.00	0.00	0.00
12,300.0	90.74	90.00	6,735.2	-59.7	5,567.2	5,567.5	0.00	0.00	0.00
12,400.0	90.74	90.00	6,733.9	-59.7	5,667.2	5,667.5	0.00	0.00	0.00
12,500.0	90.74	90.00	6,732.6	-59.7	5,767.1	5,767.4	0.00	0.00	0.00
12,600.0	90.74	90.00	6,731.3	-59.7	5,867.1	5,867.4	0.00	0.00	0.00
12,700.0	90.74	90.00	6,730.0	-59.7	5,967.1	5,967.4	0.00	0.00	0.00
12,800.0	90.74	90.00	6,728.7	-59.7	6,067.1	6,067.4	0.00	0.00	0.00
12,900.0	90.74	90.00	6,727.4	-59.7	6,167.1	6,167.4	0.00	0.00	0.00
13,000.0	90.74	90.00	6,726.1	-59.7	6,267.1	6,267.4	0.00	0.00	0.00
13,100.0	90.74	90.00	6,724.8	-59.7	6,367.1	6,367.4	0.00	0.00	0.00
13,200.0	90.74	90.00	6,723.5	-59.7	6,467.1	6,467.4	0.00	0.00	0.00
13,300.0	90.74	90.00	6,722.3	-59.7	6,567.1	6,567.3	0.00	0.00	0.00

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Klein 19N-312
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-26-14)		

#### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,400.0	90.74	90.00	6,721.0	-59.7	6,667.1	6,667.3	0.00	0.00	0.00
13,500.0	90.74	90.00	6,719.7	-59.7	6,767.1	6,767.3	0.00	0.00	0.00
13,600.0	90.74	90.00	6,718.4	-59.7	6,867.1	6,867.3	0.00	0.00	0.00
13,700.0	90.74	90.00	6,717.1	-59.7	6,967.0	6,967.3	0.00	0.00	0.00
13,800.0	90.74	90.00	6,715.8	-59.7	7,067.0	7,067.3	0.00	0.00	0.00
13,861.4	90.74	90.00	6,715.0	-59.7	7,128.4	7,128.6	0.00	0.00	0.00
BHL 810'FNL & 500'FEL, Sec.20									

#### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,260.2	6,800.3	7"	7	7-1/2

#### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,555.6	3,550.0	Parkman		0.00	
4,310.7	4,300.0	Sussex		0.00	
4,512.1	4,500.0	Shannon		0.00	
6,437.3	6,407.0	Sharon Springs		0.00	
6,659.5	6,583.0	Niobrara A		0.00	
6,823.3	6,684.0	Niobrara B		0.00	
7,034.4	6,770.0	Niobrara C		0.00	

#### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N-S (ft)	+E-W (ft)	
2,500.0	2,500.0	0.0	0.0	KOP #1
6,050.4	6,036.4	-59.7	-246.0	KOP #2
7,260.2	6,800.3	-59.7	527.8	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.19-T5N-R64W**

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

**Klein 19N-312**

**Wellbore #1**

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

## **Anticollision Report**

**06 March, 2014**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (2-26-14)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<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 1,000.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	3/4/2014		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	13,861.4	Plan #1 (2-26-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Klein (Existing) Sec.19-T5N-R64W						
Lucille 20-1 (Existing) - Wellbore #1 - Wellbore #1	11,067.2	6,728.1	122.0	-137.1	0.471	Level 1, CC, ES, SF
Paige 1 (D&A) (Existing) - Wellbore #1 - Wellbore #1	8,421.7	6,757.3	103.5	-83.4	0.554	Level 1, CC, ES, SF
Pigeon 1 (Existing) - Wellbore #1 - Wellbore #1	9,741.1	6,747.2	100.0	-122.7	0.449	Level 1, CC, ES, SF
Seth 1 (Existing) - Wellbore #1 - Wellbore #1	7,247.8	6,784.9	209.1	50.8	1.321	Level 3, CC, ES, SF
Klein 19MN-HZ Pad Sec.19-T5N-R64W						
Klein 19M-202 - Wellbore #1 - Plan #1 (2-26-14)	1,000.0	1,000.0	89.1	84.9	20.873	CC
Klein 19M-202 - Wellbore #1 - Plan #1 (2-26-14)	1,100.0	1,099.3	89.5	84.8	18.977	ES
Klein 19M-202 - Wellbore #1 - Plan #1 (2-26-14)	13,862.3	13,815.4	737.7	333.0	1.823	SF
Klein 19M-432 - Wellbore #1 - Plan #1 (2-26-14)	1,200.0	1,200.0	61.3	56.1	11.855	CC
Klein 19M-432 - Wellbore #1 - Plan #1 (2-26-14)	13,862.3	13,942.5	418.2	26.3	1.067	Level 2, ES, SF
Klein 19N-412 - Wellbore #1 - Plan #1 (2-26-14)	1,500.0	1,500.0	30.6	24.1	4.701	CC
Klein 19N-412 - Wellbore #1 - Plan #1 (2-26-14)	13,862.3	13,943.1	279.2	-95.3	0.746	Level 1, ES, SF

Offset Design										Klein (Existing) Sec.19-T5N-R64W - Lucille 20-1 (Existing) - Wellbore #1 - Wellbore #1			Offset Site Error:		0.0 ft
Survey Program:										7055-UNKNOWN			Offset Well Error:		0.0 ft
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 +N/-S (ft)	Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
10,100.0	6,763.6	6,740.6	6,740.6	97.7	134.8	-95.84	62.3	4,334.4	974.8	743.4	231.33	4.214			
10,200.0	6,762.3	6,739.3	6,739.3	100.5	134.8	-95.24	62.3	4,334.4	875.6	641.3	234.30	3.737			
10,300.0	6,761.0	6,738.0	6,738.0	103.3	134.8	-94.64	62.3	4,334.4	776.7	539.5	237.25	3.274			
10,400.0	6,759.7	6,736.7	6,736.7	106.0	134.7	-94.04	62.3	4,334.4	678.2	438.0	240.17	2.824			
10,500.0	6,758.4	6,735.4	6,735.4	108.8	134.7	-93.44	62.3	4,334.4	580.1	337.0	243.08	2.386			
10,600.0	6,757.1	6,734.1	6,734.1	111.6	134.7	-92.83	62.3	4,334.4	482.8	236.8	245.97	1.963			
10,700.0	6,755.8	6,732.8	6,732.8	114.4	134.7	-92.23	62.3	4,334.4	386.9	138.0	248.84	1.555			
10,800.0	6,754.5	6,731.5	6,731.5	117.2	134.6	-91.62	62.3	4,334.4	293.7	42.0	251.68	1.167	Level 2		
10,900.0	6,753.2	6,730.2	6,730.2	119.9	134.6	-91.01	62.3	4,334.4	207.0	-47.5	254.50	0.813	Level 1		
11,000.0	6,752.0	6,729.0	6,729.0	122.7	134.6	-90.41	62.3	4,334.4	139.3	-118.0	257.29	0.541	Level 1		
11,067.2	6,751.1	6,728.1	6,728.1	124.6	134.6	-90.00	62.3	4,334.4	122.0	-137.1	259.15	0.471	Level 1, CC, ES, SF		
11,100.0	6,750.7	6,727.7	6,727.7	125.5	134.6	-89.80	62.3	4,334.4	126.4	-133.7	260.06	0.486	Level 1		
11,200.0	6,749.4	6,726.4	6,726.4	128.3	134.5	-89.19	62.3	4,334.4	180.4	-82.4	262.80	0.686	Level 1		
11,300.0	6,748.1	6,725.1	6,725.1	131.1	134.5	-88.59	62.3	4,334.4	262.9	-2.7	265.51	0.990	Level 1		

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 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Lucille 20-1 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7055-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
11,400.0	6,746.8	6,723.8	6,723.8	133.9	134.5	-87.98	62.3	4,334.4	354.5	86.3	268.19	1.322	Level 3	
11,500.0	6,745.5	6,722.5	6,722.5	136.7	134.4	-87.38	62.3	4,334.4	449.7	178.8	270.84	1.660		
11,600.0	6,744.2	6,721.2	6,721.2	139.5	134.4	-86.77	62.3	4,334.4	546.6	273.1	273.46	1.999		
11,700.0	6,742.9	6,719.9	6,719.9	142.2	134.4	-86.17	62.3	4,334.4	644.4	368.4	276.05	2.334		
11,800.0	6,741.6	6,718.6	6,718.6	145.0	134.4	-85.57	62.3	4,334.4	742.9	464.2	278.61	2.666		
11,900.0	6,740.3	6,717.3	6,717.3	147.8	134.3	-84.96	62.3	4,334.4	841.7	560.5	281.14	2.994		
12,000.0	6,739.0	6,716.0	6,716.0	150.6	134.3	-84.36	62.3	4,334.4	940.7	657.1	283.63	3.317		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Paige 1 (D&A) (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7003-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
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)			
7,500.0	6,797.2	6,769.2	6,769.2	28.1	135.4	-96.56	43.8	1,689.2	927.4	765.0	162.47	5.708		
7,600.0	6,795.9	6,767.9	6,767.9	30.5	135.4	-95.85	43.8	1,689.2	828.1	663.1	165.02	5.018		
7,700.0	6,794.6	6,766.6	6,766.6	33.0	135.3	-95.15	43.8	1,689.2	729.0	561.4	167.62	4.349		
7,800.0	6,793.3	6,765.3	6,765.3	35.5	135.3	-94.44	43.8	1,689.2	630.2	460.0	170.26	3.701		
7,900.0	6,792.0	6,764.0	6,764.0	38.0	135.3	-93.73	43.8	1,689.2	531.8	358.9	172.92	3.076		
8,000.0	6,790.7	6,762.7	6,762.7	40.6	135.3	-93.01	43.8	1,689.2	434.2	258.6	175.59	2.473		
8,100.0	6,789.4	6,761.4	6,761.4	43.2	135.2	-92.30	43.8	1,689.2	337.9	159.7	178.27	1.896		
8,200.0	6,788.1	6,760.1	6,760.1	45.8	135.2	-91.58	43.8	1,689.2	244.7	63.7	180.95	1.352 Level 3		
8,300.0	6,786.8	6,758.8	6,758.8	48.5	135.2	-90.87	43.8	1,689.2	159.8	-23.9	183.62	0.870 Level 1		
8,400.0	6,785.5	6,757.5	6,757.5	51.1	135.2	-90.16	43.8	1,689.2	105.7	-80.5	186.28	0.568 Level 1		
8,421.7	6,785.3	6,757.3	6,757.3	51.7	135.1	-90.00	43.8	1,689.2	103.5	-83.4	186.86	0.554 Level 1, CC, ES, SF		
8,500.0	6,784.2	6,756.2	6,756.2	53.8	135.1	-89.44	43.8	1,689.2	129.8	-59.2	188.93	0.687 Level 1		
8,600.0	6,783.0	6,755.0	6,755.0	56.5	135.1	-88.73	43.8	1,689.2	206.1	14.6	191.56	1.076 Level 2		
8,700.0	6,781.7	6,753.7	6,753.7	59.2	135.1	-88.01	43.8	1,689.2	296.9	102.7	194.17	1.529		
8,800.0	6,780.4	6,752.4	6,752.4	61.9	135.0	-87.30	43.8	1,689.2	392.2	195.4	196.76	1.993		
8,900.0	6,779.1	6,751.1	6,751.1	64.7	135.0	-86.58	43.8	1,689.2	489.3	290.0	199.33	2.455		
9,000.0	6,777.8	6,749.8	6,749.8	67.4	135.0	-85.87	43.8	1,689.2	587.4	385.6	201.87	2.910		
9,100.0	6,776.5	6,748.5	6,748.5	70.1	135.0	-85.16	43.8	1,689.2	686.1	481.7	204.38	3.357		
9,200.0	6,775.2	6,747.2	6,747.2	72.9	134.9	-84.45	43.8	1,689.2	785.1	578.2	206.86	3.795		
9,300.0	6,773.9	6,745.9	6,745.9	75.6	134.9	-83.75	43.8	1,689.2	884.3	675.0	209.31	4.225		
9,400.0	6,772.6	6,744.6	6,744.6	78.4	134.9	-83.04	43.8	1,689.2	983.7	771.9	211.72	4.646		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Klein (Existing) Sec.19-T5N-R64W - Pigeon 1 (Existing) - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b> 7029-UNKNOWN												<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
8,800.0	6,780.4	6,759.4	6,759.4	61.9	135.2	-96.93	40.3	3,008.5	946.3	750.6	195.71	4.835	
8,900.0	6,779.1	6,758.1	6,758.1	64.7	135.2	-96.20	40.3	3,008.5	847.0	648.3	198.67	4.263	
9,000.0	6,777.8	6,756.8	6,756.8	67.4	135.1	-95.47	40.3	3,008.5	747.8	546.1	201.62	3.709	
9,100.0	6,776.5	6,755.5	6,755.5	70.1	135.1	-94.73	40.3	3,008.5	648.8	444.3	204.54	3.172	
9,200.0	6,775.2	6,754.2	6,754.2	72.9	135.1	-94.00	40.3	3,008.5	550.2	342.8	207.45	2.652	
9,300.0	6,773.9	6,752.9	6,752.9	75.6	135.1	-93.26	40.3	3,008.5	452.3	241.9	210.33	2.150	
9,400.0	6,772.6	6,751.6	6,751.6	78.4	135.0	-92.52	40.3	3,008.5	355.4	142.2	213.18	1.667	
9,500.0	6,771.3	6,750.3	6,750.3	81.1	135.0	-91.78	40.3	3,008.5	261.0	45.0	216.01	1.208	Level 2
9,600.0	6,770.0	6,749.0	6,749.0	83.9	135.0	-91.04	40.3	3,008.5	172.9	-45.9	218.81	0.790	Level 1
9,700.0	6,768.7	6,747.7	6,747.7	86.6	135.0	-90.30	40.3	3,008.5	108.1	-113.5	221.58	0.488	Level 1
9,741.1	6,768.2	6,747.2	6,747.2	87.8	134.9	-90.00	40.3	3,008.5	100.0	-122.7	222.71	0.449	Level 1, CC, ES, SF
9,800.0	6,767.5	6,746.5	6,746.5	89.4	134.9	-89.56	40.3	3,008.5	116.0	-108.3	224.32	0.517	Level 1
9,900.0	6,766.2	6,745.2	6,745.2	92.2	134.9	-88.82	40.3	3,008.5	187.7	-39.3	227.02	0.827	Level 1
10,000.0	6,764.9	6,743.9	6,743.9	94.9	134.9	-88.08	40.3	3,008.5	277.5	47.8	229.68	1.208	Level 2
10,100.0	6,763.6	6,742.6	6,742.6	97.7	134.9	-87.35	40.3	3,008.5	372.5	140.2	232.31	1.604	
10,200.0	6,762.3	6,741.3	6,741.3	100.5	134.8	-86.61	40.3	3,008.5	469.6	234.7	234.90	1.999	
10,300.0	6,761.0	6,740.0	6,740.0	103.3	134.8	-85.87	40.3	3,008.5	567.7	330.3	237.46	2.391	
10,400.0	6,759.7	6,738.7	6,738.7	106.0	134.8	-85.13	40.3	3,008.5	666.4	426.4	239.97	2.777	
10,500.0	6,758.4	6,737.4	6,737.4	108.8	134.7	-84.40	40.3	3,008.5	765.4	523.0	242.44	3.157	
10,600.0	6,757.1	6,736.1	6,736.1	111.6	134.7	-83.67	40.3	3,008.5	864.6	619.8	244.87	3.531	
10,700.0	6,755.8	6,734.8	6,734.8	114.4	134.7	-82.94	40.3	3,008.5	964.0	716.8	247.25	3.899	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Seth 1 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6997-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	73.84		149.4	515.3	536.8				
100.0	100.0	84.0	84.0	0.1	1.7	73.84		149.4	515.3	536.6	534.8	1.79	299.318	
200.0	200.0	184.0	184.0	0.3	3.7	73.84		149.4	515.3	536.6	532.5	4.02	133.559	
300.0	300.0	284.0	284.0	0.6	5.7	73.84		149.4	515.3	536.6	530.3	6.24	85.957	
400.0	400.0	384.0	384.0	0.8	7.7	73.84		149.4	515.3	536.6	528.1	8.47	63.371	
500.0	500.0	484.0	484.0	1.0	9.7	73.84		149.4	515.3	536.6	525.9	10.69	50.184	
600.0	600.0	584.0	584.0	1.2	11.7	73.84		149.4	515.3	536.6	523.6	12.92	41.540	
700.0	700.0	684.0	684.0	1.5	13.7	73.84		149.4	515.3	536.6	521.4	15.14	35.437	
800.0	800.0	784.0	784.0	1.7	15.7	73.84		149.4	515.3	536.6	519.2	17.37	30.897	
900.0	900.0	884.0	884.0	1.9	17.7	73.84		149.4	515.3	536.6	517.0	19.59	27.388	
1,000.0	1,000.0	984.0	984.0	2.1	19.7	73.84		149.4	515.3	536.6	514.7	21.82	24.595	
1,100.0	1,100.0	1,084.0	1,084.0	2.4	21.7	73.84		149.4	515.3	536.6	512.5	24.04	22.319	
1,200.0	1,200.0	1,184.0	1,184.0	2.6	23.7	73.84		149.4	515.3	536.6	510.3	26.26	20.428	
1,300.0	1,300.0	1,284.0	1,284.0	2.8	25.7	73.84		149.4	515.3	536.6	508.1	28.49	18.833	
1,400.0	1,400.0	1,384.0	1,384.0	3.0	27.7	73.84		149.4	515.3	536.6	505.8	30.71	17.469	
1,500.0	1,500.0	1,484.0	1,484.0	3.3	29.7	73.84		149.4	515.3	536.6	503.6	32.94	16.289	
1,600.0	1,600.0	1,584.0	1,584.0	3.5	31.7	73.84		149.4	515.3	536.6	501.4	35.16	15.259	
1,700.0	1,700.0	1,684.0	1,684.0	3.7	33.7	73.84		149.4	515.3	536.6	499.2	37.39	14.351	
1,800.0	1,800.0	1,784.0	1,784.0	3.9	35.7	73.84		149.4	515.3	536.6	496.9	39.61	13.545	
1,900.0	1,900.0	1,884.0	1,884.0	4.2	37.7	73.84		149.4	515.3	536.6	494.7	41.84	12.824	
2,000.0	2,000.0	1,984.0	1,984.0	4.4	39.7	73.84		149.4	515.3	536.6	492.5	44.06	12.177	
2,100.0	2,100.0	2,084.0	2,084.0	4.6	41.7	73.84		149.4	515.3	536.6	490.3	46.29	11.592	
2,200.0	2,200.0	2,184.0	2,184.0	4.8	43.7	73.84		149.4	515.3	536.6	488.0	48.51	11.060	
2,300.0	2,300.0	2,284.0	2,284.0	5.1	45.7	73.84		149.4	515.3	536.6	485.8	50.74	10.575	
2,400.0	2,400.0	2,384.0	2,384.0	5.3	47.7	73.84		149.4	515.3	536.6	483.6	52.96	10.131	
2,500.0	2,500.0	2,484.0	2,484.0	5.5	49.7	73.84		149.4	515.3	536.6	481.4	55.19	9.722	
2,600.0	2,600.0	2,584.0	2,584.0	5.7	51.7	177.48		149.4	515.3	538.3	480.9	57.36	9.385	
2,700.0	2,699.8	2,683.8	2,683.8	5.9	53.7	177.50		149.4	515.3	543.5	484.1	59.44	9.144	
2,800.0	2,799.5	2,783.5	2,783.5	6.1	55.7	177.53		149.4	515.3	552.2	490.8	61.43	8.989	
2,900.0	2,898.8	2,882.8	2,882.8	6.3	57.7	177.58		149.4	515.3	563.6	500.1	63.53	8.872	
3,000.0	2,998.1	2,982.1	2,982.1	6.5	59.6	177.63		149.4	515.3	575.2	509.5	65.70	8.756	
3,100.0	3,097.4	3,081.4	3,081.4	6.8	61.6	177.68		149.4	515.3	586.8	519.0	67.87	8.646	
3,200.0	3,196.8	3,180.8	3,180.8	7.0	63.6	177.72		149.4	515.3	598.4	528.4	70.05	8.543	
3,300.0	3,296.1	3,280.1	3,280.1	7.3	65.6	177.77		149.4	515.3	610.0	537.8	72.23	8.446	
3,400.0	3,395.4	3,379.4	3,379.4	7.5	67.6	177.81		149.4	515.3	621.6	547.2	74.41	8.354	
3,500.0	3,494.7	3,478.7	3,478.7	7.8	69.6	177.85		149.4	515.3	633.2	556.6	76.59	8.267	
3,600.0	3,594.1	3,578.1	3,578.1	8.0	71.6	177.89		149.4	515.3	644.8	566.0	78.78	8.185	
3,700.0	3,693.4	3,677.4	3,677.4	8.3	73.5	177.92		149.4	515.3	656.4	575.4	80.96	8.107	
3,800.0	3,792.7	3,776.7	3,776.7	8.5	75.5	177.96		149.4	515.3	668.0	584.9	83.15	8.034	
3,900.0	3,892.0	3,876.0	3,876.0	8.8	77.5	177.99		149.4	515.3	679.6	594.3	85.34	7.963	
4,000.0	3,991.4	3,975.4	3,975.4	9.1	79.5	178.03		149.4	515.3	691.2	603.7	87.53	7.897	
4,100.0	4,090.7	4,074.7	4,074.7	9.4	81.5	178.06		149.4	515.3	702.8	613.1	89.72	7.833	
4,200.0	4,190.0	4,174.0	4,174.0	9.6	83.5	178.09		149.4	515.3	714.4	622.5	91.92	7.772	
4,300.0	4,289.3	4,273.3	4,273.3	9.9	85.5	178.12		149.4	515.3	726.0	631.9	94.11	7.714	
4,400.0	4,388.7	4,372.7	4,372.7	10.2	87.5	178.15		149.4	515.3	737.6	641.3	96.30	7.659	
4,500.0	4,488.0	4,472.0	4,472.0	10.5	89.4	178.18		149.4	515.3	749.2	650.7	98.50	7.606	
4,600.0	4,587.3	4,571.3	4,571.3	10.8	91.4	178.21		149.4	515.3	760.8	660.1	100.70	7.555	
4,700.0	4,686.6	4,670.6	4,670.6	11.1	93.4	178.24		149.4	515.3	772.3	669.4	102.97	7.501	
4,800.0	4,786.2	4,770.2	4,770.2	11.3	95.4	178.26		149.4	515.3	783.5	676.1	105.47	7.410	
4,900.0	4,886.0	4,870.0	4,870.0	11.5	97.4	178.28		149.4	515.3	794.7	683.3	107.85	7.299	
5,000.0	4,986.0	4,970.0	4,970.0	11.7	99.4	178.29		149.4	515.3	805.9	690.4	110.12	7.170	

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 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Seth 1 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6997-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,100.0	5,086.0	5,070.0	5,070.0	11.9	101.4	74.64	149.4	515.3	789.5	676.3	113.27	6.971		
5,200.0	5,186.0	5,170.0	5,170.0	12.1	103.4	74.64	149.4	515.3	789.5	674.1	115.47	6.838		
5,300.0	5,286.0	5,270.0	5,270.0	12.3	105.4	74.64	149.4	515.3	789.5	671.9	117.67	6.710		
5,400.0	5,386.0	5,370.0	5,370.0	12.5	107.4	74.64	149.4	515.3	789.5	669.7	119.87	6.587		
5,500.0	5,486.0	5,470.0	5,470.0	12.7	109.4	74.64	149.4	515.3	789.5	667.5	122.07	6.468		
5,600.0	5,586.0	5,570.0	5,570.0	12.9	111.4	74.64	149.4	515.3	789.5	665.2	124.28	6.353		
5,700.0	5,686.0	5,670.0	5,670.0	13.1	113.4	74.64	149.4	515.3	789.5	663.0	126.48	6.242		
5,800.0	5,786.0	5,770.0	5,770.0	13.3	115.4	74.64	149.4	515.3	789.5	660.8	128.68	6.135		
5,900.0	5,886.0	5,870.0	5,870.0	13.5	117.4	74.64	149.4	515.3	789.5	658.6	130.89	6.032		
6,000.0	5,986.0	5,970.0	5,970.0	13.7	119.4	74.64	149.4	515.3	789.5	656.4	133.10	5.932		
6,100.0	6,086.0	6,070.0	6,070.0	13.9	121.4	-15.42	149.4	515.3	788.0	653.8	134.19	5.872		
6,200.0	6,185.1	6,169.1	6,169.1	14.0	123.4	-15.93	149.4	515.3	775.4	641.3	134.19	5.779		
6,300.0	6,281.6	6,265.6	6,265.6	14.1	125.3	-17.03	149.4	515.3	750.6	618.6	132.05	5.684		
6,400.0	6,373.9	6,357.9	6,357.9	14.2	127.2	-18.85	149.4	515.3	714.0	586.0	127.97	5.580		
6,500.0	6,460.5	6,444.5	6,444.5	14.3	128.9	-21.67	149.4	515.3	666.4	544.0	122.48	5.441		
6,600.0	6,539.8	6,523.8	6,523.8	14.6	130.5	-25.92	149.4	515.3	609.0	492.2	116.85	5.212		
6,700.0	6,610.5	6,594.5	6,594.5	15.0	131.9	-32.30	149.4	515.3	543.2	429.6	113.66	4.779		
6,800.0	6,671.4	6,655.4	6,655.4	15.7	133.1	-41.70	149.4	515.3	471.1	354.1	116.99	4.026		
6,900.0	6,721.4	6,705.4	6,705.4	16.7	134.1	-54.60	149.4	515.3	395.4	266.2	129.16	3.061		
7,000.0	6,759.7	6,743.7	6,743.7	18.1	134.9	-69.47	149.4	515.3	320.8	176.4	144.40	2.222		
7,100.0	6,785.6	6,769.6	6,769.6	19.7	135.4	-82.18	149.4	515.3	255.5	101.7	153.75	1.661		
7,200.0	6,798.7	6,782.7	6,782.7	21.6	135.7	-89.14	149.4	515.3	214.5	57.2	157.25	1.364	Level 3	
7,247.8	6,800.9	6,784.9	6,784.9	22.6	135.7	-90.00	149.4	515.3	209.1	50.8	158.28	1.321	Level 3, CC, ES, SF	
7,300.0	6,799.7	6,783.7	6,783.7	23.7	135.7	-89.82	149.4	515.3	215.5	56.2	159.33	1.353	Level 3	
7,400.0	6,798.4	6,782.4	6,782.4	25.8	135.6	-89.46	149.4	515.3	258.6	97.1	161.48	1.602		
7,500.0	6,797.2	6,781.2	6,781.2	28.1	135.6	-89.11	149.4	515.3	327.6	163.9	163.73	2.001		
7,600.0	6,795.9	6,779.9	6,779.9	30.5	135.6	-88.75	149.4	515.3	409.6	243.5	166.07	2.466		
7,700.0	6,794.6	6,778.6	6,778.6	33.0	135.6	-88.40	149.4	515.3	498.2	329.7	168.46	2.957		
7,800.0	6,793.3	6,777.3	6,777.3	35.5	135.5	-88.05	149.4	515.3	590.5	419.6	170.90	3.455		
7,900.0	6,792.0	6,776.0	6,776.0	38.0	135.5	-87.69	149.4	515.3	684.9	511.5	173.38	3.950		
8,000.0	6,790.7	6,774.7	6,774.7	40.6	135.5	-87.34	149.4	515.3	780.7	604.8	175.88	4.439		
8,100.0	6,789.4	6,773.4	6,773.4	43.2	135.5	-86.99	149.4	515.3	877.4	699.0	178.41	4.918		
8,200.0	6,788.1	6,772.1	6,772.1	45.8	135.4	-86.63	149.4	515.3	974.9	793.9	180.95	5.387		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-202 - Wellbore #1 - Plan #1 (2-26-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	-89.99	0.0	-89.1	89.1				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	-89.99	0.0	-89.1	89.1	88.9	0.22	396.591	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	-89.99	0.0	-89.1	89.1	88.5	0.67	132.197	
300.0	300.0	300.0	300.0	0.6	0.6	-89.99	-89.99	0.0	-89.1	89.1	88.0	1.12	79.318	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	-89.99	0.0	-89.1	89.1	87.6	1.57	56.656	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	-89.99	0.0	-89.1	89.1	87.1	2.02	44.066	
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	-89.99	0.0	-89.1	89.1	86.7	2.47	36.054	
700.0	700.0	700.0	700.0	1.5	1.5	-89.99	-89.99	0.0	-89.1	89.1	86.2	2.92	30.507	
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	-89.99	0.0	-89.1	89.1	85.8	3.37	26.439	
900.0	900.0	900.0	900.0	1.9	1.9	-89.99	-89.99	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	-89.99	-89.99	0.0	-89.1	89.1	84.9	4.27	20.873 CC	
1,100.0	1,100.0	1,099.3	1,099.2	2.4	2.4	-88.92	-88.92	1.7	-89.5	89.5	84.8	4.72	18.977 ES	
1,200.0	1,200.0	1,198.3	1,198.1	2.6	2.6	-85.78	-85.78	6.7	-90.7	91.0	85.8	5.17	17.597	
1,300.0	1,300.0	1,296.8	1,296.3	2.8	2.8	-80.81	-80.81	15.0	-92.6	93.9	88.3	5.62	16.701	
1,400.0	1,400.0	1,394.7	1,393.5	3.0	3.0	-74.48	-74.48	26.5	-95.3	99.1	93.0	6.08	16.294	
1,500.0	1,500.0	1,492.5	1,490.1	3.3	3.3	-67.47	-67.47	40.9	-98.6	107.2	100.6	6.56	16.348	
1,600.0	1,600.0	1,591.2	1,587.6	3.5	3.6	-61.24	-61.24	56.0	-102.1	117.1	110.1	7.05	16.607	
1,700.0	1,700.0	1,690.0	1,685.2	3.7	3.9	-56.01	-56.01	71.2	-105.6	128.2	120.6	7.57	16.946	
1,800.0	1,800.0	1,788.7	1,782.7	3.9	4.2	-51.64	-51.64	86.3	-109.1	140.2	132.1	8.09	17.320	
1,900.0	1,900.0	1,887.5	1,880.2	4.2	4.5	-47.97	-47.97	101.5	-112.6	152.9	144.2	8.63	17.705	
2,000.0	2,000.0	1,986.3	1,977.7	4.4	4.8	-44.87	-44.87	116.6	-116.1	166.1	156.9	9.18	18.084	
2,100.0	2,100.0	2,085.0	2,075.2	4.6	5.2	-42.23	-42.23	131.8	-119.6	179.7	169.9	9.74	18.451	
2,200.0	2,200.0	2,183.8	2,172.8	4.8	5.5	-39.96	-39.96	146.9	-123.1	193.6	183.3	10.30	18.801	
2,300.0	2,300.0	2,282.5	2,270.3	5.1	5.8	-37.99	-37.99	162.1	-126.6	207.8	196.9	10.86	19.132	
2,400.0	2,400.0	2,381.3	2,367.8	5.3	6.2	-36.28	-36.28	177.2	-130.1	222.2	210.8	11.43	19.444	
2,500.0	2,500.0	2,480.0	2,465.3	5.5	6.5	-34.78	-34.78	192.4	-133.6	236.7	224.8	12.00	19.737	
2,600.0	2,600.0	2,578.7	2,562.8	5.7	6.8	70.30	70.30	207.5	-137.1	250.9	239.2	11.67	21.506	
2,700.0	2,699.8	2,677.4	2,660.2	5.9	7.2	72.28	72.28	222.6	-140.6	264.1	252.1	12.09	21.850	
2,800.0	2,799.5	2,775.7	2,757.3	6.1	7.5	74.74	74.74	237.7	-144.1	276.9	264.3	12.51	22.126	
2,900.0	2,898.8	2,873.8	2,854.2	6.3	7.9	77.64	77.64	252.8	-147.5	289.5	276.6	12.94	22.374	
3,000.0	2,998.1	2,971.9	2,951.0	6.5	8.2	80.40	80.40	267.8	-151.0	302.9	289.5	13.38	22.637	
3,100.0	3,097.4	3,069.9	3,047.9	6.8	8.6	82.92	82.92	282.8	-154.5	317.0	303.1	13.83	22.910	
3,200.0	3,196.8	3,168.0	3,144.7	7.0	8.9	85.23	85.23	297.9	-158.0	331.5	317.2	14.30	23.186	
3,300.0	3,296.1	3,266.1	3,241.6	7.3	9.3	87.35	87.35	312.9	-161.5	346.6	331.8	14.77	23.461	
3,400.0	3,395.4	3,364.1	3,338.4	7.5	9.6	89.29	89.29	328.0	-164.9	362.1	346.9	15.26	23.732	
3,500.0	3,494.7	3,462.2	3,435.3	7.8	10.0	91.07	91.07	343.0	-168.4	378.0	362.3	15.75	23.996	
3,600.0	3,594.1	3,560.3	3,532.1	8.0	10.3	92.71	92.71	358.0	-171.9	394.2	378.0	16.26	24.253	
3,700.0	3,693.4	3,658.3	3,628.9	8.3	10.7	94.22	94.22	373.1	-175.4	410.7	394.0	16.76	24.502	
3,800.0	3,792.7	3,756.4	3,725.8	8.5	11.0	95.61	95.61	388.1	-178.8	427.5	410.2	17.28	24.742	
3,900.0	3,892.0	3,854.5	3,822.6	8.8	11.4	96.90	96.90	403.2	-182.3	444.5	426.7	17.80	24.973	
4,000.0	3,991.4	3,952.5	3,919.5	9.1	11.7	98.09	98.09	418.2	-185.8	461.7	443.4	18.33	25.195	
4,100.0	4,090.7	4,050.6	4,016.3	9.4	12.1	99.20	99.20	433.3	-189.3	479.1	460.2	18.86	25.409	
4,200.0	4,190.0	4,148.7	4,113.2	9.6	12.4	100.23	100.23	448.3	-192.7	496.6	477.3	19.39	25.614	
4,300.0	4,289.3	4,246.7	4,210.0	9.9	12.8	101.19	101.19	463.3	-196.2	514.3	494.4	19.93	25.811	
4,400.0	4,388.7	4,344.8	4,306.8	10.2	13.1	102.09	102.09	478.4	-199.7	532.2	511.7	20.47	25.999	
4,500.0	4,488.0	4,442.8	4,403.7	10.5	13.5	102.93	102.93	493.4	-203.2	550.1	529.1	21.01	26.181	
4,600.0	4,587.3	4,540.9	4,500.5	10.8	13.9	103.71	103.71	508.5	-206.6	568.2	546.6	21.56	26.355	
4,700.0	4,686.6	4,639.0	4,597.4	11.1	14.2	104.51	104.51	523.5	-210.1	586.3	564.2	22.11	26.522	
4,800.0	4,786.2	4,737.3	4,694.5	11.3	14.6	105.33	105.33	538.6	-213.6	603.9	581.3	22.61	26.706	
4,900.0	4,886.0	4,835.9	4,791.8	11.5	14.9	105.79	105.79	553.7	-217.1	620.6	597.5	23.10	26.869	
5,000.0	4,986.0	4,934.6	4,889.3	11.7	15.3	105.91	105.91	568.8	-220.6	636.4	612.9	23.56	27.015	

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 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-202 - Wellbore #1 - Plan #1 (2-26-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,086.0	5,033.4	4,986.8	11.9	15.6	1.95		584.0	-224.1	651.7	625.3	26.38	24.703	
5,200.0	5,186.0	5,132.1	5,084.3	12.1	16.0	1.60		599.1	-227.6	666.9	639.9	26.95	24.743	
5,300.0	5,286.0	5,230.9	5,181.9	12.3	16.4	1.27		614.3	-231.1	682.1	654.6	27.53	24.782	
5,400.0	5,386.0	5,329.6	5,279.4	12.5	16.7	0.95		629.4	-234.6	697.4	669.3	28.10	24.819	
5,500.0	5,486.0	5,437.4	5,385.8	12.7	17.1	0.62		645.7	-238.4	712.5	683.9	28.69	24.838	
5,600.0	5,586.0	5,568.7	5,516.2	12.9	17.4	0.32		661.3	-242.0	724.4	695.1	29.26	24.756	
5,700.0	5,686.0	5,701.2	5,648.3	13.1	17.7	0.14		671.1	-244.2	731.8	702.0	29.76	24.593	
5,800.0	5,786.0	5,834.3	5,781.4	13.3	17.9	0.07		675.0	-245.1	734.7	704.5	30.18	24.341	
5,900.0	5,886.0	5,939.0	5,886.0	13.5	18.1	0.07		675.0	-245.1	734.7	704.2	30.55	24.048	
5,956.0	5,942.0	5,995.0	5,942.0	13.6	18.2	0.07		675.0	-245.1	734.7	704.0	30.76	23.885	
6,000.0	5,986.0	6,038.9	5,986.0	13.7	18.2	0.11		675.0	-244.5	734.7	703.8	30.92	23.761	
6,100.0	6,086.0	6,137.8	6,084.2	13.9	18.4	-89.20		675.0	-234.2	734.8	706.5	28.27	25.990	
6,200.0	6,185.1	6,235.3	6,179.0	14.0	18.4	-88.40		675.0	-211.7	735.0	706.5	28.55	25.742	
6,300.0	6,281.6	6,331.6	6,269.1	14.1	18.5	-87.63		675.0	-177.8	735.4	706.6	28.79	25.544	
6,400.0	6,373.9	6,426.8	6,353.2	14.2	18.6	-86.91		675.0	-133.4	735.8	706.8	29.04	25.335	
6,500.0	6,460.5	6,521.0	6,430.4	14.3	18.7	-86.24		675.0	-79.5	736.3	706.9	29.41	25.034	
6,600.0	6,539.8	6,614.3	6,499.7	14.6	18.7	-85.63		675.0	-17.2	736.9	706.9	30.03	24.540	
6,700.0	6,610.5	6,706.8	6,560.5	15.0	18.9	-85.10		675.0	52.5	737.5	706.4	31.02	23.773	
6,800.0	6,671.4	6,800.0	6,612.7	15.7	19.2	-84.64		675.0	129.6	738.0	705.4	32.53	22.684	
6,900.0	6,721.4	6,890.0	6,653.9	16.7	19.7	-84.27		675.0	209.6	738.4	703.8	34.61	21.334	
7,000.0	6,759.7	6,980.9	6,685.7	18.1	20.6	-83.99		675.0	294.7	738.8	701.5	37.30	19.810	
7,100.0	6,785.6	7,071.6	6,707.1	19.7	21.9	-83.81		675.0	382.8	739.1	698.6	40.51	18.246	
7,200.0	6,798.7	7,162.0	6,717.9	21.6	23.5	-83.72		675.0	472.5	739.2	695.1	44.14	16.748	
7,300.0	6,799.7	7,256.3	6,718.8	23.7	25.4	-83.72		675.0	566.7	739.2	691.1	48.13	15.359	
7,400.0	6,798.4	7,356.3	6,717.8	25.8	27.5	-83.73		675.0	666.7	739.2	686.7	52.47	14.088	
7,500.0	6,797.2	7,456.3	6,716.7	28.1	29.7	-83.75		675.0	766.7	739.1	682.1	57.02	12.963	
7,600.0	6,795.9	7,556.3	6,715.6	30.5	32.0	-83.77		675.0	866.7	739.1	677.4	61.74	11.971	
7,700.0	6,794.6	7,656.3	6,714.6	33.0	34.4	-83.79		675.0	966.7	739.1	672.5	66.60	11.098	
7,800.0	6,793.3	7,756.3	6,713.5	35.5	36.9	-83.80		675.0	1,066.7	739.1	667.5	71.56	10.327	
7,900.0	6,792.0	7,856.3	6,712.4	38.0	39.4	-83.82		675.0	1,166.7	739.0	662.4	76.62	9.646	
8,000.0	6,790.7	7,956.3	6,711.4	40.6	41.9	-83.84		675.0	1,266.7	739.0	657.3	81.74	9.041	
8,100.0	6,789.4	8,056.3	6,710.3	43.2	44.5	-83.86		675.0	1,366.7	739.0	652.1	86.92	8.502	
8,200.0	6,788.1	8,156.3	6,709.2	45.8	47.1	-83.87		675.0	1,466.7	739.0	646.8	92.15	8.020	
8,300.0	6,786.8	8,256.3	6,708.2	48.5	49.7	-83.89		675.0	1,566.7	738.9	641.5	97.41	7.586	
8,400.0	6,785.5	8,356.3	6,707.1	51.1	52.3	-83.91		675.0	1,666.7	738.9	636.2	102.72	7.194	
8,500.0	6,784.2	8,456.3	6,706.1	53.8	55.0	-83.93		675.0	1,766.6	738.9	630.8	108.05	6.839	
8,600.0	6,783.0	8,556.3	6,705.0	56.5	57.7	-83.94		675.0	1,866.6	738.9	625.5	113.41	6.515	
8,700.0	6,781.7	8,656.3	6,703.9	59.2	60.4	-83.96		675.0	1,966.6	738.8	620.1	118.79	6.220	
8,800.0	6,780.4	8,756.3	6,702.9	61.9	63.0	-83.98		675.0	2,066.6	738.8	614.6	124.19	5.949	
8,900.0	6,779.1	8,856.3	6,701.8	64.7	65.8	-84.00		675.0	2,166.6	738.8	609.2	129.60	5.701	
9,000.0	6,777.8	8,956.3	6,700.7	67.4	68.5	-84.01		675.0	2,266.6	738.8	603.7	135.03	5.471	
9,100.0	6,776.5	9,056.2	6,699.7	70.1	71.2	-84.03		675.0	2,366.6	738.8	598.3	140.47	5.259	
9,200.0	6,775.2	9,156.2	6,698.6	72.9	73.9	-84.05		675.0	2,466.6	738.7	592.8	145.93	5.062	
9,300.0	6,773.9	9,256.2	6,697.5	75.6	76.6	-84.07		675.0	2,566.6	738.7	587.3	151.39	4.879	
9,400.0	6,772.6	9,356.2	6,696.5	78.4	79.4	-84.08		675.0	2,666.6	738.7	581.8	156.87	4.709	
9,500.0	6,771.3	9,456.2	6,695.4	81.1	82.1	-84.10		675.0	2,766.6	738.7	576.3	162.35	4.550	
9,600.0	6,770.0	9,556.2	6,694.3	83.9	84.9	-84.12		675.0	2,866.6	738.6	570.8	167.84	4.401	
9,700.0	6,768.7	9,656.2	6,693.3	86.6	87.6	-84.14		675.0	2,966.6	738.6	565.3	173.34	4.261	
9,800.0	6,767.5	9,756.2	6,692.2	89.4	90.4	-84.15		675.0	3,066.6	738.6	559.7	178.84	4.130	
9,900.0	6,766.2	9,856.2	6,691.1	92.2	93.1	-84.17		675.0	3,166.6	738.6	554.2	184.35	4.006	
10,000.0	6,764.9	9,956.2	6,690.1	94.9	95.9	-84.19		675.0	3,266.6	738.5	548.7	189.87	3.890	

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 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-202 - Wellbore #1 - Plan #1 (2-26-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,763.6	10,056.2	6,689.0	97.7	98.7	-84.21		675.0	3,366.6	738.5	543.1	195.39	3.780	
10,200.0	6,762.3	10,156.2	6,688.0	100.5	101.4	-84.22		675.0	3,466.5	738.5	537.6	200.91	3.676	
10,300.0	6,761.0	10,256.2	6,686.9	103.3	104.2	-84.24		675.0	3,566.5	738.5	532.0	206.44	3.577	
10,400.0	6,759.7	10,356.2	6,685.8	106.0	107.0	-84.26		675.0	3,666.5	738.5	526.5	211.97	3.484	
10,500.0	6,758.4	10,456.2	6,684.8	108.8	109.7	-84.28		675.0	3,766.5	738.4	520.9	217.51	3.395	
10,600.0	6,757.1	10,556.2	6,683.7	111.6	112.5	-84.29		675.0	3,866.5	738.4	515.4	223.05	3.311	
10,700.0	6,755.8	10,656.2	6,682.6	114.4	115.3	-84.31		675.0	3,966.5	738.4	509.8	228.59	3.230	
10,800.0	6,754.5	10,756.2	6,681.6	117.2	118.1	-84.33		675.0	4,066.5	738.4	504.2	234.14	3.154	
10,900.0	6,753.2	10,856.2	6,680.5	119.9	120.8	-84.35		675.0	4,166.5	738.3	498.7	239.69	3.080	
11,000.0	6,752.0	10,956.2	6,679.4	122.7	123.6	-84.36		675.0	4,266.5	738.3	493.1	245.24	3.011	
11,100.0	6,750.7	11,056.2	6,678.4	125.5	126.4	-84.38		675.0	4,366.5	738.3	487.5	250.79	2.944	
11,200.0	6,749.4	11,156.2	6,677.3	128.3	129.2	-84.40		675.0	4,466.5	738.3	481.9	256.35	2.880	
11,300.0	6,748.1	11,256.2	6,676.2	131.1	132.0	-84.42		675.0	4,566.5	738.3	476.3	261.90	2.819	
11,400.0	6,746.8	11,356.2	6,675.2	133.9	134.8	-84.43		675.0	4,666.5	738.2	470.8	267.46	2.760	
11,500.0	6,745.5	11,456.2	6,674.1	136.7	137.5	-84.45		675.0	4,766.5	738.2	465.2	273.03	2.704	
11,600.0	6,744.2	11,556.2	6,673.1	139.5	140.3	-84.47		675.0	4,866.5	738.2	459.6	278.59	2.650	
11,700.0	6,742.9	11,656.2	6,672.0	142.2	143.1	-84.49		675.0	4,966.5	738.2	454.0	284.15	2.598	
11,800.0	6,741.6	11,756.2	6,670.9	145.0	145.9	-84.50		675.0	5,066.5	738.1	448.4	289.72	2.548	
11,900.0	6,740.3	11,856.2	6,669.9	147.8	148.7	-84.52		675.0	5,166.4	738.1	442.8	295.29	2.500	
12,000.0	6,739.0	11,956.2	6,668.8	150.6	151.5	-84.54		675.0	5,266.4	738.1	437.2	300.86	2.453	
12,100.0	6,737.7	12,056.2	6,667.7	153.4	154.3	-84.56		675.0	5,366.4	738.1	431.6	306.43	2.409	
12,200.0	6,736.5	12,156.2	6,666.7	156.2	157.1	-84.57		675.0	5,466.4	738.1	426.1	312.00	2.366	
12,300.0	6,735.2	12,256.2	6,665.6	159.0	159.8	-84.59		675.0	5,566.4	738.0	420.5	317.58	2.324	
12,400.0	6,733.9	12,356.2	6,664.5	161.8	162.6	-84.61		675.0	5,666.4	738.0	414.9	323.15	2.284	
12,500.0	6,732.6	12,456.2	6,663.5	164.6	165.4	-84.63		675.0	5,766.4	738.0	409.3	328.73	2.245	
12,600.0	6,731.3	12,556.2	6,662.4	167.4	168.2	-84.64		675.0	5,866.4	738.0	403.7	334.31	2.207	
12,700.0	6,730.0	12,656.2	6,661.3	170.2	171.0	-84.66		675.0	5,966.4	738.0	398.1	339.89	2.171	
12,800.0	6,728.7	12,756.2	6,660.3	173.0	173.8	-84.68		675.0	6,066.4	737.9	392.5	345.47	2.136	
12,900.0	6,727.4	12,856.2	6,659.2	175.8	176.6	-84.70		675.1	6,166.4	737.9	386.9	351.05	2.102	
13,000.0	6,726.1	12,956.2	6,658.1	178.6	179.4	-84.71		675.1	6,266.4	737.9	381.3	356.63	2.069	
13,100.0	6,724.8	13,056.2	6,657.1	181.4	182.2	-84.73		675.1	6,366.4	737.9	375.7	362.21	2.037	
13,200.0	6,723.5	13,156.2	6,656.0	184.2	185.0	-84.75		675.1	6,466.4	737.8	370.1	367.79	2.006	
13,300.0	6,722.3	13,256.2	6,655.0	187.0	187.8	-84.77		675.1	6,566.4	737.8	364.4	373.38	1.976	
13,400.0	6,721.0	13,356.2	6,653.9	189.8	190.6	-84.78		675.1	6,666.4	737.8	358.8	378.96	1.947	
13,500.0	6,719.7	13,456.2	6,652.8	192.6	193.4	-84.80		675.1	6,766.4	737.8	353.2	384.55	1.919	
13,600.0	6,718.4	13,556.2	6,651.8	195.4	196.2	-84.82		675.1	6,866.3	737.8	347.6	390.14	1.891	
13,700.0	6,717.1	13,656.2	6,650.7	198.2	199.0	-84.84		675.1	6,966.3	737.7	342.0	395.73	1.864	
13,800.0	6,715.8	13,756.2	6,649.6	201.0	201.8	-84.85		675.1	7,066.3	737.7	336.4	401.31	1.838	
13,846.9	6,715.2	13,803.2	6,649.1	202.3	203.1	-84.86		675.1	7,113.3	737.7	333.8	403.93	1.826	
13,862.3	6,715.0	13,815.4	6,649.0	202.7	203.4	-84.86		675.1	7,125.5	737.7	333.0	404.70	1.823 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-432 - Wellbore #1 - Plan #1 (2-26-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	-89.99	0.0	-61.3	61.3				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	-89.99	0.0	-61.3	61.3	61.1	0.22	272.656	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	-89.99	0.0	-61.3	61.3	60.6	0.67	90.885	
300.0	300.0	300.0	300.0	0.6	0.6	-89.99	-89.99	0.0	-61.3	61.3	60.2	1.12	54.531	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	-89.99	0.0	-61.3	61.3	59.7	1.57	38.951	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	-89.99	0.0	-61.3	61.3	59.3	2.02	30.295	
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	-89.99	0.0	-61.3	61.3	58.8	2.47	24.787	
700.0	700.0	700.0	700.0	1.5	1.5	-89.99	-89.99	0.0	-61.3	61.3	58.4	2.92	20.974	
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	-89.99	0.0	-61.3	61.3	57.9	3.37	18.177	
900.0	900.0	900.0	900.0	1.9	1.9	-89.99	-89.99	0.0	-61.3	61.3	57.5	3.82	16.039	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.99	-89.99	0.0	-61.3	61.3	57.0	4.27	14.350	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-89.99	-89.99	0.0	-61.3	61.3	56.6	4.72	12.984	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-89.99	-89.99	0.0	-61.3	61.3	56.1	5.17	11.855 CC	
1,300.0	1,300.0	1,299.0	1,298.9	2.8	2.8	-88.61	-88.61	1.5	-62.1	62.1	56.5	5.62	11.063	
1,400.0	1,400.0	1,397.7	1,397.5	3.0	3.0	-84.69	-84.69	6.0	-64.5	64.9	58.8	6.06	10.698	
1,500.0	1,500.0	1,495.9	1,495.4	3.3	3.3	-78.91	-78.91	13.4	-68.6	70.0	63.5	6.51	10.749	
1,600.0	1,600.0	1,595.3	1,594.2	3.5	3.5	-72.91	-72.91	22.6	-73.5	77.1	70.2	6.97	11.061	
1,700.0	1,700.0	1,694.7	1,693.1	3.7	3.7	-67.95	-67.95	31.8	-78.5	85.0	77.5	7.44	11.417	
1,800.0	1,800.0	1,794.2	1,792.0	3.9	4.0	-63.85	-63.85	41.0	-83.5	93.3	85.4	7.92	11.786	
1,900.0	1,900.0	1,893.6	1,890.9	4.2	4.2	-60.44	-60.44	50.2	-88.4	102.1	93.7	8.40	12.152	
2,000.0	2,000.0	1,993.1	1,989.8	4.4	4.5	-57.57	-57.57	59.4	-93.4	111.1	102.3	8.89	12.505	
2,100.0	2,100.0	2,092.5	2,088.7	4.6	4.8	-55.14	-55.14	68.5	-98.4	120.4	111.1	9.38	12.841	
2,200.0	2,200.0	2,192.0	2,187.6	4.8	5.0	-53.06	-53.06	77.7	-103.4	129.9	120.0	9.87	13.158	
2,300.0	2,300.0	2,291.4	2,286.5	5.1	5.3	-51.26	-51.26	86.9	-108.3	139.5	129.2	10.37	13.456	
2,400.0	2,400.0	2,390.9	2,385.4	5.3	5.6	-49.70	-49.70	96.1	-113.3	149.3	138.4	10.87	13.734	
2,500.0	2,500.0	2,490.3	2,484.3	5.5	5.9	-48.33	-48.33	105.3	-118.3	159.1	147.8	11.37	13.994	
2,600.0	2,600.0	2,589.8	2,583.2	5.7	6.1	-56.87	-56.87	114.5	-123.3	168.1	156.6	11.48	14.641	
2,700.0	2,699.8	2,689.2	2,682.1	5.9	6.4	-59.25	-59.25	123.7	-128.2	175.4	163.5	11.90	14.741	
2,800.0	2,799.5	2,788.5	2,780.8	6.1	6.7	-62.40	-62.40	132.8	-133.2	181.4	169.1	12.32	14.722	
2,900.0	2,898.8	2,887.6	2,879.4	6.3	7.0	-66.14	-66.14	142.0	-138.2	186.8	174.0	12.76	14.644	
3,000.0	2,998.1	2,986.7	2,977.9	6.5	7.3	-69.75	-69.75	151.1	-143.1	192.9	179.7	13.21	14.610	
3,100.0	3,097.4	3,085.8	3,076.5	6.8	7.5	-73.13	-73.13	160.3	-148.1	199.8	186.1	13.67	14.617	
3,200.0	3,196.8	3,184.9	3,175.0	7.0	7.8	-76.27	-76.27	169.4	-153.0	207.3	193.1	14.14	14.658	
3,300.0	3,296.1	3,284.0	3,273.5	7.3	8.1	-79.19	-79.19	178.6	-158.0	215.4	200.7	14.63	14.726	
3,400.0	3,395.4	3,383.0	3,372.1	7.5	8.4	-81.90	-81.90	187.7	-162.9	224.0	208.9	15.12	14.814	
3,500.0	3,494.7	3,482.1	3,470.6	7.8	8.7	-84.40	-84.40	196.9	-167.9	233.1	217.4	15.62	14.917	
3,600.0	3,594.1	3,581.2	3,569.2	8.0	9.0	-86.71	-86.71	206.1	-172.9	242.5	226.4	16.13	15.033	
3,700.0	3,693.4	3,680.3	3,667.7	8.3	9.3	-88.85	-88.85	215.2	-177.8	252.4	235.7	16.65	15.158	
3,800.0	3,792.7	3,779.4	3,766.2	8.5	9.5	-90.82	-90.82	224.4	-182.8	262.6	245.4	17.17	15.290	
3,900.0	3,892.0	3,878.5	3,864.8	8.8	9.8	-92.65	-92.65	233.5	-187.7	273.0	255.3	17.70	15.425	
4,000.0	3,991.4	3,977.6	3,963.3	9.1	10.1	-94.34	-94.34	242.7	-192.7	283.7	265.5	18.23	15.564	
4,100.0	4,090.7	4,076.6	4,061.8	9.4	10.4	-95.91	-95.91	251.8	-197.6	294.7	275.9	18.76	15.704	
4,200.0	4,190.0	4,175.7	4,160.4	9.6	10.7	-97.36	-97.36	261.0	-202.6	305.8	286.5	19.30	15.844	
4,300.0	4,289.3	4,274.8	4,258.9	9.9	11.0	-98.71	-98.71	270.1	-207.5	317.2	297.3	19.84	15.984	
4,400.0	4,388.7	4,373.9	4,357.5	10.2	11.3	-99.97	-99.97	279.3	-212.5	328.6	308.3	20.38	16.123	
4,500.0	4,488.0	4,473.0	4,456.0	10.5	11.6	-101.15	-101.15	288.4	-217.5	340.3	319.4	20.93	16.260	
4,600.0	4,587.3	4,572.1	4,554.5	10.8	11.8	-102.24	-102.24	297.6	-222.4	352.1	330.6	21.47	16.395	
4,700.0	4,686.6	4,671.2	4,653.1	11.1	12.1	-103.30	-103.30	306.7	-227.4	363.9	341.9	22.02	16.529	
4,800.0	4,786.2	4,770.4	4,751.8	11.3	12.4	-104.13	-104.13	315.9	-232.3	375.3	352.8	22.51	16.674	
4,900.0	4,886.0	4,869.9	4,850.7	11.5	12.7	-104.39	-104.39	325.1	-237.3	385.9	362.9	22.98	16.795	
5,000.0	4,986.0	4,976.3	4,956.6	11.7	13.0	-104.15	-104.15	334.4	-242.4	395.2	371.8	23.42	16.878	

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 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-432 - Wellbore #1 - Plan #1 (2-26-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,086.0	5,090.0	5,070.0	11.9	13.2	0.02		340.9	-245.9	400.9	377.2	23.77	16.865	
5,200.0	5,186.0	5,204.0	5,184.0	12.1	13.4	-0.18		343.5	-247.3	403.2	379.0	24.19	16.670	
5,300.0	5,286.0	5,306.0	5,286.0	12.3	13.6	-0.18		343.5	-247.3	403.2	378.6	24.58	16.407	
5,400.0	5,386.0	5,406.0	5,386.0	12.5	13.8	-0.18		343.5	-247.3	403.2	378.2	24.98	16.140	
5,500.0	5,486.0	5,506.0	5,486.0	12.7	14.0	-0.18		343.5	-247.3	403.2	377.8	25.39	15.880	
5,600.0	5,586.0	5,606.0	5,586.0	12.9	14.2	-0.18		343.5	-247.3	403.2	377.4	25.80	15.628	
5,700.0	5,686.0	5,706.0	5,686.0	13.1	14.4	-0.18		343.5	-247.3	403.2	377.0	26.21	15.383	
5,800.0	5,786.0	5,806.0	5,786.0	13.3	14.6	-0.18		343.5	-247.3	403.2	376.6	26.62	15.145	
5,900.0	5,886.0	5,906.0	5,886.0	13.5	14.7	-0.18		343.5	-247.3	403.2	376.2	27.04	14.913	
6,000.0	5,986.0	6,006.0	5,986.0	13.7	14.9	-0.18		343.5	-247.3	403.2	375.8	27.45	14.688	
6,042.5	6,028.5	6,048.5	6,028.5	13.8	15.0	-90.27		343.5	-247.3	403.2	375.6	27.66	14.577	
6,100.0	6,086.0	6,106.0	6,086.0	13.9	15.1	-90.41		343.5	-247.3	403.2	375.3	27.89	14.456	
6,200.0	6,185.1	6,206.4	6,186.3	14.0	15.3	-91.72		343.5	-243.5	403.4	375.2	28.18	14.317	
6,300.0	6,281.6	6,308.2	6,286.6	14.1	15.4	-93.05		343.5	-226.6	403.8	375.4	28.38	14.228	
6,400.0	6,373.9	6,411.3	6,385.0	14.2	15.5	-94.35		343.5	-196.1	404.4	375.8	28.56	14.159	
6,500.0	6,460.5	6,515.8	6,479.6	14.3	15.6	-95.56		343.5	-152.0	405.1	376.3	28.81	14.064	
6,600.0	6,539.8	6,621.5	6,568.2	14.6	15.6	-96.69		343.5	-94.6	406.0	376.8	29.24	13.885	
6,700.0	6,610.5	6,728.4	6,649.0	15.0	15.7	-97.69		343.5	-24.7	406.9	376.9	30.02	13.555	
6,800.0	6,671.4	6,836.3	6,719.9	15.7	16.0	-98.56		343.5	56.6	407.8	376.5	31.31	13.025	
6,900.0	6,721.4	6,945.2	6,779.1	16.7	17.0	-99.27		343.5	147.9	408.6	375.3	33.24	12.293	
7,000.0	6,759.7	7,054.9	6,825.0	18.1	18.4	-99.81		343.5	247.5	409.2	373.3	35.86	11.410	
7,100.0	6,785.6	7,165.2	6,856.2	19.7	20.2	-100.17		343.5	353.1	409.7	370.5	39.15	10.464	
7,200.0	6,798.7	7,273.3	6,872.2	21.6	22.2	-100.39		343.5	459.9	409.9	367.0	42.91	9.553	
7,300.0	6,799.7	7,376.6	6,881.8	23.7	24.3	-101.50		343.5	562.7	411.5	364.7	46.81	8.791	
7,400.0	6,798.4	7,482.2	6,883.5	25.8	26.6	-101.91		343.5	668.3	412.1	361.0	51.13	8.060	
7,500.0	6,797.2	7,582.2	6,882.6	28.1	28.9	-101.97		343.5	768.3	412.2	356.6	55.60	7.413	
7,600.0	6,795.9	7,682.2	6,881.7	30.5	31.3	-102.02		343.5	868.3	412.3	352.0	60.24	6.843	
7,700.0	6,794.6	7,782.2	6,880.8	33.0	33.7	-102.08		343.5	968.3	412.3	347.3	65.01	6.342	
7,800.0	6,793.3	7,882.2	6,879.9	35.5	36.2	-102.13		343.5	1,068.3	412.4	342.5	69.89	5.901	
7,900.0	6,792.0	7,982.2	6,879.1	38.0	38.7	-102.18		343.5	1,168.3	412.5	337.7	74.84	5.512	
8,000.0	6,790.7	8,082.2	6,878.2	40.6	41.3	-102.24		343.5	1,268.3	412.6	332.7	79.87	5.166	
8,100.0	6,789.4	8,182.2	6,877.3	43.2	43.9	-102.29		343.5	1,368.3	412.7	327.7	84.95	4.858	
8,200.0	6,788.1	8,282.2	6,876.4	45.8	46.5	-102.35		343.5	1,468.3	412.8	322.7	90.07	4.583	
8,300.0	6,786.8	8,382.2	6,875.5	48.5	49.2	-102.40		343.5	1,568.3	412.9	317.6	95.23	4.335	
8,400.0	6,785.5	8,482.2	6,874.6	51.1	51.8	-102.46		343.5	1,668.3	412.9	312.5	100.42	4.112	
8,500.0	6,784.2	8,582.2	6,873.7	53.8	54.5	-102.51		343.5	1,768.3	413.0	307.4	105.64	3.910	
8,600.0	6,783.0	8,682.2	6,872.8	56.5	57.2	-102.57		343.5	1,868.3	413.1	302.2	110.88	3.726	
8,700.0	6,781.7	8,782.2	6,871.9	59.2	59.9	-102.62		343.5	1,968.3	413.2	297.1	116.14	3.558	
8,800.0	6,780.4	8,882.2	6,871.0	61.9	62.6	-102.67		343.5	2,068.3	413.3	291.9	121.42	3.404	
8,900.0	6,779.1	8,982.2	6,870.2	64.7	65.3	-102.73		343.5	2,168.3	413.4	286.7	126.71	3.262	
9,000.0	6,777.8	9,082.2	6,869.3	67.4	68.0	-102.78		343.5	2,268.3	413.5	281.5	132.01	3.132	
9,100.0	6,776.5	9,182.2	6,868.4	70.1	70.7	-102.84		343.5	2,368.2	413.6	276.2	137.32	3.012	
9,200.0	6,775.2	9,282.2	6,867.5	72.9	73.5	-102.89		343.5	2,468.2	413.6	271.0	142.64	2.900	
9,300.0	6,773.9	9,382.2	6,866.6	75.6	76.2	-102.95		343.5	2,568.2	413.7	265.8	147.97	2.796	
9,400.0	6,772.6	9,482.2	6,865.7	78.4	79.0	-103.00		343.5	2,668.2	413.8	260.5	153.30	2.699	
9,500.0	6,771.3	9,582.2	6,864.8	81.1	81.7	-103.05		343.5	2,768.2	413.9	255.3	158.64	2.609	
9,600.0	6,770.0	9,682.2	6,863.9	83.9	84.5	-103.11		343.5	2,868.2	414.0	250.0	163.98	2.525	
9,700.0	6,768.7	9,782.2	6,863.0	86.6	87.2	-103.16		343.5	2,968.2	414.1	244.8	169.33	2.445	
9,800.0	6,767.5	9,882.2	6,862.1	89.4	90.0	-103.22		343.5	3,068.2	414.2	239.5	174.69	2.371	
9,900.0	6,766.2	9,982.2	6,861.3	92.2	92.8	-103.27		343.5	3,168.2	414.3	234.2	180.04	2.301	
10,000.0	6,764.9	10,082.2	6,860.4	94.9	95.5	-103.32		343.5	3,268.2	414.4	229.0	185.40	2.235	

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 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-432 - Wellbore #1 - Plan #1 (2-26-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
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)			
10,100.0	6,763.6	10,182.2	6,859.5	97.7	98.3	-103.38	343.5	3,368.2	414.5	223.7	190.76	2.173		
10,200.0	6,762.3	10,282.2	6,858.6	100.5	101.1	-103.43	343.5	3,468.2	414.6	218.4	196.12	2.114		
10,300.0	6,761.0	10,382.2	6,857.7	103.3	103.8	-103.49	343.5	3,568.2	414.7	213.2	201.48	2.058		
10,400.0	6,759.7	10,482.2	6,856.8	106.0	106.6	-103.54	343.5	3,668.2	414.7	207.9	206.85	2.005		
10,500.0	6,758.4	10,582.2	6,855.9	108.8	109.4	-103.59	343.5	3,768.2	414.8	202.6	212.21	1.955		
10,600.0	6,757.1	10,682.2	6,855.0	111.6	112.2	-103.65	343.5	3,868.2	414.9	197.4	217.57	1.907		
10,700.0	6,755.8	10,782.2	6,854.1	114.4	114.9	-103.70	343.5	3,968.2	415.0	192.1	222.94	1.862		
10,800.0	6,754.5	10,882.2	6,853.2	117.2	117.7	-103.76	343.5	4,068.2	415.1	186.8	228.31	1.818		
10,900.0	6,753.2	10,982.2	6,852.3	119.9	120.5	-103.81	343.5	4,168.2	415.2	181.5	233.67	1.777		
11,000.0	6,752.0	11,082.2	6,851.5	122.7	123.3	-103.86	343.5	4,268.2	415.3	176.3	239.04	1.737		
11,100.0	6,750.7	11,182.2	6,850.6	125.5	126.1	-103.92	343.5	4,368.2	415.4	171.0	244.40	1.700		
11,200.0	6,749.4	11,282.2	6,849.7	128.3	128.9	-103.97	343.5	4,468.1	415.5	165.7	249.76	1.664		
11,300.0	6,748.1	11,382.2	6,848.8	131.1	131.6	-104.02	343.5	4,568.1	415.6	160.5	255.13	1.629		
11,400.0	6,746.8	11,482.2	6,847.9	133.9	134.4	-104.08	343.5	4,668.1	415.7	155.2	260.49	1.596		
11,500.0	6,745.5	11,582.2	6,847.0	136.7	137.2	-104.13	343.5	4,768.1	415.8	150.0	265.85	1.564		
11,600.0	6,744.2	11,682.2	6,846.1	139.5	140.0	-104.18	343.5	4,868.1	415.9	144.7	271.21	1.533		
11,700.0	6,742.9	11,782.2	6,845.2	142.2	142.8	-104.24	343.5	4,968.1	416.0	139.4	276.57	1.504		
11,800.0	6,741.6	11,882.2	6,844.3	145.0	145.6	-104.29	343.5	5,068.1	416.1	134.2	281.93	1.476 Level 3		
11,900.0	6,740.3	11,982.2	6,843.4	147.8	148.4	-104.35	343.5	5,168.1	416.2	128.9	287.28	1.449 Level 3		
12,000.0	6,739.0	12,082.2	6,842.6	150.6	151.2	-104.40	343.5	5,268.1	416.3	123.7	292.64	1.423 Level 3		
12,100.0	6,737.7	12,182.2	6,841.7	153.4	154.0	-104.45	343.5	5,368.1	416.4	118.4	297.99	1.397 Level 3		
12,200.0	6,736.5	12,282.2	6,840.8	156.2	156.8	-104.51	343.5	5,468.1	416.5	113.2	303.34	1.373 Level 3		
12,300.0	6,735.2	12,382.2	6,839.9	159.0	159.5	-104.56	343.5	5,568.1	416.6	107.9	308.69	1.350 Level 3		
12,400.0	6,733.9	12,482.1	6,839.0	161.8	162.3	-104.61	343.5	5,668.1	416.7	102.7	314.04	1.327 Level 3		
12,500.0	6,732.6	12,582.1	6,838.1	164.6	165.1	-104.67	343.5	5,768.1	416.8	97.4	319.39	1.305 Level 3		
12,600.0	6,731.3	12,682.1	6,837.2	167.4	167.9	-104.72	343.5	5,868.1	416.9	92.2	324.73	1.284 Level 3		
12,700.0	6,730.0	12,782.1	6,836.3	170.2	170.7	-104.77	343.5	5,968.1	417.0	86.9	330.07	1.263 Level 3		
12,800.0	6,728.7	12,882.1	6,835.4	173.0	173.5	-104.83	343.5	6,068.1	417.1	81.7	335.42	1.244 Level 2		
12,900.0	6,727.4	12,982.1	6,834.5	175.8	176.3	-104.88	343.5	6,168.1	417.2	76.5	340.75	1.224 Level 2		
13,000.0	6,726.1	13,082.1	6,833.7	178.6	179.1	-104.93	343.5	6,268.1	417.3	71.2	346.09	1.206 Level 2		
13,100.0	6,724.8	13,182.1	6,832.8	181.4	181.9	-104.99	343.5	6,368.1	417.4	66.0	351.43	1.188 Level 2		
13,200.0	6,723.5	13,282.1	6,831.9	184.2	184.7	-105.04	343.5	6,468.1	417.5	60.8	356.76	1.170 Level 2		
13,300.0	6,722.3	13,382.1	6,831.0	187.0	187.5	-105.09	343.5	6,568.0	417.6	55.5	362.09	1.153 Level 2		
13,400.0	6,721.0	13,482.1	6,830.1	189.8	190.3	-105.15	343.5	6,668.0	417.7	50.3	367.42	1.137 Level 2		
13,500.0	6,719.7	13,582.1	6,829.2	192.6	193.1	-105.20	343.5	6,768.0	417.8	45.1	372.74	1.121 Level 2		
13,600.0	6,718.4	13,682.1	6,828.3	195.4	195.9	-105.25	343.5	6,868.0	417.9	39.9	378.07	1.105 Level 2		
13,700.0	6,717.1	13,782.1	6,827.4	198.2	198.7	-105.31	343.5	6,968.0	418.0	34.7	383.39	1.090 Level 2		
13,800.0	6,715.8	13,882.1	6,826.5	201.0	201.5	-105.36	343.5	7,068.0	418.2	29.4	388.71	1.076 Level 2		
13,826.0	6,715.5	13,908.1	6,826.3	201.7	202.2	-105.37	343.5	7,094.0	418.2	28.1	390.08	1.072 Level 2		
13,862.3	6,715.0	13,942.5	6,826.0	202.7	203.2	-105.39	343.5	7,128.3	418.2	26.3	391.96	1.067 Level 2, ES, SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-412 - Wellbore #1 - Plan #1 (2-26-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-30.6	30.6					
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-30.6	30.6	30.4	0.22	136.328		
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-30.6	30.6	30.0	0.67	45.443		
300.0	300.0	300.0	300.0	0.6	0.6	-89.99	0.0	-30.6	30.6	29.5	1.12	27.266		
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-30.6	30.6	29.1	1.57	19.475		
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-30.6	30.6	28.6	2.02	15.148		
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-30.6	30.6	28.2	2.47	12.393		
700.0	700.0	700.0	700.0	1.5	1.5	-89.99	0.0	-30.6	30.6	27.7	2.92	10.487		
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	0.0	-30.6	30.6	27.3	3.37	9.089		
900.0	900.0	900.0	900.0	1.9	1.9	-89.99	0.0	-30.6	30.6	26.8	3.82	8.019		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.99	0.0	-30.6	30.6	26.4	4.27	7.175		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-89.99	0.0	-30.6	30.6	25.9	4.72	6.492		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-89.99	0.0	-30.6	30.6	25.5	5.17	5.927		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-89.99	0.0	-30.6	30.6	25.0	5.62	5.453		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-89.99	0.0	-30.6	30.6	24.6	6.07	5.049		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-89.99	0.0	-30.6	30.6	24.1	6.52	4.701 CC		
1,600.0	1,600.0	1,599.4	1,599.3	3.5	3.5	-92.57	-1.4	-31.6	31.7	24.7	6.94	4.560		
1,700.0	1,700.0	1,698.5	1,698.3	3.7	3.6	-99.33	-5.7	-34.5	35.0	27.7	7.34	4.769		
1,800.0	1,800.0	1,797.1	1,796.6	3.9	3.8	-107.90	-12.7	-39.3	41.5	33.7	7.75	5.348		
1,900.0	1,900.0	1,895.8	1,894.6	4.2	4.0	-115.83	-22.2	-45.8	51.2	43.0	8.18	6.258		
2,000.0	2,000.0	1,995.1	1,993.2	4.4	4.2	-121.38	-32.1	-52.6	61.9	53.3	8.61	7.191		
2,100.0	2,100.0	2,094.4	2,091.7	4.6	4.5	-125.26	-41.9	-59.3	73.1	64.0	9.06	8.066		
2,200.0	2,200.0	2,193.7	2,190.3	4.8	4.7	-128.10	-51.8	-66.1	84.5	75.0	9.52	8.875		
2,300.0	2,300.0	2,292.9	2,288.8	5.1	5.0	-130.26	-61.7	-72.8	96.1	86.1	9.99	9.615		
2,400.0	2,400.0	2,392.2	2,387.4	5.3	5.2	-131.96	-71.5	-79.6	107.7	97.3	10.47	10.291		
2,500.0	2,500.0	2,491.5	2,485.9	5.5	5.5	-133.33	-81.4	-86.3	119.5	108.5	10.95	10.908		
2,600.0	2,600.0	2,590.9	2,584.6	5.7	5.8	-31.10	-91.3	-93.1	129.8	118.7	11.14	11.655		
2,700.0	2,699.8	2,690.5	2,683.5	5.9	6.0	-33.09	-101.2	-99.8	137.3	125.7	11.53	11.901		
2,800.0	2,799.5	2,790.2	2,782.4	6.1	6.3	-35.70	-111.1	-106.6	142.0	130.1	11.93	11.906		
2,900.0	2,898.8	2,889.8	2,881.4	6.3	6.6	-38.83	-121.0	-113.4	145.0	132.6	12.35	11.743		
3,000.0	2,998.1	2,989.4	2,980.3	6.5	6.9	-41.89	-130.9	-120.2	148.2	135.4	12.78	11.596		
3,100.0	3,097.4	3,089.1	3,079.2	6.8	7.2	-44.81	-140.8	-126.9	151.8	138.6	13.23	11.479		
3,200.0	3,196.8	3,188.7	3,178.1	7.0	7.5	-47.58	-150.7	-133.7	155.9	142.2	13.69	11.388		
3,300.0	3,296.1	3,288.4	3,277.0	7.3	7.8	-50.22	-160.7	-140.5	160.2	146.1	14.16	11.317		
3,400.0	3,395.4	3,388.0	3,375.9	7.5	8.1	-52.70	-170.6	-147.3	164.9	150.3	14.64	11.263		
3,500.0	3,494.7	3,487.6	3,474.8	7.8	8.4	-55.05	-180.5	-154.0	169.9	154.7	15.14	11.223		
3,600.0	3,594.1	3,587.3	3,573.8	8.0	8.7	-57.26	-190.4	-160.8	175.1	159.5	15.64	11.195		
3,700.0	3,693.4	3,686.9	3,672.7	8.3	9.0	-59.34	-200.3	-167.6	180.6	164.4	16.16	11.177		
3,800.0	3,792.7	3,786.6	3,771.6	8.5	9.3	-61.30	-210.2	-174.4	186.3	169.6	16.68	11.167		
3,900.0	3,892.0	3,886.2	3,870.5	8.8	9.6	-63.14	-220.1	-181.1	192.2	175.0	17.22	11.164		
4,000.0	3,991.4	3,985.8	3,969.4	9.1	9.9	-64.87	-230.0	-187.9	198.3	180.6	17.76	11.166		
4,100.0	4,090.7	4,085.5	4,068.3	9.4	10.2	-66.49	-239.9	-194.7	204.6	186.3	18.31	11.172		
4,200.0	4,190.0	4,185.1	4,167.2	9.6	10.5	-68.01	-249.8	-201.5	211.0	192.2	18.87	11.182		
4,300.0	4,289.3	4,284.8	4,266.2	9.9	10.8	-69.45	-259.7	-208.2	217.6	198.2	19.44	11.196		
4,400.0	4,388.7	4,384.4	4,365.1	10.2	11.2	-70.80	-269.7	-215.0	224.3	204.3	20.01	11.212		
4,500.0	4,488.0	4,484.0	4,464.0	10.5	11.5	-72.07	-279.6	-221.8	231.1	210.5	20.58	11.230		
4,600.0	4,587.3	4,583.7	4,562.9	10.8	11.8	-73.27	-289.5	-228.6	238.0	216.9	21.16	11.250		
4,700.0	4,686.6	4,683.9	4,662.3	11.1	12.1	-74.42	-299.4	-235.4	245.1	223.3	21.74	11.274		
4,800.0	4,786.2	4,791.4	4,769.4	11.3	12.4	-75.40	-308.2	-241.4	251.0	228.8	22.23	11.292		
4,900.0	4,886.0	4,899.2	4,877.0	11.5	12.6	-75.99	-313.7	-245.2	254.7	232.1	22.67	11.235		
5,000.0	4,986.0	5,007.2	4,984.9	11.7	12.8	-76.21	-315.9	-246.6	256.2	233.1	23.07	11.105		

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 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-412 - Wellbore #1 - Plan #1 (2-26-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,086.0	5,108.3	5,086.0	11.9	12.9	-179.86		-315.9	-246.6	256.2	232.9	23.32	10.986	
5,200.0	5,186.0	5,208.3	5,186.0	12.1	13.1	-179.86		-315.9	-246.6	256.2	232.5	23.71	10.807	
5,300.0	5,286.0	5,308.3	5,286.0	12.3	13.3	-179.86		-315.9	-246.6	256.2	232.1	24.09	10.634	
5,400.0	5,386.0	5,408.3	5,386.0	12.5	13.4	-179.86		-315.9	-246.6	256.2	231.7	24.48	10.465	
5,500.0	5,486.0	5,508.3	5,486.0	12.7	13.6	-179.86		-315.9	-246.6	256.2	231.3	24.87	10.300	
5,600.0	5,586.0	5,608.3	5,586.0	12.9	13.8	-179.86		-315.9	-246.6	256.2	230.9	25.27	10.140	
5,700.0	5,686.0	5,708.3	5,686.0	13.1	14.0	-179.86		-315.9	-246.6	256.2	230.5	25.66	9.984	
5,800.0	5,786.0	5,808.3	5,786.0	13.3	14.1	-179.86		-315.9	-246.6	256.2	230.2	26.06	9.832	
5,900.0	5,886.0	5,908.3	5,886.0	13.5	14.3	-179.86		-315.9	-246.6	256.2	229.8	26.46	9.684	
6,000.0	5,986.0	6,008.3	5,986.0	13.7	14.5	-179.86		-315.9	-246.6	256.2	229.4	26.86	9.540	
6,045.5	6,031.5	6,053.8	6,031.5	13.8	14.6	90.29		-315.9	-246.6	256.2	229.0	27.18	9.426	
6,100.0	6,086.0	6,108.3	6,086.0	13.9	14.7	90.50		-315.9	-246.6	256.2	228.8	27.39	9.356	
6,200.0	6,185.1	6,208.6	6,186.2	14.0	14.8	92.53		-315.9	-242.7	256.5	228.8	27.61	9.287	
6,300.0	6,281.6	6,310.3	6,286.4	14.1	14.9	94.60		-315.9	-225.7	257.0	229.3	27.76	9.261	
6,400.0	6,373.9	6,413.3	6,384.7	14.2	15.0	96.60		-315.9	-195.1	257.9	230.1	27.87	9.256	
6,500.0	6,460.5	6,517.6	6,479.1	14.3	15.1	98.48		-315.9	-151.0	259.1	231.0	28.03	9.242	
6,600.0	6,539.8	6,623.2	6,567.6	14.6	15.1	100.20		-315.9	-93.6	260.3	232.0	28.37	9.176	
6,700.0	6,610.5	6,729.9	6,648.2	15.0	15.1	101.74		-315.9	-23.8	261.7	232.7	29.05	9.009	
6,800.0	6,671.4	6,837.7	6,718.9	15.7	15.2	103.06		-315.9	57.4	263.0	232.8	30.23	8.700	
6,900.0	6,721.4	6,946.4	6,777.9	16.7	16.2	104.14		-315.9	148.6	264.2	232.2	32.04	8.246	
7,000.0	6,759.7	7,055.8	6,823.7	18.1	17.6	104.96		-315.9	247.9	265.2	230.7	34.55	7.676	
7,100.0	6,785.6	7,165.9	6,855.0	19.7	19.4	105.51		-315.9	353.3	265.9	228.2	37.72	7.049	
7,200.0	6,798.7	7,273.9	6,871.0	21.6	21.4	105.84		-315.9	460.0	266.3	225.0	41.37	6.438	
7,300.0	6,799.7	7,377.1	6,880.6	23.7	23.6	107.51		-315.9	562.8	268.7	223.7	45.00	5.972	
7,400.0	6,798.4	7,482.7	6,882.4	25.8	25.9	108.14		-315.9	668.3	269.6	220.5	49.14	5.487	
7,500.0	6,797.2	7,582.7	6,881.5	28.1	28.2	108.22		-315.9	768.3	269.7	216.2	53.50	5.042	
7,600.0	6,795.9	7,682.7	6,880.6	30.5	30.6	108.31		-315.9	868.3	269.9	211.8	58.02	4.651	
7,700.0	6,794.6	7,782.7	6,879.8	33.0	33.1	108.39		-315.9	968.3	270.0	207.3	62.66	4.309	
7,800.0	6,793.3	7,882.7	6,878.9	35.5	35.6	108.48		-315.9	1,068.3	270.1	202.7	67.40	4.008	
7,900.0	6,792.0	7,982.7	6,878.0	38.0	38.1	108.56		-315.9	1,168.3	270.3	198.0	72.22	3.742	
8,000.0	6,790.7	8,082.7	6,877.1	40.6	40.7	108.64		-315.9	1,268.3	270.4	193.3	77.10	3.507	
8,100.0	6,789.4	8,182.7	6,876.3	43.2	43.3	108.73		-315.9	1,368.3	270.5	188.5	82.02	3.298	
8,200.0	6,788.1	8,282.7	6,875.4	45.8	45.9	108.81		-315.9	1,468.3	270.7	183.7	86.99	3.111	
8,300.0	6,786.8	8,382.7	6,874.5	48.5	48.6	108.90		-315.9	1,568.3	270.8	178.8	91.99	2.944	
8,400.0	6,785.5	8,482.7	6,873.7	51.1	51.3	108.98		-315.9	1,668.3	270.9	173.9	97.02	2.793	
8,500.0	6,784.2	8,582.7	6,872.8	53.8	53.9	109.06		-315.9	1,768.3	271.1	169.0	102.07	2.656	
8,600.0	6,783.0	8,682.7	6,871.9	56.5	56.6	109.15		-315.9	1,868.2	271.2	164.1	107.14	2.531	
8,700.0	6,781.7	8,782.7	6,871.0	59.2	59.3	109.23		-315.9	1,968.2	271.3	159.1	112.23	2.418	
8,800.0	6,780.4	8,882.7	6,870.2	61.9	62.1	109.31		-315.9	2,068.2	271.5	154.2	117.32	2.314	
8,900.0	6,779.1	8,982.7	6,869.3	64.7	64.8	109.40		-315.9	2,168.2	271.6	149.2	122.43	2.219	
9,000.0	6,777.8	9,082.7	6,868.4	67.4	67.5	109.48		-315.9	2,268.2	271.8	144.2	127.54	2.131	
9,100.0	6,776.5	9,182.6	6,867.5	70.1	70.3	109.56		-315.9	2,368.2	271.9	139.2	132.66	2.050	
9,200.0	6,775.2	9,282.6	6,866.7	72.9	73.0	109.65		-315.9	2,468.2	272.0	134.3	137.79	1.974	
9,300.0	6,773.9	9,382.6	6,865.8	75.6	75.7	109.73		-315.9	2,568.2	272.2	129.3	142.92	1.904	
9,400.0	6,772.6	9,482.6	6,864.9	78.4	78.5	109.81		-315.9	2,668.2	272.3	124.3	148.06	1.839	
9,500.0	6,771.3	9,582.6	6,864.1	81.1	81.2	109.90		-315.9	2,768.2	272.5	119.3	153.19	1.779	
9,600.0	6,770.0	9,682.6	6,863.2	83.9	84.0	109.98		-315.9	2,868.2	272.6	114.3	158.33	1.722	
9,700.0	6,768.7	9,782.6	6,862.3	86.6	86.8	110.06		-315.9	2,968.2	272.8	109.3	163.47	1.669	
9,800.0	6,767.5	9,882.6	6,861.4	89.4	89.5	110.14		-315.9	3,068.2	272.9	104.3	168.61	1.619	
9,900.0	6,766.2	9,982.6	6,860.6	92.2	92.3	110.23		-315.9	3,168.2	273.0	99.3	173.75	1.572	
10,000.0	6,764.9	10,082.6	6,859.7	94.9	95.1	110.31		-315.9	3,268.2	273.2	94.3	178.88	1.527	

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 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-412 - Wellbore #1 - Plan #1 (2-26-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,100.0	6,763.6	10,182.6	6,858.8	97.7	97.8	110.39	-315.9	3,368.2	273.3	89.3	184.02	1.485	Level 3	
10,200.0	6,762.3	10,282.6	6,857.9	100.5	100.6	110.47	-315.9	3,468.2	273.5	84.3	189.15	1.446	Level 3	
10,300.0	6,761.0	10,382.6	6,857.1	103.3	103.4	110.56	-315.9	3,568.2	273.6	79.3	194.29	1.408	Level 3	
10,400.0	6,759.7	10,482.6	6,856.2	106.0	106.2	110.64	-315.9	3,668.2	273.8	74.4	199.42	1.373	Level 3	
10,500.0	6,758.4	10,582.6	6,855.3	108.8	108.9	110.72	-315.9	3,768.2	273.9	69.4	204.55	1.339	Level 3	
10,600.0	6,757.1	10,682.6	6,854.5	111.6	111.7	110.80	-315.9	3,868.2	274.1	64.4	209.67	1.307	Level 3	
10,700.0	6,755.8	10,782.6	6,853.6	114.4	114.5	110.88	-315.9	3,968.1	274.2	59.4	214.80	1.277	Level 3	
10,800.0	6,754.5	10,882.6	6,852.7	117.2	117.3	110.97	-315.9	4,068.1	274.4	54.5	219.91	1.248	Level 2	
10,900.0	6,753.2	10,982.6	6,851.8	119.9	120.1	111.05	-315.9	4,168.1	274.5	49.5	225.03	1.220	Level 2	
11,000.0	6,752.0	11,082.6	6,851.0	122.7	122.9	111.13	-315.9	4,268.1	274.7	44.5	230.14	1.193	Level 2	
11,100.0	6,750.7	11,182.6	6,850.1	125.5	125.6	111.21	-315.9	4,368.1	274.8	39.6	235.25	1.168	Level 2	
11,200.0	6,749.4	11,282.6	6,849.2	128.3	128.4	111.29	-315.9	4,468.1	275.0	34.6	240.36	1.144	Level 2	
11,300.0	6,748.1	11,382.6	6,848.3	131.1	131.2	111.37	-315.9	4,568.1	275.1	29.7	245.46	1.121	Level 2	
11,400.0	6,746.8	11,482.6	6,847.5	133.9	134.0	111.45	-315.9	4,668.1	275.3	24.7	250.56	1.099	Level 2	
11,500.0	6,745.5	11,582.6	6,846.6	136.7	136.8	111.54	-315.9	4,768.1	275.4	19.8	255.65	1.077	Level 2	
11,600.0	6,744.2	11,682.6	6,845.7	139.5	139.6	111.62	-315.9	4,868.1	275.6	14.8	260.74	1.057	Level 2	
11,700.0	6,742.9	11,782.6	6,844.9	142.2	142.4	111.70	-315.9	4,968.1	275.7	9.9	265.82	1.037	Level 2	
11,800.0	6,741.6	11,882.6	6,844.0	145.0	145.2	111.78	-315.9	5,068.1	275.9	5.0	270.90	1.018	Level 2	
11,900.0	6,740.3	11,982.6	6,843.1	147.8	148.0	111.86	-315.9	5,168.1	276.0	0.1	275.98	1.000	Level 2	
12,000.0	6,739.0	12,082.6	6,842.2	150.6	150.8	111.94	-315.9	5,268.1	276.2	-4.8	281.05	0.983	Level 1	
12,100.0	6,737.7	12,182.6	6,841.4	153.4	153.6	112.02	-315.9	5,368.1	276.4	-9.8	286.12	0.966	Level 1	
12,200.0	6,736.5	12,282.6	6,840.5	156.2	156.4	112.10	-315.9	5,468.1	276.5	-14.7	291.18	0.950	Level 1	
12,300.0	6,735.2	12,382.6	6,839.6	159.0	159.1	112.18	-315.9	5,568.1	276.7	-19.6	296.23	0.934	Level 1	
12,400.0	6,733.9	12,482.6	6,838.7	161.8	161.9	112.26	-315.9	5,668.1	276.8	-24.5	301.29	0.919	Level 1	
12,500.0	6,732.6	12,582.6	6,837.9	164.6	164.7	112.34	-315.9	5,768.1	277.0	-29.3	306.33	0.904	Level 1	
12,600.0	6,731.3	12,682.6	6,837.0	167.4	167.5	112.42	-315.9	5,868.1	277.1	-34.2	311.37	0.890	Level 1	
12,700.0	6,730.0	12,782.6	6,836.1	170.2	170.3	112.50	-315.9	5,968.1	277.3	-39.1	316.41	0.876	Level 1	
12,800.0	6,728.7	12,882.6	6,835.3	173.0	173.1	112.58	-315.9	6,068.1	277.5	-44.0	321.44	0.863	Level 1	
12,900.0	6,727.4	12,982.6	6,834.4	175.8	175.9	112.66	-315.9	6,168.0	277.6	-48.8	326.47	0.850	Level 1	
13,000.0	6,726.1	13,082.6	6,833.5	178.6	178.7	112.74	-315.9	6,268.0	277.8	-53.7	331.49	0.838	Level 1	
13,100.0	6,724.8	13,182.6	6,832.6	181.4	181.5	112.82	-315.9	6,368.0	278.0	-58.5	336.50	0.826	Level 1	
13,200.0	6,723.5	13,282.6	6,831.8	184.2	184.3	112.90	-315.9	6,468.0	278.1	-63.4	341.51	0.814	Level 1	
13,300.0	6,722.3	13,382.6	6,830.9	187.0	187.1	112.98	-315.9	6,568.0	278.3	-68.2	346.52	0.803	Level 1	
13,400.0	6,721.0	13,482.6	6,830.0	189.8	189.9	113.06	-315.9	6,668.0	278.4	-73.1	351.52	0.792	Level 1	
13,500.0	6,719.7	13,582.6	6,829.1	192.6	192.7	113.14	-315.9	6,768.0	278.6	-77.9	356.51	0.781	Level 1	
13,600.0	6,718.4	13,682.6	6,828.3	195.4	195.5	113.22	-315.9	6,868.0	278.8	-82.7	361.50	0.771	Level 1	
13,700.0	6,717.1	13,782.6	6,827.4	198.2	198.3	113.30	-315.9	6,968.0	278.9	-87.5	366.48	0.761	Level 1	
13,800.0	6,715.8	13,882.6	6,826.5	201.0	201.1	113.38	-315.9	7,068.0	279.1	-92.4	371.46	0.751	Level 1	
13,862.3	6,715.0	13,943.1	6,826.0	202.7	202.8	113.42	-315.9	7,128.5	279.2	-95.3	374.51	0.746	Level 1, ES, SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4643.0ft (RKB - 15')

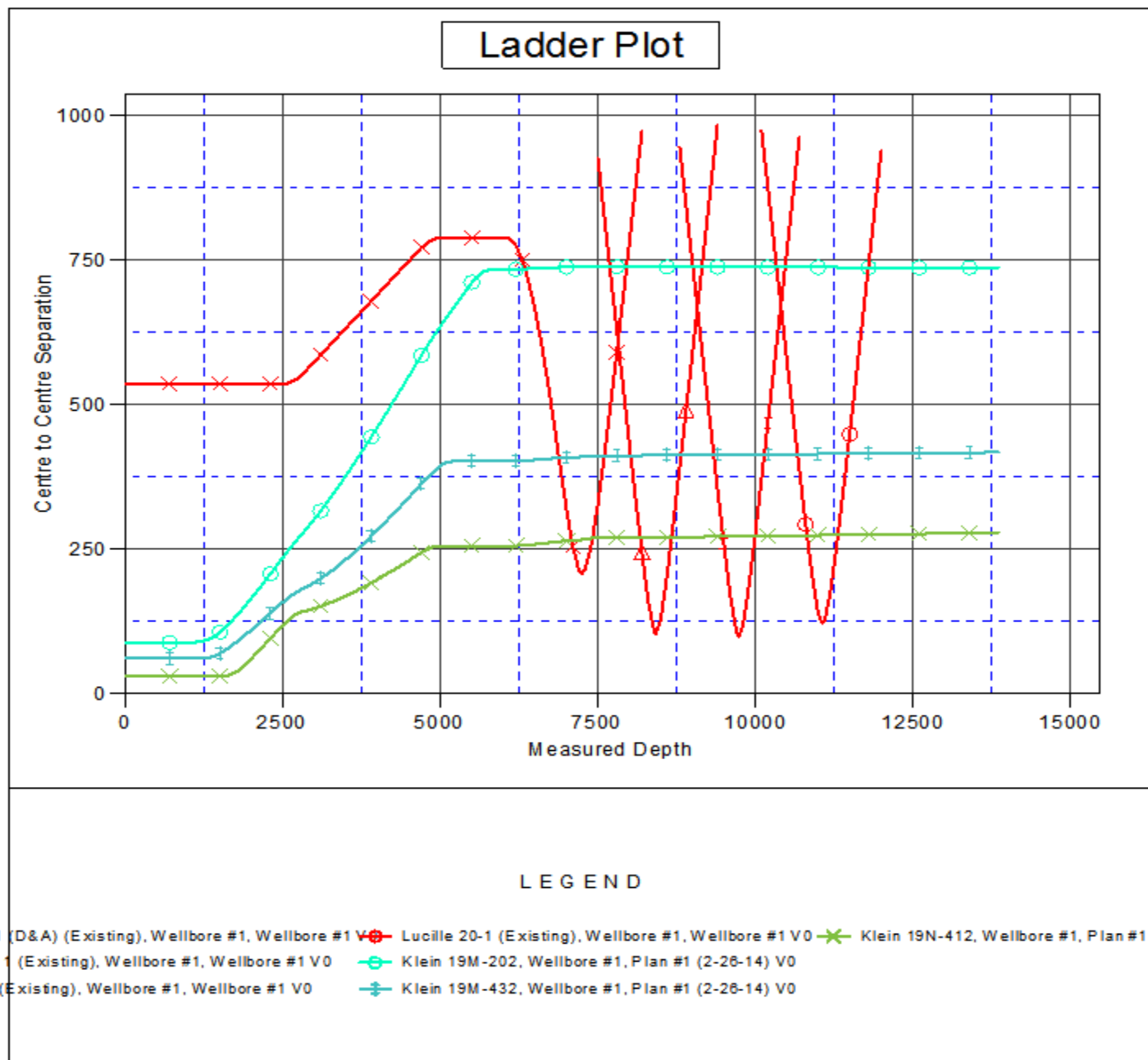
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Klein 19N-312

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.59°





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19N-312
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19MN-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4643.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19N-312	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4643.0ft (RKB - 15')

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