

# PETROLEUM DEVELOPMENT CORP Weld County CO

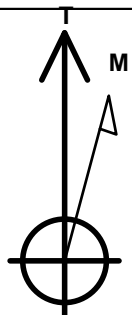
Well Name: **Klein 190-412**

Surface Location: Klein 190-HZ Pad Sec.19-T5N-R64W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
Ground Elevation: 4626.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1384514.47	3253260.83	40.385330	-104.590840	
RKB - 15' WELL @ 4641.0ft (RKB - 15')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2388'FNL & 2101'FEL, Sec.19	1.0	0.0	0.0	Point
BHL 2385'FNL & 500'FEL, Sec.20	6847.0	62.9	6878.2	Point



Azimuths to True North  
Magnetic North: 8.40°

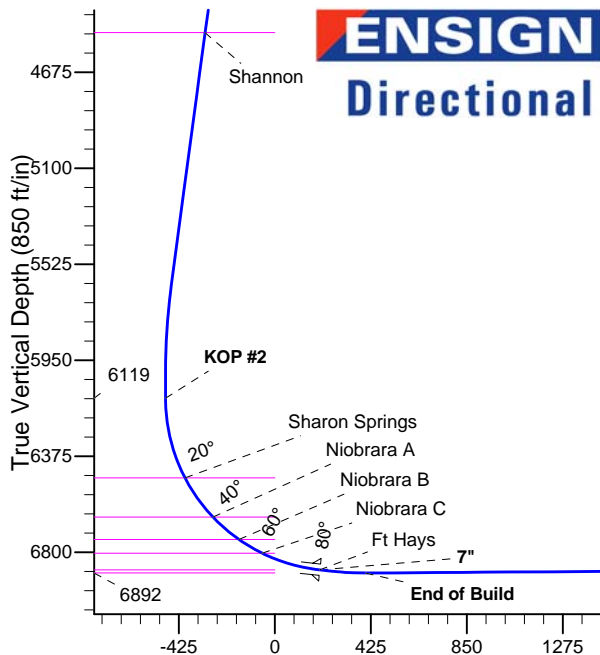
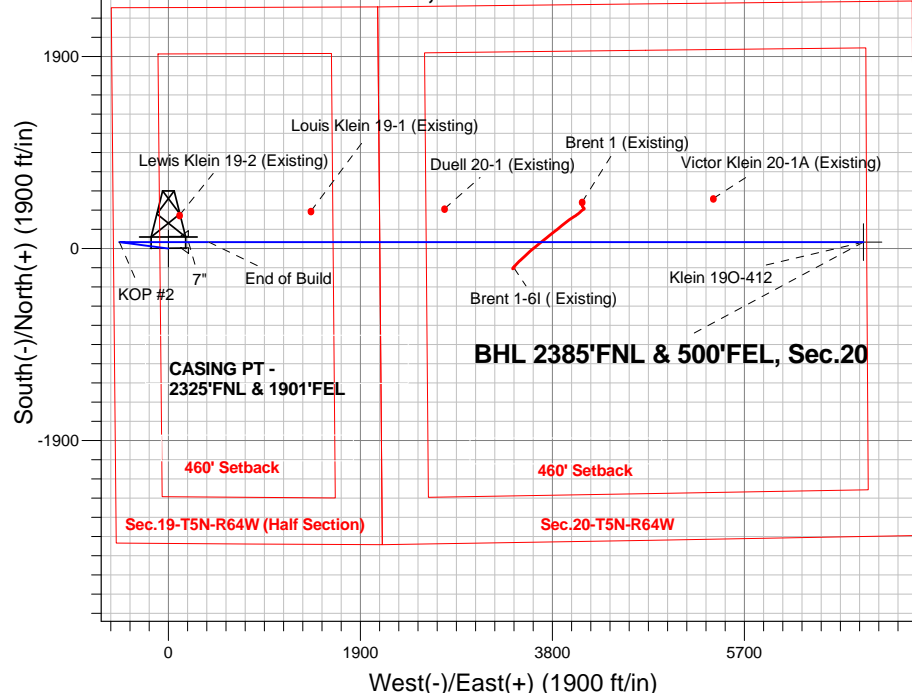
Magnetic Field  
Strength: 52855.0nT  
Dip Angle: 66.97°  
Date: 3/11/2014  
Model: IGRF2010

Klein 190-HZ Pad Sec.19-T5N-R64W  
Klein 190-412  
Plan #1 (3-05-14)  
9:03, March 14 2014

## ANNOTATIONS

TVD	MD	Annotation
2000.0	2000.0	KOP #1
6118.5	6150.2	KOP #2
6892.2	7472.2	End of Build

## SHL 2388'FNL & 2101'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	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2384.7	7.69	277.40	2383.6	3.3	-25.6	2.00	277.40	-25.5	
4	5647.0	7.69	277.40	5616.4	59.6	-458.7	0.00	0.00	-458.2	
5	6031.7	0.00	0.00	6000.0	62.9	-484.3	2.00	180.00	-483.7	
6	6150.2	0.00	0.00	6118.5	62.9	-484.3	0.00	0.00	-483.7	
7	7270.2	84.00	90.00	6878.2	62.9	199.8	7.50	90.00	200.4	
8	7344.2	84.00	90.00	6886.0	62.9	273.4	0.00	0.00	273.9	
9	7472.2	90.40	90.00	6892.2	62.9	401.2	5.00	0.00	401.7	
10	13949.3	90.40	90.00	6847.0	62.9	6878.2	0.00	0.00	6878.5	BHL 2385'FNL & 500'FEL, Sec.20

## BHL 2385'FNL & 500'FEL, Sec.20

Vertical Section at 89.48° (850 ft/in)



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.19-T5N-R64W**

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

**Klein 19O-412**

**Wellbore #1**

**Plan: Plan #1 (3-05-14)**

## **Standard Planning Report**

**14 March, 2014**

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19O-412	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-05-14)		

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

<b>Well</b>	Klein 19O-412		
<b>Well Position</b>	<b>+N/-S</b>	-29.2 ft	<b>Northing:</b>
	<b>+E/-W</b>	150.4 ft	<b>Easting:</b>
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>
			ft
			<b>Latitude:</b>
			40.385330
			<b>Longitude:</b>
			-104.590840
			<b>Ground Level:</b>
			4,626.0 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	3/11/2014	8.40	66.97	52,855

<b>Design</b>	Plan #1 (3-05-14)			
<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	89.48

<b>Plan Sections</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,384.7	7.69	277.40	2,383.6	3.3	-25.6	2.00	2.00	0.00	277.40	
5,647.0	7.69	277.40	5,616.4	59.6	-458.7	0.00	0.00	0.00	0.00	
6,031.7	0.00	0.00	6,000.0	62.9	-484.3	2.00	-2.00	0.00	180.00	
6,150.2	0.00	0.00	6,118.5	62.9	-484.3	0.00	0.00	0.00	0.00	
7,270.2	84.00	90.00	6,878.2	62.9	199.8	7.50	7.50	0.00	90.00	
7,344.2	84.00	90.00	6,886.0	62.9	273.4	0.00	0.00	0.00	0.00	
7,472.2	90.40	90.00	6,892.2	62.9	401.2	5.00	5.00	0.00	0.00	
13,949.3	90.40	90.00	6,847.0	62.9	6,878.2	0.00	0.00	0.00	0.00	BHL 2385'FNL & 5C

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19O-412	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-05-14)		

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 2388'FNL &amp; 2101'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
<b>KOP #1</b>									
2,100.0	2.00	277.40	2,100.0	0.2	-1.7	-1.7	2.00	2.00	0.00
2,200.0	4.00	277.40	2,199.8	0.9	-6.9	-6.9	2.00	2.00	0.00
2,300.0	6.00	277.40	2,299.5	2.0	-15.6	-15.5	2.00	2.00	0.00
2,384.7	7.69	277.40	2,383.6	3.3	-25.6	-25.5	2.00	2.00	0.00
2,400.0	7.69	277.40	2,398.7	3.6	-27.6	-27.6	0.00	0.00	0.00
2,500.0	7.69	277.40	2,497.8	5.3	-40.9	-40.8	0.00	0.00	0.00
2,600.0	7.69	277.40	2,596.9	7.0	-54.2	-54.1	0.00	0.00	0.00
2,700.0	7.69	277.40	2,696.0	8.8	-67.4	-67.4	0.00	0.00	0.00
2,800.0	7.69	277.40	2,795.1	10.5	-80.7	-80.6	0.00	0.00	0.00
2,900.0	7.69	277.40	2,894.2	12.2	-94.0	-93.9	0.00	0.00	0.00
3,000.0	7.69	277.40	2,993.3	13.9	-107.3	-107.1	0.00	0.00	0.00
3,100.0	7.69	277.40	3,092.4	15.7	-120.5	-120.4	0.00	0.00	0.00
3,200.0	7.69	277.40	3,191.5	17.4	-133.8	-133.7	0.00	0.00	0.00
3,300.0	7.69	277.40	3,290.6	19.1	-147.1	-146.9	0.00	0.00	0.00
3,400.0	7.69	277.40	3,389.7	20.8	-160.4	-160.2	0.00	0.00	0.00
3,500.0	7.69	277.40	3,488.8	22.6	-173.7	-173.4	0.00	0.00	0.00
3,561.8	7.69	277.40	3,550.0	23.6	-181.9	-181.6	0.00	0.00	0.00
<b>Parkman</b>									
3,600.0	7.69	277.40	3,587.9	24.3	-186.9	-186.7	0.00	0.00	0.00
3,700.0	7.69	277.40	3,687.0	26.0	-200.2	-200.0	0.00	0.00	0.00
3,800.0	7.69	277.40	3,786.1	27.7	-213.5	-213.2	0.00	0.00	0.00
3,900.0	7.69	277.40	3,885.2	29.5	-226.8	-226.5	0.00	0.00	0.00
4,000.0	7.69	277.40	3,984.3	31.2	-240.0	-239.8	0.00	0.00	0.00
4,100.0	7.69	277.40	4,083.4	32.9	-253.3	-253.0	0.00	0.00	0.00
4,200.0	7.69	277.40	4,182.5	34.6	-266.6	-266.3	0.00	0.00	0.00
4,300.0	7.69	277.40	4,281.6	36.4	-279.9	-279.5	0.00	0.00	0.00
4,318.6	7.69	277.40	4,300.0	36.7	-282.3	-282.0	0.00	0.00	0.00
<b>Sussex</b>									
4,400.0	7.69	277.40	4,380.7	38.1	-293.2	-292.8	0.00	0.00	0.00

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19O-412	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-05-14)		

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	7.69	277.40	4,479.8	39.8	-306.4	-306.1	0.00	0.00	0.00
4,520.4	7.69	277.40	4,500.0	40.2	-309.1	-308.8	0.00	0.00	0.00
<b>Shannon</b>									
4,600.0	7.69	277.40	4,578.9	41.5	-319.7	-319.3	0.00	0.00	0.00
4,700.0	7.69	277.40	4,678.0	43.2	-333.0	-332.6	0.00	0.00	0.00
4,800.0	7.69	277.40	4,777.1	45.0	-346.3	-345.8	0.00	0.00	0.00
4,900.0	7.69	277.40	4,876.2	46.7	-359.5	-359.1	0.00	0.00	0.00
5,000.0	7.69	277.40	4,975.3	48.4	-372.8	-372.4	0.00	0.00	0.00
5,100.0	7.69	277.40	5,074.4	50.1	-386.1	-385.6	0.00	0.00	0.00
5,200.0	7.69	277.40	5,173.5	51.9	-399.4	-398.9	0.00	0.00	0.00
5,300.0	7.69	277.40	5,272.6	53.6	-412.7	-412.1	0.00	0.00	0.00
5,400.0	7.69	277.40	5,371.7	55.3	-425.9	-425.4	0.00	0.00	0.00
5,500.0	7.69	277.40	5,470.8	57.0	-439.2	-438.7	0.00	0.00	0.00
5,600.0	7.69	277.40	5,569.9	58.8	-452.5	-451.9	0.00	0.00	0.00
5,647.0	7.69	277.40	5,616.4	59.6	-458.7	-458.2	0.00	0.00	0.00
5,700.0	6.63	277.40	5,669.1	60.4	-465.3	-464.7	2.00	-2.00	0.00
5,800.0	4.63	277.40	5,768.6	61.7	-475.0	-474.4	2.00	-2.00	0.00
5,900.0	2.63	277.40	5,868.4	62.5	-481.3	-480.7	2.00	-2.00	0.00
6,000.0	0.63	277.40	5,968.3	62.9	-484.1	-483.5	2.00	-2.00	0.00
6,031.7	0.00	0.00	6,000.0	62.9	-484.3	-483.7	2.00	-2.00	0.00
6,100.0	0.00	0.00	6,068.3	62.9	-484.3	-483.7	0.00	0.00	0.00
6,150.2	0.00	0.00	6,118.5	62.9	-484.3	-483.7	0.00	0.00	0.00
<b>KOP #2</b>									
6,200.0	3.74	90.00	6,168.3	62.9	-482.7	-482.1	7.51	7.51	0.00
6,300.0	11.24	90.00	6,267.4	62.9	-469.7	-469.1	7.50	7.50	0.00
6,400.0	18.74	90.00	6,363.9	62.9	-443.8	-443.2	7.50	7.50	0.00
6,500.0	26.24	90.00	6,456.2	62.9	-405.6	-405.0	7.50	7.50	0.00
6,516.6	27.48	90.00	6,471.0	62.9	-398.1	-397.5	7.50	7.50	0.00
<b>Sharon Springs</b>									
6,600.0	33.74	90.00	6,542.8	62.9	-355.6	-355.0	7.50	7.50	0.00
6,700.0	41.24	90.00	6,622.1	62.9	-294.8	-294.2	7.50	7.50	0.00
6,729.7	43.46	90.00	6,644.0	62.9	-274.8	-274.2	7.50	7.50	0.00
<b>Niobrara A</b>									
6,800.0	48.74	90.00	6,692.7	62.9	-224.2	-223.6	7.50	7.50	0.00
6,883.0	54.97	90.00	6,744.0	62.9	-158.9	-158.3	7.50	7.50	0.00
<b>Niobrara B</b>									
6,900.0	56.24	90.00	6,753.6	62.9	-144.9	-144.3	7.50	7.50	0.00
7,000.0	63.74	90.00	6,803.6	62.9	-58.4	-57.8	7.50	7.50	0.00
7,001.0	63.81	90.00	6,804.0	62.9	-57.5	-56.9	7.50	7.50	0.00
<b>Niobrara C</b>									
7,100.0	71.24	90.00	6,841.8	62.9	33.9	34.5	7.50	7.50	0.00
7,200.0	78.74	90.00	6,867.7	62.9	130.5	131.0	7.50	7.50	0.00
7,267.9	83.83	90.00	6,878.0	62.9	197.6	198.2	7.50	7.50	0.00
<b>Ft Hays</b>									
7,270.2	84.00	90.00	6,878.2	62.9	199.8	200.4	7.36	7.36	0.00
<b>7"</b>									
7,300.0	84.00	90.00	6,881.4	62.9	229.5	230.0	0.00	0.00	0.00
7,344.2	84.00	90.00	6,886.0	62.9	273.4	273.9	0.00	0.00	0.00
7,400.0	86.79	90.00	6,890.5	62.9	329.0	329.6	5.00	5.00	0.00
7,440.4	88.81	90.00	6,892.0	62.9	369.4	369.9	5.00	5.00	0.00
<b>Codell</b>									
7,472.2	90.40	90.00	6,892.2	62.9	401.2	401.8	4.99	4.99	0.00

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19O-412	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-05-14)		

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)
End of Build									
7,500.0	90.40	90.00	6,892.0	62.9	429.0	429.6	0.00	0.00	0.00
7,600.0	90.40	90.00	6,891.3	62.9	529.0	529.6	0.00	0.00	0.00
7,700.0	90.40	90.00	6,890.6	62.9	629.0	629.6	0.00	0.00	0.00
7,800.0	90.40	90.00	6,889.9	62.9	729.0	729.5	0.00	0.00	0.00
7,900.0	90.40	90.00	6,889.2	62.9	829.0	829.5	0.00	0.00	0.00
8,000.0	90.40	90.00	6,888.5	62.9	929.0	929.5	0.00	0.00	0.00
8,100.0	90.40	90.00	6,887.8	62.9	1,029.0	1,029.5	0.00	0.00	0.00
8,200.0	90.40	90.00	6,887.1	62.9	1,129.0	1,129.5	0.00	0.00	0.00
8,300.0	90.40	90.00	6,886.4	62.9	1,229.0	1,229.5	0.00	0.00	0.00
8,400.0	90.40	90.00	6,885.7	62.9	1,329.0	1,329.5	0.00	0.00	0.00
8,500.0	90.40	90.00	6,885.0	62.9	1,429.0	1,429.5	0.00	0.00	0.00
8,600.0	90.40	90.00	6,884.3	62.9	1,529.0	1,529.5	0.00	0.00	0.00
8,700.0	90.40	90.00	6,883.6	62.9	1,629.0	1,629.5	0.00	0.00	0.00
8,800.0	90.40	90.00	6,882.9	62.9	1,729.0	1,729.5	0.00	0.00	0.00
8,900.0	90.40	90.00	6,882.3	62.9	1,829.0	1,829.5	0.00	0.00	0.00
9,000.0	90.40	90.00	6,881.6	62.9	1,929.0	1,929.5	0.00	0.00	0.00
9,100.0	90.40	90.00	6,880.9	62.9	2,029.0	2,029.5	0.00	0.00	0.00
9,200.0	90.40	90.00	6,880.2	62.9	2,129.0	2,129.5	0.00	0.00	0.00
9,300.0	90.40	90.00	6,879.5	62.9	2,229.0	2,229.4	0.00	0.00	0.00
9,400.0	90.40	90.00	6,878.8	62.9	2,329.0	2,329.4	0.00	0.00	0.00
9,500.0	90.40	90.00	6,878.1	62.9	2,429.0	2,429.4	0.00	0.00	0.00
9,600.0	90.40	90.00	6,877.4	62.9	2,529.0	2,529.4	0.00	0.00	0.00
9,700.0	90.40	90.00	6,876.7	62.9	2,629.0	2,629.4	0.00	0.00	0.00
9,800.0	90.40	90.00	6,876.0	62.9	2,729.0	2,729.4	0.00	0.00	0.00
9,900.0	90.40	90.00	6,875.3	62.9	2,828.9	2,829.4	0.00	0.00	0.00
10,000.0	90.40	90.00	6,874.6	62.9	2,928.9	2,929.4	0.00	0.00	0.00
10,100.0	90.40	90.00	6,873.9	62.9	3,028.9	3,029.4	0.00	0.00	0.00
10,200.0	90.40	90.00	6,873.2	62.9	3,128.9	3,129.4	0.00	0.00	0.00
10,300.0	90.40	90.00	6,872.5	62.9	3,228.9	3,229.4	0.00	0.00	0.00
10,400.0	90.40	90.00	6,871.8	62.9	3,328.9	3,329.4	0.00	0.00	0.00
10,500.0	90.40	90.00	6,871.1	62.9	3,428.9	3,429.4	0.00	0.00	0.00
10,600.0	90.40	90.00	6,870.4	62.9	3,528.9	3,529.4	0.00	0.00	0.00
10,700.0	90.40	90.00	6,869.7	62.9	3,628.9	3,629.4	0.00	0.00	0.00
10,800.0	90.40	90.00	6,869.0	62.9	3,728.9	3,729.3	0.00	0.00	0.00
10,900.0	90.40	90.00	6,868.3	62.9	3,828.9	3,829.3	0.00	0.00	0.00
11,000.0	90.40	90.00	6,867.6	62.9	3,928.9	3,929.3	0.00	0.00	0.00
11,100.0	90.40	90.00	6,866.9	62.9	4,028.9	4,029.3	0.00	0.00	0.00
11,200.0	90.40	90.00	6,866.2	62.9	4,128.9	4,129.3	0.00	0.00	0.00
11,300.0	90.40	90.00	6,865.5	62.9	4,228.9	4,229.3	0.00	0.00	0.00
11,400.0	90.40	90.00	6,864.8	62.9	4,328.9	4,329.3	0.00	0.00	0.00
11,500.0	90.40	90.00	6,864.1	62.9	4,428.9	4,429.3	0.00	0.00	0.00
11,600.0	90.40	90.00	6,863.4	62.9	4,528.9	4,529.3	0.00	0.00	0.00
11,700.0	90.40	90.00	6,862.7	62.9	4,628.9	4,629.3	0.00	0.00	0.00
11,800.0	90.40	90.00	6,862.0	62.9	4,728.9	4,729.3	0.00	0.00	0.00
11,900.0	90.40	90.00	6,861.3	62.9	4,828.9	4,829.3	0.00	0.00	0.00
12,000.0	90.40	90.00	6,860.6	62.9	4,928.9	4,929.3	0.00	0.00	0.00
12,100.0	90.40	90.00	6,859.9	62.9	5,028.9	5,029.3	0.00	0.00	0.00
12,200.0	90.40	90.00	6,859.2	62.9	5,128.9	5,129.3	0.00	0.00	0.00
12,300.0	90.40	90.00	6,858.5	62.9	5,228.9	5,229.2	0.00	0.00	0.00
12,400.0	90.40	90.00	6,857.8	62.9	5,328.9	5,329.2	0.00	0.00	0.00
12,500.0	90.40	90.00	6,857.1	62.9	5,428.9	5,429.2	0.00	0.00	0.00
12,600.0	90.40	90.00	6,856.4	62.9	5,528.9	5,529.2	0.00	0.00	0.00

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Project:</b>	SEC.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Klein 19O-412	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-05-14)		

#### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,700.0	90.40	90.00	6,855.7	62.9	5,628.9	5,629.2	0.00	0.00	0.00
12,800.0	90.40	90.00	6,855.0	62.9	5,728.9	5,729.2	0.00	0.00	0.00
12,900.0	90.40	90.00	6,854.3	62.9	5,828.9	5,829.2	0.00	0.00	0.00
13,000.0	90.40	90.00	6,853.6	62.9	5,928.9	5,929.2	0.00	0.00	0.00
13,100.0	90.40	90.00	6,852.9	62.9	6,028.9	6,029.2	0.00	0.00	0.00
13,200.0	90.40	90.00	6,852.2	62.9	6,128.9	6,129.2	0.00	0.00	0.00
13,300.0	90.40	90.00	6,851.5	62.9	6,228.9	6,229.2	0.00	0.00	0.00
13,400.0	90.40	90.00	6,850.8	62.9	6,328.9	6,329.2	0.00	0.00	0.00
13,500.0	90.40	90.00	6,850.1	62.9	6,428.9	6,429.2	0.00	0.00	0.00
13,600.0	90.40	90.00	6,849.4	62.9	6,528.9	6,529.2	0.00	0.00	0.00
13,700.0	90.40	90.00	6,848.7	62.9	6,628.9	6,629.2	0.00	0.00	0.00
13,800.0	90.40	90.00	6,848.0	62.9	6,728.9	6,729.1	0.00	0.00	0.00
13,900.0	90.40	90.00	6,847.3	62.9	6,828.9	6,829.1	0.00	0.00	0.00
13,949.3	90.40	90.00	6,847.0	62.9	6,878.2	6,878.5	0.00	0.00	0.00
BHL 2385'FNL & 500'FEL, Sec.20									

#### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,270.2	6,878.2	7"	7	7-1/2

#### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,561.8	3,550.0	Parkman		0.00	
4,318.6	4,300.0	Sussex		0.00	
4,520.4	4,500.0	Shannon		0.00	
6,516.6	6,471.0	Sharon Springs		0.00	
6,729.7	6,644.0	Niobrara A		0.00	
6,883.0	6,744.0	Niobrara B		0.00	
7,001.0	6,804.0	Niobrara C		0.00	
7,267.9	6,878.0	Ft Hays		0.00	
7,440.4	6,892.0	Codell		0.00	

#### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,000.0	2,000.0	0.0	0.0	KOP #1
6,150.2	6,118.5	62.9	-484.3	KOP #2
7,472.2	6,892.2	62.9	401.2	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.19-T5N-R64W**

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

**Klein 19O-412**

**Wellbore #1**

**Plan #1 (3-05-14)**

## **Anticollision Report**

**14 March, 2014**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 190-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 190-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 190-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (3-05-14)
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria
<b>Interpolation Method:</b>	MD Interval 100.0ft
<b>Depth Range:</b>	Unlimited
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0ft
<b>Warning Levels Evaluated at:</b>	2.00 Sigma
<b>Error Model:</b>	ISCWSA
<b>Scan Method:</b>	Closest Approach 3D
<b>Error Surface:</b>	Elliptical Conic

Survey Tool Program		Date	3/11/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	13,949.3	Plan #1 (3-05-14) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Klein (Existing) Sec.19-T5N-R64W						
Brent 1 (Existing) - Wellbore #1 - Wellbore #1	11,166.2	6,848.4	396.5	136.7	1.526	CC, ES, SF
Brent 1-6I (Existing) - Wellbore #1 - Wellbore #1	10,490.8	6,989.5	258.7	-17.5	0.937	Level 1, CC
Brent 1-6I (Existing) - Wellbore #1 - Wellbore #1	10,500.0	6,989.6	258.9	-17.6	0.936	Level 1, ES, SF
Duell 20-1 (Existing) - Wellbore #1 - Wellbore #1	9,803.9	6,855.9	330.7	108.5	1.488	Level 3, CC, ES, SF
Lewis Klein 19-2 (Existing) - Wellbore #1 - Wellbore #1	7,180.5	6,847.7	268.6	112.0	1.716	CC, ES, SF
Louis Klein 19-1 (Existing) - Wellbore #1 - Wellbore #1	8,480.6	6,867.2	308.7	122.1	1.654	CC, ES
Louis Klein 19-1 (Existing) - Wellbore #1 - Wellbore #1	8,500.0	6,867.0	309.3	122.2	1.653	SF
Victor Klein 20-1A (Existing) - Wellbore #1 - Wellbore #1	12,464.4	6,835.4	433.2	137.4	1.465	Level 3, CC, ES, SF
Klein 190-HZ Pad Sec.19-T5N-R64W						
Klein 19N-202 - Wellbore #1 - Plan #1 (3-05-14)	800.0	800.0	153.2	149.9	45.449	CC, ES
Klein 19N-202 - Wellbore #1 - Plan #1 (3-05-14)	13,949.3	13,926.6	944.8	549.5	2.390	SF
Klein 19N-432 - Wellbore #1 - Plan #1 (3-05-14)	1,000.0	1,000.0	150.5	146.2	35.236	CC, ES
Klein 19N-432 - Wellbore #1 - Plan #1 (3-05-14)	13,949.3	13,975.6	598.5	196.4	1.489	Level 3, SF
Klein 19O-232 - Wellbore #1 - Plan #1 (3-05-14)	1,500.0	1,500.0	32.8	26.3	5.030	CC, ES
Klein 19O-232 - Wellbore #1 - Plan #1 (3-05-14)	13,949.3	14,287.0	556.6	168.3	1.433	Level 3, SF
Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)	1,500.0	1,500.0	29.3	22.8	4.492	CC
Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)	13,949.3	13,905.7	198.5	-146.1	0.576	Level 1, ES, SF
Klein 19O-432 - Wellbore #1 - Plan #2 (3-11-14)	1,000.0	1,000.0	61.9	57.7	14.501	CC, ES
Klein 19O-432 - Wellbore #1 - Plan #2 (3-11-14)	13,949.3	14,690.8	680.1	264.8	1.638	SF
Klein 19P-312 - Wellbore #1 - Plan #1 (3-05-14)	400.0	400.0	154.0	152.4	97.858	CC, ES
Klein 19P-312 - Wellbore #1 - Plan #1 (3-05-14)	2,000.0	1,893.2	486.6	474.7	40.812	SF
Klein 19P-402 - Wellbore #1 - Plan #1 (3-05-14)	200.0	200.0	162.7	162.0	241.265	CC, ES
Klein 19P-402 - Wellbore #1 - Plan #1 (3-05-14)	2,000.0	1,861.9	582.8	569.6	44.335	SF

<b>Offset Design</b>	Klein (Existing) Sec.19-T5N-R64W - Brent 1 (Existing) - Wellbore #1 - Wellbore #1											<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b>	7091-UNKNOWN											<b>Offset Well Error:</b>	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		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	Warning
10,300.0	6,872.5	6,854.5	6,854.5	98.8	137.1	-90.87	459.4	4,095.1	952.6	716.7	235.85	4.039	
10,400.0	6,871.8	6,853.8	6,853.8	101.6	137.1	-90.77	459.4	4,095.1	862.7	624.0	238.61	3.615	
10,500.0	6,871.1	6,853.1	6,853.1	104.3	137.1	-90.67	459.4	4,095.1	775.2	533.8	241.37	3.212	
10,600.0	6,870.4	6,852.4	6,852.4	107.1	137.0	-90.57	459.4	4,095.1	691.2	447.0	244.13	2.831	

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 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Klein (Existing) Sec.19-T5N-R64W - Brent 1 (Existing) - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 7091-UNKNOWN												<b>Offset Well Error:</b>	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
10,700.0	6,869.7	6,851.7	6,851.7	109.9	137.0	-90.47	459.4	4,095.1	612.0	365.1	246.89	2.479	
10,800.0	6,869.0	6,851.0	6,851.0	112.6	137.0	-90.37	459.4	4,095.1	539.7	290.0	249.66	2.162	
10,900.0	6,868.3	6,850.3	6,850.3	115.4	137.0	-90.27	459.4	4,095.1	477.5	225.1	252.42	1.892	
11,000.0	6,867.6	6,849.6	6,849.6	118.2	137.0	-90.17	459.4	4,095.1	429.9	174.7	255.19	1.685	
11,100.0	6,866.9	6,848.9	6,848.9	121.0	137.0	-90.07	459.4	4,095.1	401.9	144.0	257.96	1.558	
11,166.2	6,866.4	6,848.4	6,848.4	122.8	137.0	-90.00	459.4	4,095.1	396.5	136.7	259.79	1.526	CC, ES, SF
11,200.0	6,866.2	6,848.2	6,848.2	123.8	137.0	-89.97	459.4	4,095.1	397.9	137.2	260.72	1.526	
11,300.0	6,865.5	6,847.5	6,847.5	126.5	136.9	-89.86	459.4	4,095.1	418.4	155.0	263.49	1.588	
11,400.0	6,864.8	6,846.8	6,846.8	129.3	136.9	-89.76	459.4	4,095.1	460.3	194.0	266.26	1.729	
11,500.0	6,864.1	6,846.1	6,846.1	132.1	136.9	-89.66	459.4	4,095.1	518.3	249.3	269.03	1.927	
11,600.0	6,863.4	6,845.4	6,845.4	134.9	136.9	-89.56	459.4	4,095.1	587.7	315.9	271.80	2.162	
11,700.0	6,862.7	6,844.7	6,844.7	137.7	136.9	-89.46	459.4	4,095.1	664.9	390.4	274.57	2.422	
11,800.0	6,862.0	6,844.0	6,844.0	140.5	136.9	-89.36	459.4	4,095.1	747.6	470.3	277.34	2.696	
11,900.0	6,861.3	6,843.3	6,843.3	143.3	136.9	-89.26	459.4	4,095.1	834.1	554.0	280.11	2.978	
12,000.0	6,860.6	6,842.6	6,842.6	146.0	136.9	-89.16	459.4	4,095.1	923.3	640.4	282.87	3.264	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Klein (Existing) Sec.19-T5N-R64W - Brent 1-6I ( Existing) - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 647-UNKNOWN												<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis 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
9,600.0	6,877.4	6,978.5	6,842.8	79.5	187.1	87.70	-195.8	3,419.6	927.6	674.6	253.02	3.666	
9,700.0	6,876.7	6,979.7	6,843.9	82.2	187.1	87.96	-195.8	3,419.6	832.0	576.4	255.63	3.255	
9,800.0	6,876.0	6,980.9	6,845.2	85.0	187.1	88.23	-195.8	3,419.6	737.7	479.4	258.25	2.856	
9,900.0	6,875.3	6,982.1	6,846.4	87.7	187.1	88.50	-195.8	3,419.7	645.0	384.1	260.86	2.473	
10,000.0	6,874.6	6,983.4	6,847.6	90.5	187.1	88.77	-195.8	3,419.7	554.8	291.4	263.47	2.106	
10,100.0	6,873.9	6,984.6	6,848.8	93.3	187.0	89.04	-195.8	3,419.7	468.7	202.6	266.08	1.762	
10,200.0	6,873.2	6,985.8	6,850.1	96.0	187.0	89.31	-195.8	3,419.7	389.3	120.6	268.68	1.449	Level 3
10,300.0	6,872.5	6,987.1	6,851.3	98.8	187.0	89.59	-195.8	3,419.8	321.5	50.2	271.28	1.185	Level 2
10,400.0	6,871.8	6,988.3	6,852.6	101.6	187.0	89.87	-195.8	3,419.8	274.2	0.3	273.87	1.001	Level 2
10,490.8	6,871.1	6,989.5	6,853.7	104.1	187.0	90.12	-195.8	3,419.8	258.7	-17.5	276.22	0.937	Level 1, CC
10,500.0	6,871.1	6,989.6	6,853.8	104.3	187.0	90.15	-195.8	3,419.8	258.9	-17.6	276.46	0.936	Level 1, ES, SF
10,600.0	6,870.4	6,990.9	6,855.1	107.1	187.0	90.43	-195.8	3,419.8	280.8	1.7	279.04	1.006	Level 2
10,700.0	6,869.7	6,992.2	6,856.4	109.9	186.9	90.72	-195.8	3,419.9	332.7	51.0	281.62	1.181	Level 2
10,800.0	6,869.0	6,993.5	6,857.7	112.6	186.9	91.01	-195.8	3,419.9	403.1	118.9	284.19	1.418	Level 3
10,900.0	6,868.3	6,994.8	6,859.0	115.4	186.9	91.30	-195.8	3,419.9	484.0	197.3	286.75	1.688	
11,000.0	6,867.6	6,996.1	6,860.3	118.2	186.9	91.59	-195.8	3,419.9	571.1	281.8	289.30	1.974	
11,100.0	6,866.9	6,997.4	6,861.6	121.0	186.9	91.88	-195.8	3,420.0	661.8	369.9	291.85	2.267	
11,200.0	6,866.2	6,998.8	6,863.0	123.8	186.9	92.18	-195.8	3,420.0	754.8	460.4	294.39	2.564	
11,300.0	6,865.5	7,000.1	6,864.3	126.5	186.8	92.48	-195.8	3,420.0	849.4	552.5	296.91	2.861	
11,400.0	6,864.8	7,001.5	6,865.7	129.3	186.8	92.78	-195.8	3,420.0	945.2	645.7	299.43	3.156	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Klein (Existing) Sec.19-T5N-R64W - Duell 20-1 (Existing) - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 7020-UNKNOWN												<b>Offset Well Error:</b>	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
8,900.0	6,882.3	6,862.3	6,862.3	60.5	137.2	-91.09	393.6	2,732.9	962.5	764.8	197.66	4.869	
9,000.0	6,881.6	6,861.6	6,861.6	63.2	137.2	-90.97	393.6	2,732.9	869.2	668.9	200.35	4.339	
9,100.0	6,880.9	6,860.9	6,860.9	65.9	137.2	-90.85	393.6	2,732.9	777.7	574.6	203.05	3.830	
9,200.0	6,880.2	6,860.2	6,860.2	68.6	137.2	-90.73	393.6	2,732.9	688.5	482.7	205.76	3.346	
9,300.0	6,879.5	6,859.5	6,859.5	71.3	137.2	-90.61	393.6	2,732.9	602.7	394.2	208.47	2.891	
9,400.0	6,878.8	6,858.8	6,858.8	74.0	137.2	-90.49	393.6	2,732.9	522.0	310.8	211.19	2.472	
9,500.0	6,878.1	6,858.1	6,858.1	76.8	137.2	-90.37	393.6	2,732.9	449.1	235.2	213.92	2.100	
9,600.0	6,877.4	6,857.4	6,857.4	79.5	137.1	-90.25	393.6	2,732.9	388.5	171.9	216.64	1.793	
9,700.0	6,876.7	6,856.7	6,856.7	82.2	137.1	-90.13	393.6	2,732.9	346.6	127.3	219.38	1.580	
9,800.0	6,876.0	6,856.0	6,856.0	85.0	137.1	-90.00	393.6	2,732.9	330.7	108.6	222.11	1.489 Level 3	
9,803.9	6,875.9	6,855.9	6,855.9	85.1	137.1	-90.00	393.6	2,732.9	330.7	108.5	222.22	1.488 Level 3, CC, ES, SF	
9,900.0	6,875.3	6,855.3	6,855.3	87.7	137.1	-89.88	393.6	2,732.9	344.4	119.5	224.85	1.532	
10,000.0	6,874.6	6,854.6	6,854.6	90.5	137.1	-89.76	393.6	2,732.9	384.5	156.9	227.59	1.689	
10,100.0	6,873.9	6,853.9	6,853.9	93.3	137.1	-89.64	393.6	2,732.9	443.9	213.5	230.34	1.927	
10,200.0	6,873.2	6,853.2	6,853.2	96.0	137.1	-89.52	393.6	2,732.9	516.0	282.9	233.08	2.214	
10,300.0	6,872.5	6,852.5	6,852.5	98.8	137.0	-89.40	393.6	2,732.9	596.2	360.4	235.83	2.528	
10,400.0	6,871.8	6,851.8	6,851.8	101.6	137.0	-89.28	393.6	2,732.9	681.7	443.1	238.58	2.857	
10,500.0	6,871.1	6,851.1	6,851.1	104.3	137.0	-89.16	393.6	2,732.9	770.6	529.3	241.33	3.193	
10,600.0	6,870.4	6,850.4	6,850.4	107.1	137.0	-89.04	393.6	2,732.9	862.0	618.0	244.08	3.532	
10,700.0	6,869.7	6,849.7	6,849.7	109.9	137.0	-88.92	393.6	2,732.9	955.2	708.3	246.83	3.870	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Lewis Klein 19-2 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7082-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	18.58		331.5	111.4	350.1				
100.0	100.0	84.0	84.0	0.1	1.7	18.58		331.5	111.4	349.7	348.0	1.79	195.107	
200.0	200.0	184.0	184.0	0.3	3.7	18.58		331.5	111.4	349.7	345.7	4.02	87.059	
300.0	300.0	284.0	284.0	0.6	5.7	18.58		331.5	111.4	349.7	343.5	6.24	56.030	
400.0	400.0	384.0	384.0	0.8	7.7	18.58		331.5	111.4	349.7	341.3	8.47	41.308	
500.0	500.0	484.0	484.0	1.0	9.7	18.58		331.5	111.4	349.7	339.1	10.69	32.712	
600.0	600.0	584.0	584.0	1.2	11.7	18.58		331.5	111.4	349.7	336.8	12.92	27.078	
700.0	700.0	684.0	684.0	1.5	13.7	18.58		331.5	111.4	349.7	334.6	15.14	23.099	
800.0	800.0	784.0	784.0	1.7	15.7	18.58		331.5	111.4	349.7	332.4	17.37	20.140	
900.0	900.0	884.0	884.0	1.9	17.7	18.58		331.5	111.4	349.7	330.2	19.59	17.853	
1,000.0	1,000.0	984.0	984.0	2.1	19.7	18.58		331.5	111.4	349.7	327.9	21.82	16.032	
1,100.0	1,100.0	1,084.0	1,084.0	2.4	21.7	18.58		331.5	111.4	349.7	325.7	24.04	14.548	
1,200.0	1,200.0	1,184.0	1,184.0	2.6	23.7	18.58		331.5	111.4	349.7	323.5	26.26	13.316	
1,300.0	1,300.0	1,284.0	1,284.0	2.8	25.7	18.58		331.5	111.4	349.7	321.3	28.49	12.276	
1,400.0	1,400.0	1,384.0	1,384.0	3.0	27.7	18.58		331.5	111.4	349.7	319.0	30.71	11.387	
1,500.0	1,500.0	1,484.0	1,484.0	3.3	29.7	18.58		331.5	111.4	349.7	316.8	32.94	10.618	
1,600.0	1,600.0	1,584.0	1,584.0	3.5	31.7	18.58		331.5	111.4	349.7	314.6	35.16	9.946	
1,700.0	1,700.0	1,684.0	1,684.0	3.7	33.7	18.58		331.5	111.4	349.7	312.4	37.39	9.354	
1,800.0	1,800.0	1,784.0	1,784.0	3.9	35.7	18.58		331.5	111.4	349.7	310.1	39.61	8.829	
1,900.0	1,900.0	1,884.0	1,884.0	4.2	37.7	18.58		331.5	111.4	349.7	307.9	41.84	8.359	
2,000.0	2,000.0	1,984.0	1,984.0	4.4	39.7	18.58		331.5	111.4	349.7	305.7	44.06	7.937	
2,100.0	2,100.0	2,084.0	2,084.0	4.6	41.7	101.45		331.5	111.4	350.1	303.8	46.27	7.565	
2,200.0	2,199.8	2,183.8	2,183.8	4.8	43.7	102.27		331.5	111.4	351.2	302.7	48.47	7.244	
2,300.0	2,299.5	2,283.5	2,283.5	5.0	45.7	103.61		331.5	111.4	353.1	302.5	50.67	6.969	
2,400.0	2,398.7	2,382.7	2,382.7	5.2	47.7	105.44		331.5	111.4	356.2	303.3	52.86	6.738	
2,500.0	2,497.8	2,481.8	2,481.8	5.5	49.6	107.48		331.5	111.4	360.0	304.9	55.07	6.537	
2,600.0	2,596.9	2,580.9	2,580.9	5.7	51.6	109.47		331.5	111.4	364.3	307.0	57.29	6.359	
2,700.0	2,696.0	2,680.0	2,680.0	6.0	53.6	111.42		331.5	111.4	369.0	309.5	59.50	6.201	
2,800.0	2,795.1	2,779.1	2,779.1	6.3	55.6	113.31		331.5	111.4	374.1	312.4	61.73	6.061	
2,900.0	2,894.2	2,878.2	2,878.2	6.5	57.6	115.15		331.5	111.4	379.7	315.7	63.95	5.937	
3,000.0	2,993.3	2,977.3	2,977.3	6.8	59.5	116.94		331.5	111.4	385.6	319.4	66.17	5.827	
3,100.0	3,092.4	3,076.4	3,076.4	7.1	61.5	118.68		331.5	111.4	391.9	323.5	68.40	5.730	
3,200.0	3,191.5	3,175.5	3,175.5	7.4	63.5	120.35		331.5	111.4	398.5	327.9	70.62	5.643	
3,300.0	3,290.6	3,274.6	3,274.6	7.7	65.5	121.98		331.5	111.4	405.5	332.7	72.85	5.567	
3,400.0	3,389.7	3,373.7	3,373.7	8.0	67.5	123.54		331.5	111.4	412.8	337.7	75.07	5.499	
3,500.0	3,488.8	3,472.8	3,472.8	8.3	69.5	125.05		331.5	111.4	420.4	343.1	77.29	5.439	
3,600.0	3,587.9	3,571.9	3,571.9	8.6	71.4	126.51		331.5	111.4	428.3	348.8	79.51	5.387	
3,700.0	3,687.0	3,671.0	3,671.0	8.9	73.4	127.92		331.5	111.4	436.4	354.7	81.73	5.340	
3,800.0	3,786.1	3,770.1	3,770.1	9.2	75.4	129.27		331.5	111.4	444.8	360.9	83.94	5.299	
3,900.0	3,885.2	3,869.2	3,869.2	9.5	77.4	130.57		331.5	111.4	453.5	367.3	86.16	5.263	
4,000.0	3,984.3	3,968.3	3,968.3	9.8	79.4	131.83		331.5	111.4	462.3	374.0	88.37	5.232	
4,100.0	4,083.4	4,067.4	4,067.4	10.2	81.3	133.03		331.5	111.4	471.4	380.8	90.58	5.204	
4,200.0	4,182.5	4,166.5	4,166.5	10.5	83.3	134.20		331.5	111.4	480.7	387.9	92.79	5.180	
4,300.0	4,281.6	4,265.6	4,265.6	10.8	85.3	135.31		331.5	111.4	490.2	395.2	95.00	5.160	
4,400.0	4,380.7	4,364.7	4,364.7	11.1	87.3	136.39		331.5	111.4	499.8	402.6	97.20	5.142	
4,500.0	4,479.8	4,463.8	4,463.8	11.4	89.3	137.42		331.5	111.4	509.6	410.2	99.41	5.127	
4,600.0	4,578.9	4,562.9	4,562.9	11.8	91.3	138.42		331.5	111.4	519.6	418.0	101.61	5.114	
4,700.0	4,678.0	4,662.0	4,662.0	12.1	93.2	139.37		331.5	111.4	529.7	425.9	103.81	5.103	
4,800.0	4,777.1	4,761.1	4,761.1	12.4	95.2	140.30		331.5	111.4	540.0	434.0	106.02	5.094	
4,900.0	4,876.2	4,860.2	4,860.2	12.7	97.2	141.18		331.5	111.4	550.4	442.2	108.22	5.086	
5,000.0	4,975.3	4,959.3	4,959.3	13.1	99.2	142.04		331.5	111.4	560.9	450.5	110.42	5.080	

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 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Lewis Klein 19-2 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7082-UNKNOWN													Offset Well Error:	0.0 ft
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	5,074.4	5,058.4	5,058.4	13.4	101.2	142.86	331.5	111.4	571.6	459.0	112.62	5.076		
5,200.0	5,173.5	5,157.5	5,157.5	13.7	103.1	143.65	331.5	111.4	582.3	467.5	114.81	5.072		
5,300.0	5,272.6	5,256.6	5,256.6	14.0	105.1	144.42	331.5	111.4	593.2	476.2	117.01	5.070		
5,400.0	5,371.7	5,355.7	5,355.7	14.4	107.1	145.15	331.5	111.4	604.2	485.0	119.21	5.068		
5,500.0	5,470.8	5,454.8	5,454.8	14.7	109.1	145.86	331.5	111.4	615.3	493.8	121.41	5.068		
5,600.0	5,569.9	5,553.9	5,553.9	15.0	111.1	146.55	331.5	111.4	626.4	502.8	123.60	5.068		
5,700.0	5,669.1	5,653.1	5,653.1	15.3	113.1	147.25	331.5	111.4	637.2	511.3	125.98	5.058		
5,800.0	5,768.6	5,752.6	5,752.6	15.5	115.1	147.81	331.5	111.4	645.5	517.1	128.42	5.027		
5,900.0	5,868.4	5,852.4	5,852.4	15.7	117.0	148.16	331.5	111.4	650.9	520.1	130.77	4.977		
6,000.0	5,968.3	5,952.3	5,952.3	15.9	119.0	148.32	331.5	111.4	653.3	520.3	133.02	4.912		
6,100.0	6,068.3	6,052.3	6,052.3	16.1	121.0	65.73	331.5	111.4	653.5	517.0	136.52	4.787		
6,200.0	6,168.3	6,152.3	6,152.3	16.2	123.0	-24.38	331.5	111.4	652.0	514.9	137.11	4.755		
6,300.0	6,267.4	6,251.4	6,251.4	16.3	125.0	-25.23	331.5	111.4	640.2	502.9	137.29	4.663		
6,400.0	6,363.9	6,347.9	6,347.9	16.3	127.0	-27.06	331.5	111.4	616.8	481.1	135.69	4.546		
6,500.0	6,456.2	6,440.2	6,440.2	16.2	128.8	-30.08	331.5	111.4	582.6	449.8	132.81	4.387		
6,600.0	6,542.8	6,526.8	6,526.8	16.2	130.5	-34.67	331.5	111.4	538.8	409.0	129.76	4.152		
6,700.0	6,622.1	6,606.1	6,606.1	16.2	132.1	-41.32	331.5	111.4	487.0	358.5	128.55	3.789		
6,800.0	6,692.7	6,676.7	6,676.7	16.4	133.5	-50.51	331.5	111.4	429.9	298.2	131.67	3.265		
6,900.0	6,753.6	6,737.6	6,737.6	16.8	134.8	-62.06	331.5	111.4	371.3	231.6	139.69	2.658		
7,000.0	6,803.6	6,787.6	6,787.6	17.5	135.8	-74.37	331.5	111.4	317.8	169.0	148.80	2.136		
7,100.0	6,841.8	6,825.8	6,825.8	18.5	136.5	-84.70	331.5	111.4	279.6	125.1	154.48	1.810		
7,180.5	6,863.7	6,847.7	6,847.7	19.6	137.0	-90.00	331.5	111.4	268.6	112.0	156.57	1.716	CC, ES, SF	
7,200.0	6,867.7	6,851.7	6,851.7	19.9	137.0	-90.79	331.5	111.4	269.3	112.4	156.90	1.716		
7,300.0	6,881.4	6,865.4	6,865.4	21.5	137.3	-92.63	331.5	111.4	293.4	134.8	158.64	1.850		
7,400.0	6,890.5	6,874.5	6,874.5	23.4	137.5	-92.60	331.5	111.4	345.7	185.0	160.66	2.152		
7,500.0	6,892.0	6,876.0	6,876.0	25.3	137.5	-89.53	331.5	111.4	415.9	253.1	162.87	2.554		
7,600.0	6,891.3	6,875.3	6,875.3	27.5	137.5	-89.38	331.5	111.4	496.5	331.5	164.98	3.010		
7,700.0	6,890.6	6,874.6	6,874.6	29.7	137.5	-89.23	331.5	111.4	583.1	415.9	167.21	3.487		
7,800.0	6,889.9	6,873.9	6,873.9	32.1	137.5	-89.08	331.5	111.4	673.5	503.9	169.52	3.973		
7,900.0	6,889.2	6,873.2	6,873.2	34.5	137.5	-88.93	331.5	111.4	766.2	594.3	171.90	4.457		
8,000.0	6,888.5	6,872.5	6,872.5	36.9	137.5	-88.78	331.5	111.4	860.6	686.2	174.34	4.936		
8,100.0	6,887.8	6,871.8	6,871.8	39.4	137.4	-88.63	331.5	111.4	956.1	779.2	176.83	5.407		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Klein (Existing) Sec.19-T5N-R64W - Louis Klein 19-1 (Existing) - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 6990-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)	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
7,600.0	6,891.3	6,873.3	6,873.3	27.5	137.5	-91.14	371.6	1,409.6	933.2	768.2	164.91	5.659	
7,700.0	6,890.6	6,872.6	6,872.6	29.7	137.5	-91.01	371.6	1,409.6	839.4	672.3	167.14	5.022	
7,800.0	6,889.9	6,871.9	6,871.9	32.1	137.4	-90.88	371.6	1,409.6	747.4	577.9	169.47	4.410	
7,900.0	6,889.2	6,871.2	6,871.2	34.5	137.4	-90.75	371.6	1,409.6	657.6	485.7	171.87	3.826	
8,000.0	6,888.5	6,870.5	6,870.5	36.9	137.4	-90.62	371.6	1,409.6	571.2	396.9	174.32	3.277	
8,100.0	6,887.8	6,869.8	6,869.8	39.4	137.4	-90.49	371.6	1,409.6	490.1	313.3	176.82	2.772	
8,200.0	6,887.1	6,869.1	6,869.1	42.0	137.4	-90.36	371.6	1,409.6	417.2	237.9	179.35	2.326	
8,300.0	6,886.4	6,868.4	6,868.4	44.6	137.4	-90.23	371.6	1,409.6	357.7	175.8	181.92	1.966	
8,400.0	6,885.7	6,867.7	6,867.7	47.2	137.4	-90.10	371.6	1,409.6	319.1	134.6	184.51	1.729	
8,480.6	6,885.2	6,867.2	6,867.2	49.3	137.3	-90.00	371.6	1,409.6	308.7	122.1	186.62	1.654 CC, ES	
8,500.0	6,885.0	6,867.0	6,867.0	49.8	137.3	-89.97	371.6	1,409.6	309.3	122.2	187.13	1.653 SF	
8,600.0	6,884.3	6,866.3	6,866.3	52.4	137.3	-89.85	371.6	1,409.6	331.0	141.3	189.76	1.744	
8,700.0	6,883.6	6,865.6	6,865.6	55.1	137.3	-89.72	371.6	1,409.6	378.7	186.3	192.40	1.968	
8,800.0	6,882.9	6,864.9	6,864.9	57.8	137.3	-89.59	371.6	1,409.6	444.2	249.1	195.06	2.277	
8,900.0	6,882.3	6,864.3	6,864.3	60.5	137.3	-89.46	371.6	1,409.6	520.8	323.0	197.73	2.634	
9,000.0	6,881.6	6,863.6	6,863.6	63.2	137.3	-89.33	371.6	1,409.6	604.2	403.8	200.41	3.015	
9,100.0	6,880.9	6,862.9	6,862.9	65.9	137.3	-89.20	371.6	1,409.6	692.0	488.9	203.10	3.407	
9,200.0	6,880.2	6,862.2	6,862.2	68.6	137.2	-89.07	371.6	1,409.6	782.8	577.0	205.80	3.804	
9,300.0	6,879.5	6,861.5	6,861.5	71.3	137.2	-88.94	371.6	1,409.6	875.6	667.1	208.50	4.200	
9,400.0	6,878.8	6,860.8	6,860.8	74.0	137.2	-88.81	371.6	1,409.6	969.8	758.6	211.20	4.592	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Klein (Existing) Sec.19-T5N-R64W - Victor Klein 20-1A (Existing) - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b> 7600-UNKNOWN												<b>Offset Well Error:</b>	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
11,600.0	6,863.4	6,841.4	6,841.4	134.9	136.8	-90.80	496.1	5,393.2	966.8	695.1	271.69	3.558	
11,700.0	6,862.7	6,840.7	6,840.7	137.7	136.8	-90.71	496.1	5,393.2	878.5	604.1	274.47	3.201	
11,800.0	6,862.0	6,840.0	6,840.0	140.5	136.8	-90.61	496.1	5,393.2	793.1	515.8	277.25	2.861	
11,900.0	6,861.3	6,839.3	6,839.3	143.3	136.8	-90.52	496.1	5,393.2	711.4	431.4	280.03	2.541	
12,000.0	6,860.6	6,838.6	6,838.6	146.0	136.8	-90.43	496.1	5,393.2	635.0	352.2	282.81	2.245	
12,100.0	6,859.9	6,837.9	6,837.9	148.8	136.8	-90.34	496.1	5,393.2	566.0	280.4	285.59	1.982	
12,200.0	6,859.2	6,837.2	6,837.2	151.6	136.7	-90.24	496.1	5,393.2	507.5	219.1	288.36	1.760	
12,300.0	6,858.5	6,836.5	6,836.5	154.4	136.7	-90.15	496.1	5,393.2	463.3	172.1	291.14	1.591	
12,400.0	6,857.8	6,835.8	6,835.8	157.2	136.7	-90.06	496.1	5,393.2	437.9	144.0	293.92	1.490	Level 3
12,464.4	6,857.4	6,835.4	6,835.4	159.0	136.7	-90.00	496.1	5,393.2	433.2	137.4	295.71	1.465	Level 3, CC, ES, SF
12,500.0	6,857.1	6,835.1	6,835.1	160.0	136.7	-89.97	496.1	5,393.2	434.6	137.9	296.70	1.465	Level 3
12,600.0	6,856.4	6,834.4	6,834.4	162.8	136.7	-89.87	496.1	5,393.2	453.9	154.4	299.48	1.516	
12,700.0	6,855.7	6,833.7	6,833.7	165.6	136.7	-89.78	496.1	5,393.2	493.1	190.8	302.26	1.631	
12,800.0	6,855.0	6,833.0	6,833.0	168.4	136.7	-89.69	496.1	5,393.2	548.0	242.9	305.04	1.796	
12,900.0	6,854.3	6,832.3	6,832.3	171.2	136.6	-89.60	496.1	5,393.2	614.3	306.5	307.82	1.996	
13,000.0	6,853.6	6,831.6	6,831.6	174.0	136.6	-89.51	496.1	5,393.2	688.9	378.3	310.59	2.218	
13,100.0	6,852.9	6,830.9	6,830.9	176.8	136.6	-89.41	496.1	5,393.2	769.2	455.8	313.37	2.455	
13,200.0	6,852.2	6,830.2	6,830.2	179.6	136.6	-89.32	496.1	5,393.2	853.7	537.5	316.15	2.700	
13,300.0	6,851.5	6,829.5	6,829.5	182.4	136.6	-89.23	496.1	5,393.2	941.2	622.3	318.93	2.951	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19N-202 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-79.04	29.1	-150.4	153.2					
100.0	100.0	100.0	100.0	0.1	0.1	-79.04	29.1	-150.4	153.2	153.0	0.22	681.739		
200.0	200.0	200.0	200.0	0.3	0.3	-79.04	29.1	-150.4	153.2	152.6	0.67	227.246		
300.0	300.0	300.0	300.0	0.6	0.6	-79.04	29.1	-150.4	153.2	152.1	1.12	136.348		
400.0	400.0	400.0	400.0	0.8	0.8	-79.04	29.1	-150.4	153.2	151.7	1.57	97.391		
500.0	500.0	500.0	500.0	1.0	1.0	-79.04	29.1	-150.4	153.2	151.2	2.02	75.749		
600.0	600.0	600.0	600.0	1.2	1.2	-79.04	29.1	-150.4	153.2	150.8	2.47	61.976		
700.0	700.0	700.0	700.0	1.5	1.5	-79.04	29.1	-150.4	153.2	150.3	2.92	52.441		
800.0	800.0	800.0	800.0	1.7	1.7	-79.04	29.1	-150.4	153.2	149.9	3.37	45.449 CC, ES		
900.0	900.0	897.3	897.3	1.9	1.9	-78.50	30.7	-151.0	154.1	150.3	3.82	40.391		
1,000.0	1,000.0	994.5	994.3	2.1	2.1	-76.95	35.4	-152.6	156.8	152.5	4.26	36.788		
1,100.0	1,100.0	1,091.1	1,090.6	2.4	2.4	-74.49	43.1	-155.3	161.5	156.7	4.71	34.276		
1,200.0	1,200.0	1,187.1	1,186.0	2.6	2.6	-71.31	53.8	-159.1	168.5	163.3	5.17	32.620		
1,300.0	1,300.0	1,282.3	1,280.0	2.8	2.8	-67.64	67.4	-163.8	178.3	172.6	5.63	31.655		
1,400.0	1,400.0	1,376.4	1,372.5	3.0	3.1	-63.73	83.7	-169.5	191.0	184.9	6.11	31.243		
1,500.0	1,500.0	1,470.6	1,464.6	3.3	3.5	-59.75	102.8	-176.2	207.0	200.4	6.63	31.236		
1,600.0	1,600.0	1,568.1	1,559.6	3.5	3.8	-56.09	123.3	-183.4	224.6	217.4	7.18	31.297		
1,700.0	1,700.0	1,665.6	1,654.6	3.7	4.2	-52.97	143.8	-190.5	243.0	235.2	7.75	31.351		
1,800.0	1,800.0	1,763.1	1,749.7	3.9	4.6	-50.28	164.2	-197.7	261.9	253.6	8.34	31.391		
1,900.0	1,900.0	1,860.6	1,844.7	4.2	5.0	-47.96	184.7	-204.9	281.3	272.4	8.95	31.422		
2,000.0	2,000.0	1,958.1	1,939.8	4.4	5.5	-45.94	205.2	-212.1	301.2	291.6	9.58	31.447		
2,100.0	2,100.0	2,055.7	2,035.0	4.6	5.9	38.39	225.7	-219.2	320.0	310.5	9.50	33.688		
2,200.0	2,199.8	2,153.6	2,130.4	4.8	6.3	40.31	246.3	-226.4	336.5	326.5	9.95	33.817		
2,300.0	2,299.5	2,251.6	2,225.9	5.0	6.8	42.42	266.9	-233.6	350.9	340.5	10.40	33.749		
2,400.0	2,398.7	2,349.6	2,321.4	5.2	7.2	44.77	287.5	-240.8	363.4	352.5	10.84	33.511		
2,500.0	2,497.8	2,447.5	2,416.9	5.5	7.6	47.23	308.1	-248.0	375.7	364.4	11.30	33.231		
2,600.0	2,596.9	2,545.5	2,512.4	5.7	8.1	49.53	328.6	-255.2	388.6	376.8	11.78	33.001		
2,700.0	2,696.0	2,643.4	2,607.9	6.0	8.5	51.69	349.2	-262.5	402.1	389.9	12.26	32.807		
2,800.0	2,795.1	2,741.4	2,703.4	6.3	9.0	53.71	369.8	-269.7	416.2	403.5	12.75	32.640		
2,900.0	2,894.2	2,839.3	2,798.9	6.5	9.4	55.59	390.4	-276.9	430.8	417.5	13.26	32.494		
3,000.0	2,993.3	2,937.3	2,894.4	6.8	9.9	57.35	411.0	-284.1	445.7	432.0	13.77	32.363		
3,100.0	3,092.4	3,035.2	2,989.9	7.1	10.3	59.00	431.6	-291.3	461.1	446.8	14.30	32.244		
3,200.0	3,191.5	3,133.2	3,085.4	7.4	10.8	60.55	452.2	-298.5	476.9	462.0	14.84	32.134		
3,300.0	3,290.6	3,231.1	3,180.9	7.7	11.2	61.99	472.7	-305.7	492.9	477.5	15.39	32.030		
3,400.0	3,389.7	3,329.1	3,276.4	8.0	11.7	63.34	493.3	-312.9	509.3	493.3	15.95	31.933		
3,500.0	3,488.8	3,427.0	3,371.8	8.3	12.2	64.61	513.9	-320.1	525.9	509.4	16.52	31.841		
3,600.0	3,587.9	3,525.0	3,467.3	8.6	12.6	65.81	534.5	-327.3	542.7	525.6	17.09	31.753		
3,700.0	3,687.0	3,622.9	3,562.8	8.9	13.1	66.93	555.1	-334.5	559.8	542.1	17.68	31.669		
3,800.0	3,786.1	3,720.9	3,658.3	9.2	13.5	67.98	575.7	-341.7	577.1	558.8	18.27	31.589		
3,900.0	3,885.2	3,818.8	3,753.8	9.5	14.0	68.98	596.2	-348.9	594.5	575.6	18.87	31.512		
4,000.0	3,984.3	3,916.8	3,849.3	9.8	14.4	69.92	616.8	-356.1	612.1	592.6	19.47	31.438		
4,100.0	4,083.4	4,014.7	3,944.8	10.2	14.9	70.80	637.4	-363.3	629.9	609.8	20.08	31.368		
4,200.0	4,182.5	4,112.7	4,040.3	10.5	15.4	71.64	658.0	-370.5	647.8	627.1	20.70	31.300		
4,300.0	4,281.6	4,210.6	4,135.8	10.8	15.8	72.43	678.6	-377.7	665.8	644.5	21.32	31.236		
4,400.0	4,380.7	4,308.6	4,231.3	11.1	16.3	73.18	699.2	-384.9	683.9	662.0	21.94	31.174		
4,500.0	4,479.8	4,406.5	4,326.8	11.4	16.7	73.90	719.7	-392.1	702.2	679.6	22.57	31.115		
4,600.0	4,578.9	4,504.5	4,422.3	11.8	17.2	74.57	740.3	-399.3	720.6	697.4	23.20	31.058		
4,700.0	4,678.0	4,602.4	4,517.8	12.1	17.7	75.22	760.9	-406.5	739.0	715.2	23.84	31.004		
4,800.0	4,777.1	4,700.4	4,613.2	12.4	18.1	75.83	781.5	-413.7	757.5	733.1	24.47	30.952		
4,900.0	4,876.2	4,798.3	4,708.7	12.7	18.6	76.41	802.1	-420.9	776.2	751.0	25.12	30.902		
5,000.0	4,975.3	4,896.3	4,804.2	13.1	19.0	76.97	822.7	-428.1	794.8	769.1	25.76	30.855		

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 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19N-202 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	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	5,074.4	4,994.2	4,899.7	13.4	19.5	77.50		843.2	-435.3	813.6	787.2	26.41	30.809	
5,200.0	5,173.5	5,092.2	4,995.2	13.7	20.0	78.00		863.8	-442.5	832.4	805.4	27.06	30.766	
5,300.0	5,272.6	5,190.1	5,090.7	14.0	20.4	78.49		884.4	-449.7	851.3	823.6	27.71	30.724	
5,400.0	5,371.7	5,288.1	5,186.2	14.4	20.9	78.95		905.0	-457.0	870.2	841.9	28.36	30.685	
5,500.0	5,470.8	5,394.5	5,290.0	14.7	21.4	79.43		927.2	-464.7	889.1	860.1	29.04	30.623	
5,600.0	5,569.9	5,534.9	5,427.8	15.0	21.8	80.13		952.3	-473.5	905.0	875.2	29.74	30.428	
5,700.0	5,669.1	5,676.8	5,568.3	15.3	22.2	81.00		971.1	-480.1	916.3	885.9	30.41	30.128	
5,800.0	5,768.6	5,819.9	5,710.8	15.5	22.5	81.76		983.3	-484.4	923.5	892.5	30.96	29.825	
5,900.0	5,868.4	5,963.7	5,854.4	15.7	22.7	82.26		988.9	-486.3	926.5	895.1	31.43	29.476	
6,000.0	5,968.3	6,077.6	5,968.3	15.9	22.9	82.46		989.2	-486.4	926.4	894.6	31.79	29.138	
6,055.5	6,023.8	6,133.1	6,023.8	16.0	22.9	82.49		989.2	-486.4	926.3	894.3	31.98	28.968	
6,100.0	6,068.3	6,177.6	6,068.4	16.1	23.0	-0.03		989.2	-484.8	926.3	890.7	35.69	25.959	
6,108.0	6,076.3	6,185.6	6,076.3	16.1	23.0	-90.00		989.2	-484.3	926.3	894.2	32.14	28.818	
6,200.0	6,168.3	6,276.4	6,166.2	16.2	23.0	-89.34		989.2	-472.1	926.4	894.0	32.45	28.552	
6,300.0	6,267.4	6,373.4	6,260.0	16.3	23.1	-88.56		989.2	-447.4	926.6	894.0	32.63	28.401	
6,400.0	6,363.9	6,469.0	6,348.5	16.3	23.0	-87.82		989.2	-411.7	927.0	894.3	32.69	28.355	
6,500.0	6,456.2	6,563.2	6,430.8	16.2	23.0	-87.11		989.2	-365.9	927.5	894.8	32.71	28.358	
6,600.0	6,542.8	6,656.2	6,505.9	16.2	22.9	-86.45		989.2	-311.1	928.1	895.4	32.76	28.328	
6,700.0	6,622.1	6,750.0	6,574.4	16.2	22.9	-85.84		989.2	-247.1	928.8	895.8	32.99	28.152	
6,800.0	6,692.7	6,839.3	6,631.7	16.4	22.8	-85.32		989.2	-178.7	929.5	895.9	33.53	27.722	
6,900.0	6,753.6	6,929.6	6,681.3	16.8	22.8	-84.86		989.2	-103.3	930.1	895.6	34.52	26.945	
7,000.0	6,803.6	7,019.2	6,721.3	17.5	22.8	-84.49		989.2	-23.2	930.7	894.6	36.07	25.803	
7,100.0	6,841.8	7,108.4	6,751.5	18.5	22.9	-84.20		989.2	60.7	931.1	892.9	38.19	24.379	
7,200.0	6,867.7	7,197.2	6,771.7	19.9	23.3	-84.00		989.2	147.1	931.5	890.6	40.89	22.780	
7,300.0	6,881.4	7,285.7	6,781.8	21.5	24.1	-83.86		989.2	235.0	931.7	887.7	44.05	21.152	
7,400.0	6,890.5	7,377.8	6,782.2	23.4	25.4	-83.35		989.2	327.0	932.7	885.0	47.61	19.590	
7,500.0	6,892.0	7,477.7	6,780.3	25.3	27.3	-83.12		989.2	426.9	933.1	881.4	51.64	18.068	
7,600.0	6,891.3	7,577.7	6,778.5	27.5	29.4	-83.05		989.2	526.9	933.2	877.3	55.91	16.692	
7,700.0	6,890.6	7,677.7	6,776.6	29.7	31.6	-82.98		989.2	626.9	933.3	872.9	60.39	15.456	
7,800.0	6,889.9	7,777.7	6,774.8	32.1	33.9	-82.91		989.2	726.9	933.5	868.4	65.03	14.353	
7,900.0	6,889.2	7,877.7	6,772.9	34.5	36.3	-82.84		989.2	826.8	933.6	863.8	69.82	13.372	
8,000.0	6,888.5	7,977.7	6,771.1	36.9	38.7	-82.77		989.2	926.8	933.8	859.1	74.71	12.499	
8,100.0	6,887.8	8,077.7	6,769.2	39.4	41.2	-82.70		989.2	1,026.8	933.9	854.2	79.69	11.720	
8,200.0	6,887.1	8,177.6	6,767.4	42.0	43.7	-82.63		989.2	1,126.8	934.1	849.3	84.74	11.023	
8,300.0	6,886.4	8,277.6	6,765.5	44.6	46.3	-82.56		989.2	1,226.7	934.2	844.4	89.85	10.398	
8,400.0	6,885.7	8,377.6	6,763.7	47.2	48.9	-82.49		989.2	1,326.7	934.4	839.3	95.01	9.835	
8,500.0	6,885.0	8,477.6	6,761.8	49.8	51.5	-82.42		989.2	1,426.7	934.5	834.3	100.21	9.326	
8,600.0	6,884.3	8,577.6	6,760.0	52.4	54.1	-82.35		989.2	1,526.7	934.7	829.2	105.44	8.864	
8,700.0	6,883.6	8,677.6	6,758.1	55.1	56.7	-82.28		989.2	1,626.7	934.8	824.1	110.71	8.444	
8,800.0	6,882.9	8,777.6	6,756.3	57.8	59.4	-82.21		989.2	1,726.6	935.0	819.0	116.00	8.060	
8,900.0	6,882.3	8,877.6	6,754.4	60.5	62.1	-82.14		989.2	1,826.6	935.1	813.8	121.32	7.708	
9,000.0	6,881.6	8,977.6	6,752.6	63.2	64.7	-82.07		989.2	1,926.6	935.3	808.6	126.65	7.385	
9,100.0	6,880.9	9,077.6	6,750.7	65.9	67.4	-82.00		989.2	2,026.6	935.4	803.4	132.00	7.087	
9,200.0	6,880.2	9,177.6	6,748.9	68.6	70.1	-81.93		989.2	2,126.5	935.6	798.2	137.36	6.811	
9,300.0	6,879.5	9,277.6	6,747.0	71.3	72.8	-81.86		989.2	2,226.5	935.8	793.0	142.74	6.556	
9,400.0	6,878.8	9,377.6	6,745.2	74.0	75.5	-81.79		989.2	2,326.5	935.9	787.8	148.12	6.319	
9,500.0	6,878.1	9,477.6	6,743.3	76.8	78.3	-81.72		989.2	2,426.5	936.1	782.6	153.52	6.098	
9,600.0	6,877.4	9,577.6	6,741.5	79.5	81.0	-81.65		989.2	2,526.4	936.3	777.3	158.92	5.891	
9,700.0	6,876.7	9,677.5	6,739.6	82.2	83.7	-81.58		989.2	2,626.4	936.4	772.1	164.33	5.698	
9,800.0	6,876.0	9,777.5	6,737.8	85.0	86.5	-81.51		989.2	2,726.4	936.6	766.8	169.75	5.518	
9,900.0	6,875.3	9,877.5	6,735.9	87.7	89.2	-81.44		989.2	2,826.4	936.8	761.6	175.17	5.348	

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 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19N-202 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
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)			
10,000.0	6,874.6	9,977.5	6,734.1	90.5	92.0	-81.37	989.2	2,926.3	936.9	756.3	180.60	5.188		
10,100.0	6,873.9	10,077.5	6,732.2	93.3	94.7	-81.30	989.2	3,026.3	937.1	751.1	186.03	5.037		
10,200.0	6,873.2	10,177.5	6,730.4	96.0	97.5	-81.23	989.2	3,126.3	937.3	745.8	191.46	4.895		
10,300.0	6,872.5	10,277.5	6,728.5	98.8	100.2	-81.17	989.2	3,226.3	937.5	740.6	196.90	4.761		
10,400.0	6,871.8	10,377.5	6,726.7	101.6	103.0	-81.10	989.2	3,326.3	937.6	735.3	202.34	4.634		
10,500.0	6,871.1	10,477.5	6,724.8	104.3	105.7	-81.03	989.2	3,426.2	937.8	730.0	207.79	4.513		
10,600.0	6,870.4	10,577.5	6,723.0	107.1	108.5	-80.96	989.2	3,526.2	938.0	724.8	213.23	4.399		
10,700.0	6,869.7	10,677.5	6,721.1	109.9	111.3	-80.89	989.2	3,626.2	938.2	719.5	218.68	4.290		
10,800.0	6,869.0	10,777.5	6,719.3	112.6	114.0	-80.82	989.2	3,726.2	938.4	714.2	224.13	4.187		
10,900.0	6,868.3	10,877.5	6,717.4	115.4	116.8	-80.75	989.2	3,826.1	938.6	709.0	229.57	4.088		
11,000.0	6,867.6	10,977.5	6,715.6	118.2	119.6	-80.68	989.2	3,926.1	938.7	703.7	235.02	3.994		
11,100.0	6,866.9	11,077.5	6,713.7	121.0	122.3	-80.61	989.2	4,026.1	938.9	698.5	240.47	3.904		
11,200.0	6,866.2	11,177.4	6,711.9	123.8	125.1	-80.54	989.2	4,126.1	939.1	693.2	245.92	3.819		
11,300.0	6,865.5	11,277.4	6,710.0	126.5	127.9	-80.47	989.2	4,226.0	939.3	687.9	251.37	3.737		
11,400.0	6,864.8	11,377.4	6,708.2	129.3	130.7	-80.40	989.2	4,326.0	939.5	682.7	256.82	3.658		
11,500.0	6,864.1	11,477.4	6,706.3	132.1	133.4	-80.33	989.2	4,426.0	939.7	677.4	262.27	3.583		
11,600.0	6,863.4	11,577.4	6,704.5	134.9	136.2	-80.26	989.2	4,526.0	939.9	672.2	267.72	3.511		
11,700.0	6,862.7	11,677.4	6,702.6	137.7	139.0	-80.19	989.2	4,625.9	940.1	666.9	273.17	3.441		
11,800.0	6,862.0	11,777.4	6,700.8	140.5	141.8	-80.12	989.2	4,725.9	940.3	661.7	278.62	3.375		
11,900.0	6,861.3	11,877.4	6,698.9	143.3	144.6	-80.06	989.2	4,825.9	940.5	656.4	284.07	3.311		
12,000.0	6,860.6	11,977.4	6,697.1	146.0	147.4	-79.99	989.2	4,925.9	940.7	651.2	289.51	3.249		
12,100.0	6,859.9	12,077.4	6,695.2	148.8	150.1	-79.92	989.2	5,025.8	940.9	645.9	294.96	3.190		
12,200.0	6,859.2	12,177.4	6,693.4	151.6	152.9	-79.85	989.2	5,125.8	941.1	640.7	300.40	3.133		
12,300.0	6,858.5	12,277.4	6,691.5	154.4	155.7	-79.78	989.2	5,225.8	941.3	635.4	305.85	3.078		
12,400.0	6,857.8	12,377.4	6,689.7	157.2	158.5	-79.71	989.2	5,325.8	941.5	630.2	311.29	3.024		
12,500.0	6,857.1	12,477.4	6,687.8	160.0	161.3	-79.64	989.2	5,425.8	941.7	625.0	316.73	2.973		
12,600.0	6,856.4	12,577.4	6,686.0	162.8	164.1	-79.57	989.2	5,525.7	941.9	619.7	322.17	2.924		
12,700.0	6,855.7	12,677.4	6,684.1	165.6	166.9	-79.50	989.2	5,625.7	942.1	614.5	327.60	2.876		
12,800.0	6,855.0	12,777.3	6,682.3	168.4	169.7	-79.43	989.2	5,725.7	942.3	609.3	333.04	2.829		
12,900.0	6,854.3	12,877.3	6,680.4	171.2	172.4	-79.37	989.2	5,825.7	942.5	604.1	338.47	2.785		
13,000.0	6,853.6	12,977.3	6,678.6	174.0	175.2	-79.30	989.2	5,925.6	942.7	598.8	343.91	2.741		
13,100.0	6,852.9	13,077.3	6,676.7	176.8	178.0	-79.23	989.2	6,025.6	943.0	593.6	349.34	2.699		
13,200.0	6,852.2	13,177.3	6,674.9	179.6	180.8	-79.16	989.2	6,125.6	943.2	588.4	354.76	2.659		
13,300.0	6,851.5	13,277.3	6,673.0	182.4	183.6	-79.09	989.2	6,225.6	943.4	583.2	360.19	2.619		
13,400.0	6,850.8	13,377.3	6,671.2	185.2	186.4	-79.02	989.2	6,325.5	943.6	578.0	365.62	2.581		
13,500.0	6,850.1	13,477.3	6,669.3	187.9	189.2	-78.95	989.2	6,425.5	943.8	572.8	371.04	2.544		
13,600.0	6,849.4	13,577.3	6,667.5	190.7	192.0	-78.89	989.2	6,525.5	944.0	567.6	376.46	2.508		
13,700.0	6,848.7	13,677.3	6,665.6	193.5	194.8	-78.82	989.2	6,625.5	944.3	562.4	381.88	2.473		
13,800.0	6,848.0	13,777.3	6,663.8	196.3	197.6	-78.75	989.2	6,725.4	944.5	557.2	387.29	2.439		
13,900.0	6,847.3	13,877.3	6,661.9	199.1	200.4	-78.68	989.2	6,825.4	944.7	552.0	392.71	2.406		
13,949.3	6,847.0	13,926.6	6,661.0	200.5	201.7	-78.65	989.2	6,874.7	944.8	549.5	395.38	2.390 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19N-432 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	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	-91.39	-3.6	-150.4	150.5					
100.0	100.0	100.0	100.0	0.1	0.1	-91.39	-3.6	-150.4	150.5	150.3	0.22	669.490		
200.0	200.0	200.0	200.0	0.3	0.3	-91.39	-3.6	-150.4	150.5	149.8	0.67	223.163		
300.0	300.0	300.0	300.0	0.6	0.6	-91.39	-3.6	-150.4	150.5	149.4	1.12	133.898		
400.0	400.0	400.0	400.0	0.8	0.8	-91.39	-3.6	-150.4	150.5	148.9	1.57	95.641		
500.0	500.0	500.0	500.0	1.0	1.0	-91.39	-3.6	-150.4	150.5	148.5	2.02	74.388		
600.0	600.0	600.0	600.0	1.2	1.2	-91.39	-3.6	-150.4	150.5	148.0	2.47	60.863		
700.0	700.0	700.0	700.0	1.5	1.5	-91.39	-3.6	-150.4	150.5	147.6	2.92	51.499		
800.0	800.0	800.0	800.0	1.7	1.7	-91.39	-3.6	-150.4	150.5	147.1	3.37	44.633		
900.0	900.0	900.0	900.0	1.9	1.9	-91.39	-3.6	-150.4	150.5	146.7	3.82	39.382		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-91.39	-3.6	-150.4	150.5	146.2	4.27	35.236 CC, ES		
1,100.0	1,100.0	1,097.8	1,097.7	2.4	2.4	-90.81	-2.2	-151.2	151.2	146.5	4.71	32.076		
1,200.0	1,200.0	1,195.3	1,195.1	2.6	2.6	-89.14	2.3	-153.4	153.5	148.4	5.16	29.755		
1,300.0	1,300.0	1,292.4	1,291.9	2.8	2.8	-86.48	9.7	-157.2	157.7	152.1	5.61	28.115		
1,400.0	1,400.0	1,388.8	1,387.6	3.0	3.0	-83.02	19.9	-162.3	164.0	157.9	6.06	27.060		
1,500.0	1,500.0	1,485.0	1,482.7	3.3	3.3	-78.99	32.9	-168.9	172.9	166.4	6.52	26.505		
1,600.0	1,600.0	1,583.6	1,580.0	3.5	3.6	-75.01	47.1	-176.1	183.4	176.4	7.00	26.193		
1,700.0	1,700.0	1,682.3	1,677.4	3.7	3.9	-71.47	61.4	-183.3	194.7	187.2	7.49	25.982		
1,800.0	1,800.0	1,781.0	1,774.8	3.9	4.2	-68.33	75.7	-190.5	206.6	198.6	8.00	25.834		
1,900.0	1,900.0	1,879.7	1,872.1	4.2	4.5	-65.53	90.0	-197.8	219.1	210.5	8.51	25.732		
2,000.0	2,000.0	1,978.3	1,969.5	4.4	4.8	-63.03	104.3	-205.0	232.0	222.9	9.04	25.661		
2,100.0	2,100.0	2,077.2	2,067.0	4.6	5.2	21.87	118.6	-212.2	243.7	234.3	9.37	26.023		
2,200.0	2,199.8	2,176.2	2,164.7	4.8	5.5	24.27	132.9	-219.4	252.7	242.8	9.80	25.768		
2,300.0	2,299.5	2,275.3	2,262.5	5.0	5.9	26.86	147.3	-226.7	258.9	248.7	10.24	25.294		
2,400.0	2,398.7	2,374.3	2,360.2	5.2	6.2	29.71	161.6	-233.9	262.7	252.1	10.67	24.633		
2,500.0	2,497.8	2,473.3	2,457.9	5.5	6.6	32.64	176.0	-241.2	266.1	255.0	11.12	23.939		
2,600.0	2,596.9	2,572.3	2,555.6	5.7	6.9	35.48	190.3	-248.4	270.2	258.7	11.58	23.345		
2,700.0	2,696.0	2,671.3	2,653.3	6.0	7.3	38.24	204.6	-255.7	275.0	262.9	12.04	22.837		
2,800.0	2,795.1	2,770.3	2,751.0	6.3	7.6	40.90	219.0	-262.9	280.4	267.8	12.52	22.400		
2,900.0	2,894.2	2,869.3	2,848.7	6.5	8.0	43.46	233.3	-270.1	286.3	273.3	13.00	22.023		
3,000.0	2,993.3	2,968.4	2,946.4	6.8	8.3	45.91	247.6	-277.4	292.8	279.3	13.50	21.696		
3,100.0	3,092.4	3,067.4	3,044.1	7.1	8.7	48.25	262.0	-284.6	299.9	285.9	14.00	21.413		
3,200.0	3,191.5	3,166.4	3,141.8	7.4	9.1	50.48	276.3	-291.9	307.4	292.9	14.52	21.165		
3,300.0	3,290.6	3,265.4	3,239.5	7.7	9.4	52.60	290.6	-299.1	315.4	300.3	15.05	20.948		
3,400.0	3,389.7	3,364.4	3,337.2	8.0	9.8	54.62	305.0	-306.4	323.7	308.1	15.60	20.758		
3,500.0	3,488.8	3,463.4	3,434.9	8.3	10.1	56.53	319.3	-313.6	332.5	316.3	16.15	20.591		
3,600.0	3,587.9	3,562.4	3,532.6	8.6	10.5	58.35	333.6	-320.9	341.6	324.9	16.71	20.443		
3,700.0	3,687.0	3,661.4	3,630.3	8.9	10.9	60.07	348.0	-328.1	351.1	333.8	17.28	20.313		
3,800.0	3,786.1	3,760.4	3,728.0	9.2	11.2	61.70	362.3	-335.3	360.8	342.9	17.86	20.198		
3,900.0	3,885.2	3,859.4	3,825.7	9.5	11.6	63.24	376.6	-342.6	370.8	352.4	18.45	20.097		
4,000.0	3,984.3	3,958.4	3,923.4	9.8	12.0	64.70	391.0	-349.8	381.1	362.0	19.05	20.007		
4,100.0	4,083.4	4,057.4	4,021.1	10.2	12.3	66.09	405.3	-357.1	391.6	371.9	19.65	19.927		
4,200.0	4,182.5	4,156.4	4,118.8	10.5	12.7	67.40	419.7	-364.3	402.3	382.0	20.26	19.858		
4,300.0	4,281.6	4,255.5	4,216.5	10.8	13.1	68.64	434.0	-371.6	413.2	392.4	20.87	19.796		
4,400.0	4,380.7	4,354.5	4,314.2	11.1	13.4	69.82	448.3	-378.8	424.3	402.8	21.49	19.742		
4,500.0	4,479.8	4,453.5	4,411.9	11.4	13.8	70.94	462.7	-386.0	435.6	413.5	22.12	19.694		
4,600.0	4,578.9	4,552.5	4,509.5	11.8	14.2	72.01	477.0	-393.3	447.0	424.3	22.75	19.653		
4,700.0	4,678.0	4,651.5	4,607.2	12.1	14.5	73.02	491.3	-400.5	458.6	435.2	23.38	19.617		
4,800.0	4,777.1	4,750.5	4,704.9	12.4	14.9	73.98	505.7	-407.8	470.3	446.3	24.01	19.585		
4,900.0	4,876.2	4,849.5	4,802.6	12.7	15.3	74.89	520.0	-415.0	482.2	457.5	24.65	19.558		
5,000.0	4,975.3	4,948.5	4,900.3	13.1	15.6	75.76	534.3	-422.3	494.1	468.8	25.29	19.535		

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 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19N-432 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,074.4	5,047.5	4,998.0	13.4	16.0	76.59	548.7	-429.5	506.2	480.3	25.94	19.516		
5,200.0	5,173.5	5,146.5	5,095.7	13.7	16.4	77.38	563.0	-436.7	518.4	491.8	26.58	19.500		
5,300.0	5,272.6	5,245.5	5,193.4	14.0	16.7	78.14	577.3	-444.0	530.6	503.4	27.23	19.486		
5,400.0	5,371.7	5,344.5	5,291.1	14.4	17.1	78.86	591.7	-451.2	543.0	515.1	27.88	19.475		
5,500.0	5,470.8	5,443.6	5,388.8	14.7	17.5	79.55	606.0	-458.5	555.4	526.8	28.53	19.466		
5,600.0	5,569.9	5,542.6	5,486.5	15.0	17.9	80.21	620.3	-465.7	567.9	538.7	29.18	19.460		
5,700.0	5,669.1	5,652.7	5,595.3	15.3	18.2	81.00	635.7	-473.5	580.1	550.2	29.81	19.459		
5,800.0	5,768.6	5,774.5	5,716.2	15.5	18.5	81.72	648.8	-480.1	589.4	559.1	30.32	19.440		
5,900.0	5,868.4	5,896.9	5,838.3	15.7	18.8	82.18	657.3	-484.4	595.5	564.8	30.77	19.356		
6,000.0	5,968.3	6,019.8	5,961.0	15.9	19.0	82.38	661.1	-486.3	598.3	567.1	31.15	19.209		
6,100.0	6,068.3	6,127.1	6,068.3	16.1	19.1	-0.20	661.4	-486.4	598.5	566.8	31.66	18.906		
6,200.0	6,168.3	6,227.2	6,168.4	16.2	19.3	-90.20	661.4	-484.8	598.5	566.6	31.82	18.809		
6,300.0	6,267.4	6,327.5	6,267.8	16.3	19.3	-90.20	661.4	-471.7	598.5	566.5	31.97	18.718		
6,400.0	6,363.9	6,427.8	6,364.5	16.3	19.4	-90.19	661.4	-445.7	598.5	566.5	32.00	18.702		
6,500.0	6,456.2	6,528.0	6,457.1	16.2	19.3	-90.18	661.4	-407.3	598.5	566.5	31.96	18.724		
6,600.0	6,542.8	6,628.3	6,543.8	16.2	19.3	-90.17	661.4	-357.1	598.5	566.5	31.95	18.730		
6,700.0	6,622.1	6,728.5	6,623.1	16.2	19.2	-90.15	661.4	-296.0	598.5	566.4	32.10	18.641		
6,800.0	6,692.7	6,828.7	6,693.8	16.4	19.1	-90.13	661.4	-225.1	598.5	565.9	32.58	18.370		
6,900.0	6,753.6	6,928.9	6,754.6	16.8	19.1	-90.11	661.4	-145.6	598.5	564.9	33.53	17.847		
7,000.0	6,803.6	7,029.0	6,804.4	17.5	19.0	-90.09	661.4	-58.8	598.5	563.4	35.10	17.052		
7,100.0	6,841.8	7,129.1	6,842.5	18.5	19.3	-90.06	661.4	33.7	598.5	561.1	37.32	16.037		
7,200.0	6,867.7	7,229.2	6,868.1	19.9	20.6	-90.04	661.4	130.4	598.5	558.3	40.16	14.902		
7,300.0	6,881.4	7,329.2	6,881.6	21.5	22.3	-90.02	661.4	229.4	598.5	554.9	43.52	13.751		
7,400.0	6,890.5	7,429.2	6,890.6	23.4	24.3	-90.01	661.4	329.0	598.5	551.2	47.29	12.655		
7,500.0	6,892.0	7,529.2	6,892.0	25.3	26.4	-90.00	661.4	429.0	598.5	547.1	51.36	11.653		
7,600.0	6,891.3	7,629.2	6,891.3	27.5	28.6	-90.00	661.4	529.0	598.5	542.8	55.68	10.749		
7,700.0	6,890.6	7,729.2	6,890.6	29.7	30.9	-90.00	661.4	629.0	598.5	538.2	60.21	9.939		
7,800.0	6,889.9	7,829.2	6,889.9	32.1	33.2	-90.00	661.4	729.0	598.5	533.5	64.92	9.218		
7,900.0	6,889.2	7,929.2	6,889.2	34.5	35.7	-90.00	661.4	829.0	598.5	528.7	69.76	8.579		
8,000.0	6,888.5	8,029.2	6,888.5	36.9	38.1	-90.00	661.4	929.0	598.5	523.7	74.71	8.010		
8,100.0	6,887.8	8,129.2	6,887.8	39.4	40.7	-90.00	661.4	1,029.0	598.5	518.7	79.75	7.504		
8,200.0	6,887.1	8,229.2	6,887.1	42.0	43.2	-90.00	661.4	1,129.0	598.5	513.6	84.86	7.052		
8,300.0	6,886.4	8,329.2	6,886.4	44.6	45.8	-90.00	661.4	1,229.0	598.5	508.4	90.03	6.647		
8,400.0	6,885.7	8,429.2	6,885.7	47.2	48.4	-90.00	661.4	1,329.0	598.5	503.2	95.25	6.283		
8,500.0	6,885.0	8,529.2	6,885.0	49.8	51.0	-90.00	661.4	1,429.0	598.5	497.9	100.52	5.954		
8,600.0	6,884.3	8,629.2	6,884.3	52.4	53.7	-90.00	661.4	1,529.0	598.5	492.6	105.82	5.655		
8,700.0	6,883.6	8,729.2	6,883.6	55.1	56.3	-90.00	661.4	1,629.0	598.5	487.3	111.15	5.384		
8,800.0	6,882.9	8,829.2	6,882.9	57.8	59.0	-90.00	661.4	1,729.0	598.5	481.9	116.51	5.136		
8,900.0	6,882.3	8,929.2	6,882.2	60.5	61.7	-90.00	661.4	1,829.0	598.5	476.6	121.89	4.910		
9,000.0	6,881.6	9,029.2	6,881.5	63.2	64.4	-90.00	661.4	1,929.0	598.5	471.2	127.30	4.701		
9,100.0	6,880.9	9,129.2	6,880.8	65.9	67.1	-90.00	661.4	2,029.0	598.5	465.7	132.72	4.509		
9,200.0	6,880.2	9,229.2	6,880.1	68.6	69.8	-90.00	661.4	2,129.0	598.5	460.3	138.15	4.332		
9,300.0	6,879.5	9,329.2	6,879.4	71.3	72.5	-90.00	661.4	2,229.0	598.5	454.9	143.60	4.167		
9,400.0	6,878.8	9,429.2	6,878.7	74.0	75.3	-90.00	661.4	2,329.0	598.5	449.4	149.07	4.015		
9,500.0	6,878.1	9,529.2	6,878.0	76.8	78.0	-90.00	661.4	2,429.0	598.5	443.9	154.54	3.873		
9,600.0	6,877.4	9,629.2	6,877.3	79.5	80.7	-90.00	661.4	2,529.0	598.5	438.4	160.02	3.740		
9,700.0	6,876.7	9,729.2	6,876.6	82.2	83.5	-90.00	661.4	2,629.0	598.5	432.9	165.52	3.616		
9,800.0	6,876.0	9,829.2	6,875.9	85.0	86.2	-90.00	661.4	2,729.0	598.5	427.4	171.02	3.499		
9,900.0	6,875.3	9,929.2	6,875.2	87.7	89.0	-90.00	661.4	2,828.9	598.5	421.9	176.52	3.390		
10,000.0	6,874.6	10,029.2	6,874.6	90.5	91.7	-90.00	661.4	2,928.9	598.5	416.4	182.04	3.288		
10,100.0	6,873.9	10,129.2	6,873.9	93.3	94.5	-90.00	661.4	3,028.9	598.5	410.9	187.56	3.191		

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 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19N-432 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	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	
10,200.0	6,873.2	10,229.2	6,873.2	96.0	97.2	-90.00	661.4	3,128.9	598.5	405.4	193.09	3.099		
10,300.0	6,872.5	10,329.2	6,872.5	98.8	100.0	-90.00	661.4	3,228.9	598.5	399.8	198.62	3.013		
10,400.0	6,871.8	10,429.2	6,871.8	101.6	102.8	-90.00	661.4	3,328.9	598.5	394.3	204.15	2.931		
10,500.0	6,871.1	10,529.2	6,871.1	104.3	105.5	-90.00	661.4	3,428.9	598.5	388.8	209.70	2.854		
10,600.0	6,870.4	10,629.2	6,870.4	107.1	108.3	-90.00	661.4	3,528.9	598.5	383.2	215.24	2.780		
10,700.0	6,869.7	10,729.2	6,869.7	109.9	111.1	-90.00	661.4	3,628.9	598.5	377.7	220.79	2.711		
10,800.0	6,869.0	10,829.2	6,869.0	112.6	113.9	-90.00	661.4	3,728.9	598.5	372.1	226.34	2.644		
10,900.0	6,868.3	10,929.2	6,868.3	115.4	116.6	-90.00	661.4	3,828.9	598.5	366.6	231.89	2.581		
11,000.0	6,867.6	11,029.2	6,867.6	118.2	119.4	-90.00	661.4	3,928.9	598.5	361.0	237.45	2.520		
11,100.0	6,866.9	11,129.2	6,866.9	121.0	122.2	-90.00	661.4	4,028.9	598.5	355.4	243.01	2.463		
11,200.0	6,866.2	11,229.2	6,866.2	123.8	125.0	-90.00	661.4	4,128.9	598.5	349.9	248.58	2.408		
11,300.0	6,865.5	11,329.2	6,865.5	126.5	127.7	-90.00	661.4	4,228.9	598.5	344.3	254.14	2.355		
11,400.0	6,864.8	11,429.2	6,864.8	129.3	130.5	-90.00	661.4	4,328.9	598.5	338.7	259.71	2.304		
11,500.0	6,864.1	11,529.2	6,864.1	132.1	133.3	-90.00	661.4	4,428.9	598.5	333.2	265.28	2.251		
11,600.0	6,863.4	11,629.2	6,863.4	134.9	136.1	-90.00	661.4	4,528.9	598.5	327.6	270.85	2.210		
11,700.0	6,862.7	11,729.2	6,862.7	137.7	138.9	-90.00	661.4	4,628.9	598.5	322.0	276.42	2.165		
11,800.0	6,862.0	11,829.2	6,862.0	140.5	141.7	-90.00	661.4	4,728.9	598.5	316.5	282.00	2.122		
11,900.0	6,861.3	11,929.2	6,861.3	143.3	144.4	-90.00	661.4	4,828.9	598.5	310.9	287.58	2.081		
12,000.0	6,860.6	12,029.2	6,860.6	146.0	147.2	-90.00	661.4	4,928.9	598.5	305.3	293.15	2.041		
12,100.0	6,859.9	12,129.2	6,859.9	148.8	150.0	-90.00	661.4	5,028.9	598.5	299.7	298.73	2.003		
12,200.0	6,859.2	12,229.2	6,859.2	151.6	152.8	-90.00	661.4	5,128.9	598.5	294.1	304.32	1.967		
12,300.0	6,858.5	12,329.2	6,858.5	154.4	155.6	-90.00	661.4	5,228.9	598.5	288.6	309.90	1.931		
12,400.0	6,857.8	12,429.2	6,857.8	157.2	158.4	-90.00	661.4	5,328.9	598.5	283.0	315.48	1.897		
12,500.0	6,857.1	12,529.2	6,857.1	160.0	161.2	-90.00	661.4	5,428.9	598.5	277.4	321.07	1.864		
12,600.0	6,856.4	12,629.2	6,856.4	162.8	164.0	-90.00	661.4	5,528.9	598.5	271.8	326.65	1.832		
12,700.0	6,855.7	12,729.2	6,855.7	165.6	166.8	-90.00	661.4	5,628.9	598.5	266.2	332.24	1.801		
12,800.0	6,855.0	12,829.2	6,855.0	168.4	169.6	-90.00	661.4	5,728.9	598.5	260.6	337.83	1.771		
12,900.0	6,854.3	12,929.2	6,854.3	171.2	172.4	-90.00	661.4	5,828.9	598.5	255.0	343.42	1.743		
13,000.0	6,853.6	13,029.2	6,853.6	174.0	175.1	-90.00	661.4	5,928.9	598.5	249.4	349.01	1.715		
13,100.0	6,852.9	13,129.2	6,852.9	176.8	177.9	-90.00	661.4	6,028.9	598.5	243.9	354.60	1.688		
13,200.0	6,852.2	13,229.2	6,852.2	179.6	180.7	-90.00	661.4	6,128.9	598.5	238.3	360.19	1.661		
13,300.0	6,851.5	13,329.2	6,851.5	182.4	183.5	-90.00	661.4	6,228.9	598.5	232.7	365.78	1.636		
13,400.0	6,850.8	13,429.2	6,850.8	185.2	186.3	-90.00	661.4	6,328.9	598.5	227.1	371.38	1.611		
13,500.0	6,850.1	13,529.2	6,850.1	187.9	189.1	-90.00	661.4	6,428.9	598.5	221.5	376.97	1.588		
13,600.0	6,849.4	13,629.2	6,849.4	190.7	191.9	-90.00	661.4	6,528.9	598.5	215.9	382.56	1.564		
13,700.0	6,848.7	13,729.2	6,848.7	193.5	194.7	-90.00	661.4	6,628.9	598.5	210.3	388.16	1.542		
13,800.0	6,848.0	13,829.2	6,848.0	196.3	197.5	-90.00	661.4	6,728.9	598.5	204.7	393.76	1.520		
13,900.0	6,847.3	13,929.2	6,847.3	199.1	200.3	-90.00	661.4	6,828.9	598.5	199.1	399.35	1.499 Level 3		
13,936.8	6,847.1	13,966.0	6,847.1	200.2	201.3	-90.00	661.4	6,865.7	598.5	197.0	401.41	1.491 Level 3		
13,949.3	6,847.0	13,975.6	6,847.0	200.5	201.6	-90.00	661.4	6,875.2	598.5	196.4	402.03	1.489 Level 3, SF		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-232 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-32.8	0.0	32.8					
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-32.8	0.0	32.8	32.6	0.22	145.858		
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-32.8	0.0	32.8	32.1	0.67	48.619		
300.0	300.0	300.0	300.0	0.6	0.6	-180.00	-32.8	0.0	32.8	31.7	1.12	29.172		
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-32.8	0.0	32.8	31.2	1.57	20.837		
500.0	500.0	500.0	500.0	1.0	1.0	-180.00	-32.8	0.0	32.8	30.8	2.02	16.206		
600.0	600.0	600.0	600.0	1.2	1.2	-180.00	-32.8	0.0	32.8	30.3	2.47	13.260		
700.0	700.0	700.0	700.0	1.5	1.5	-180.00	-32.8	0.0	32.8	29.9	2.92	11.220		
800.0	800.0	800.0	800.0	1.7	1.7	-180.00	-32.8	0.0	32.8	29.4	3.37	9.724		
900.0	900.0	900.0	900.0	1.9	1.9	-180.00	-32.8	0.0	32.8	29.0	3.82	8.580		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-180.00	-32.8	0.0	32.8	28.5	4.27	7.677		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-180.00	-32.8	0.0	32.8	28.1	4.72	6.946		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-180.00	-32.8	0.0	32.8	27.6	5.17	6.342		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-180.00	-32.8	0.0	32.8	27.2	5.62	5.834		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-180.00	-32.8	0.0	32.8	26.7	6.07	5.402		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-180.00	-32.8	0.0	32.8	26.3	6.52	5.030 CC, ES		
1,600.0	1,600.0	1,599.5	1,599.4	3.5	3.5	-177.35	-33.5	-1.6	33.6	26.6	6.95	4.835		
1,700.0	1,700.0	1,698.7	1,698.5	3.7	3.7	-170.19	-35.8	-6.2	36.4	29.0	7.36	4.942		
1,800.0	1,800.0	1,797.4	1,796.9	3.9	3.9	-160.68	-39.5	-13.9	42.0	34.2	7.78	5.403		
1,900.0	1,900.0	1,895.5	1,894.2	4.2	4.1	-151.29	-44.7	-24.5	51.3	43.1	8.21	6.253		
2,000.0	2,000.0	1,992.6	1,990.2	4.4	4.3	-143.49	-51.3	-38.0	64.6	55.9	8.66	7.456		
2,100.0	2,100.0	2,088.9	2,084.7	4.6	4.6	-55.65	-59.2	-54.2	80.7	71.7	9.06	8.911		
2,200.0	2,199.8	2,184.4	2,177.9	4.8	4.9	-53.05	-68.4	-73.1	98.3	88.9	9.47	10.381		
2,300.0	2,299.5	2,279.4	2,269.8	5.0	5.2	-51.96	-78.9	-94.7	117.0	107.1	9.90	11.825		
2,400.0	2,398.7	2,377.7	2,364.5	5.2	5.6	-52.08	-90.5	-118.4	135.1	124.8	10.35	13.054		
2,500.0	2,497.8	2,476.2	2,459.4	5.5	6.1	-52.73	-102.1	-142.1	152.5	141.7	10.84	14.070		
2,600.0	2,596.9	2,574.6	2,554.2	5.7	6.5	-53.25	-113.6	-165.9	169.9	158.5	11.34	14.977		
2,700.0	2,696.0	2,673.1	2,649.1	6.0	7.0	-53.68	-125.2	-189.6	187.3	175.4	11.86	15.788		
2,800.0	2,795.1	2,771.6	2,744.0	6.3	7.5	-54.03	-136.8	-213.3	204.7	192.3	12.39	16.514		
2,900.0	2,894.2	2,870.0	2,838.8	6.5	8.0	-54.32	-148.3	-237.1	222.1	209.1	12.94	17.165		
3,000.0	2,993.3	2,968.5	2,933.7	6.8	8.5	-54.58	-159.9	-260.8	239.5	226.0	13.49	17.751		
3,100.0	3,092.4	3,067.0	3,028.6	7.1	9.0	-54.80	-171.5	-284.5	256.9	242.8	14.05	18.279		
3,200.0	3,191.5	3,165.4	3,123.4	7.4	9.5	-54.99	-183.0	-308.3	274.3	259.7	14.62	18.756		
3,300.0	3,290.6	3,263.9	3,218.3	7.7	10.0	-55.16	-194.6	-332.0	291.7	276.5	15.20	19.189		
3,400.0	3,389.7	3,362.4	3,313.2	8.0	10.6	-55.31	-206.2	-355.7	309.1	293.3	15.79	19.582		
3,500.0	3,488.8	3,460.9	3,408.0	8.3	11.1	-55.44	-217.7	-379.5	326.5	310.2	16.38	19.940		
3,600.0	3,587.9	3,559.3	3,502.9	8.6	11.6	-55.56	-229.3	-403.2	344.0	327.0	16.97	20.267		
3,700.0	3,687.0	3,657.8	3,597.7	8.9	12.2	-55.67	-240.9	-426.9	361.4	343.8	17.57	20.566		
3,800.0	3,786.1	3,756.3	3,692.6	9.2	12.7	-55.77	-252.4	-450.7	378.8	360.6	18.17	20.842		
3,900.0	3,885.2	3,854.7	3,787.5	9.5	13.3	-55.86	-264.0	-474.4	396.2	377.4	18.78	21.095		
4,000.0	3,984.3	3,953.2	3,882.3	9.8	13.8	-55.94	-275.6	-498.1	413.6	394.2	19.39	21.328		
4,100.0	4,083.4	4,051.7	3,977.2	10.2	14.4	-56.02	-287.1	-521.9	431.1	411.1	20.01	21.544		
4,200.0	4,182.5	4,150.1	4,072.1	10.5	14.9	-56.09	-298.7	-545.6	448.5	427.9	20.63	21.745		
4,300.0	4,281.6	4,248.6	4,166.9	10.8	15.5	-56.15	-310.3	-569.3	465.9	444.7	21.25	21.931		
4,400.0	4,380.7	4,347.1	4,261.8	11.1	16.0	-56.21	-321.8	-593.1	483.3	461.5	21.87	22.103		
4,500.0	4,479.8	4,445.5	4,356.7	11.4	16.6	-56.27	-333.4	-616.8	500.8	478.3	22.49	22.265		
4,600.0	4,578.9	4,544.0	4,451.5	11.8	17.1	-56.32	-345.0	-640.5	518.2	495.1	23.12	22.415		
4,700.0	4,678.0	4,642.5	4,546.4	12.1	17.7	-56.37	-356.5	-664.2	535.6	511.9	23.75	22.556		
4,800.0	4,777.1	4,740.9	4,641.2	12.4	18.3	-56.41	-368.1	-688.0	553.1	528.7	24.38	22.688		
4,900.0	4,876.2	4,839.4	4,736.1	12.7	18.8	-56.45	-379.7	-711.7	570.5	545.5	25.01	22.812		
5,000.0	4,975.3	4,937.9	4,831.0	13.1	19.4	-56.49	-391.2	-735.4	587.9	562.3	25.64	22.929		

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 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-232 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,074.4	5,036.4	4,925.8	13.4	19.9	-56.53		-402.8	-759.2	605.3	579.1	26.27	23.039	
5,200.0	5,173.5	5,134.8	5,020.7	13.7	20.5	-56.57		-414.4	-782.9	622.8	595.9	26.91	23.142	
5,300.0	5,272.6	5,255.6	5,137.5	14.0	21.0	-56.69		-427.7	-810.2	638.7	611.1	27.58	23.154	
5,400.0	5,371.7	5,380.5	5,259.7	14.4	21.5	-56.99		-439.2	-833.8	650.7	622.4	28.26	23.024	
5,500.0	5,470.8	5,506.3	5,383.7	14.7	21.9	-57.48		-448.4	-852.7	658.8	629.8	28.95	22.758	
5,600.0	5,569.9	5,632.4	5,508.9	15.0	22.2	-58.16		-455.2	-866.7	662.9	633.3	29.64	22.368	
5,700.0	5,669.1	5,758.5	5,634.5	15.3	22.4	-58.99		-459.6	-875.7	663.4	633.1	30.29	21.899	
5,800.0	5,768.6	5,884.4	5,760.4	15.5	22.6	-59.71		-461.6	-879.8	661.6	630.8	30.82	21.463	
5,900.0	5,868.4	5,992.4	5,868.4	15.7	22.7	-60.17		-461.7	-880.0	658.6	627.4	31.24	21.082	
6,000.0	5,968.3	6,092.4	5,968.3	15.9	22.8	-60.36		-461.7	-880.0	657.2	625.6	31.58	20.813	
6,100.0	6,068.3	6,293.1	6,166.8	16.1	22.8	-144.81		-461.7	-854.3	649.5	614.1	35.39	18.352	
6,200.0	6,168.3	6,472.6	6,333.3	16.2	22.5	121.04		-461.7	-788.2	629.1	596.3	32.81	19.175	
6,300.0	6,267.4	6,628.2	6,461.7	16.3	22.1	116.78		-461.7	-701.0	605.4	572.1	33.28	18.193	
6,400.0	6,363.9	6,763.9	6,557.3	16.3	21.9	112.26		-461.7	-604.9	581.9	548.0	33.91	17.161	
6,500.0	6,456.2	6,883.9	6,626.6	16.2	21.9	107.59		-461.7	-507.1	560.8	526.0	34.82	16.108	
6,600.0	6,542.8	6,991.6	6,675.0	16.2	22.2	102.83		-461.7	-411.0	543.8	507.8	36.01	15.100	
6,700.0	6,622.1	7,089.9	6,707.0	16.2	22.7	97.98		-461.7	-318.1	532.0	494.5	37.46	14.201	
6,800.0	6,692.7	7,180.9	6,725.8	16.4	23.4	93.07		-461.7	-229.1	525.7	486.6	39.08	13.450	
6,862.4	6,731.9	7,234.7	6,731.9	16.6	24.0	90.00		-461.7	-175.7	524.6	484.4	40.18	13.055	
6,900.0	6,753.6	7,266.2	6,733.7	16.8	24.3	88.15		-461.7	-144.2	525.0	484.2	40.81	12.864	
7,000.0	6,803.6	7,351.3	6,733.7	17.5	25.5	83.22		-461.7	-59.1	529.2	486.6	42.68	12.400	
7,100.0	6,841.8	7,443.2	6,732.7	18.5	26.9	78.90		-461.7	32.8	535.8	491.0	44.80	11.959	
7,200.0	6,867.7	7,539.5	6,731.7	19.9	28.5	75.76		-461.7	129.0	542.0	494.6	47.33	11.450	
7,300.0	6,881.4	7,638.3	6,730.7	21.5	30.4	74.07		-461.7	227.9	545.8	495.4	50.42	10.826	
7,400.0	6,890.5	7,737.8	6,729.6	23.4	32.5	72.99		-461.7	327.4	548.7	494.8	53.91	10.178	
7,500.0	6,892.0	7,837.7	6,728.6	25.3	34.6	72.70		-461.7	427.3	549.5	491.7	57.82	9.503	
7,600.0	6,891.3	7,937.7	6,727.5	27.5	36.9	72.66		-461.7	527.3	549.6	487.6	62.02	8.862	
7,700.0	6,890.6	8,037.7	6,726.5	29.7	39.2	72.63		-461.7	627.3	549.7	483.3	66.39	8.280	
7,800.0	6,889.9	8,137.7	6,725.4	32.1	41.6	72.59		-461.7	727.3	549.8	478.9	70.89	7.755	
7,900.0	6,889.2	8,237.7	6,724.4	34.5	44.1	72.56		-461.7	827.3	549.9	474.4	75.52	7.282	
8,000.0	6,888.5	8,337.7	6,723.4	36.9	46.6	72.52		-461.7	927.3	550.0	469.8	80.23	6.855	
8,100.0	6,887.8	8,437.7	6,722.3	39.4	49.1	72.49		-461.7	1,027.3	550.1	465.1	85.02	6.470	
8,200.0	6,887.1	8,537.7	6,721.3	42.0	51.6	72.45		-461.7	1,127.3	550.2	460.3	89.87	6.122	
8,300.0	6,886.4	8,637.7	6,720.2	44.6	54.2	72.42		-461.7	1,227.2	550.3	455.5	94.78	5.806	
8,400.0	6,885.7	8,737.7	6,719.2	47.2	56.8	72.38		-461.7	1,327.2	550.4	450.7	99.73	5.519	
8,500.0	6,885.0	8,837.7	6,718.1	49.8	59.4	72.35		-461.7	1,427.2	550.5	445.8	104.72	5.257	
8,600.0	6,884.3	8,937.7	6,717.1	52.4	62.0	72.31		-461.7	1,527.2	550.6	440.9	109.74	5.017	
8,700.0	6,883.6	9,037.7	6,716.0	55.1	64.7	72.28		-461.7	1,627.2	550.7	435.9	114.79	4.798	
8,800.0	6,882.9	9,137.7	6,715.0	57.8	67.4	72.24		-461.7	1,727.2	550.8	431.0	119.87	4.595	
8,900.0	6,882.3	9,237.7	6,713.9	60.5	70.0	72.21		-461.7	1,827.2	551.0	426.0	124.96	4.409	
9,000.0	6,881.6	9,337.7	6,712.9	63.2	72.7	72.18		-461.7	1,927.2	551.1	421.0	130.08	4.236	
9,100.0	6,880.9	9,437.7	6,711.8	65.9	75.4	72.14		-461.7	2,027.2	551.2	416.0	135.20	4.077	
9,200.0	6,880.2	9,537.7	6,710.8	68.6	78.1	72.11		-461.7	2,127.2	551.3	410.9	140.35	3.928	
9,300.0	6,879.5	9,637.7	6,709.7	71.3	80.8	72.07		-461.7	2,227.2	551.4	405.9	145.50	3.789	
9,400.0	6,878.8	9,737.7	6,708.7	74.0	83.5	72.04		-461.7	2,327.2	551.5	400.8	150.67	3.660	
9,500.0	6,878.1	9,837.7	6,707.6	76.8	86.2	72.00		-461.7	2,427.2	551.6	395.8	155.84	3.539	
9,600.0	6,877.4	9,937.7	6,706.6	79.5	89.0	71.97		-461.7	2,527.2	551.7	390.7	161.03	3.426	
9,700.0	6,876.7	10,037.7	6,705.5	82.2	91.7	71.93		-461.7	2,627.2	551.8	385.6	166.22	3.320	
9,800.0	6,876.0	10,137.7	6,704.5	85.0	94.4	71.90		-461.7	2,727.2	551.9	380.5	171.41	3.220	
9,900.0	6,875.3	10,237.7	6,703.5	87.7	97.2	71.86		-461.7	2,827.1	552.0	375.4	176.62	3.126	
10,000.0	6,874.6	10,337.7	6,702.4	90.5	99.9	71.83		-461.7	2,927.1	552.1	370.3	181.83	3.037	

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 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-232 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
10,100.0	6,873.9	10,437.7	6,701.4	93.3	102.7	71.80	-461.7	3,027.1	552.2	365.2	187.04	2.953		
10,200.0	6,873.2	10,537.7	6,700.3	96.0	105.4	71.76	-461.7	3,127.1	552.4	360.1	192.25	2.873		
10,300.0	6,872.5	10,637.7	6,699.3	98.8	108.2	71.73	-461.7	3,227.1	552.5	355.0	197.47	2.798		
10,400.0	6,871.8	10,737.7	6,698.2	101.6	110.9	71.69	-461.7	3,327.1	552.6	349.9	202.70	2.726		
10,500.0	6,871.1	10,837.7	6,697.2	104.3	113.7	71.66	-461.7	3,427.1	552.7	344.8	207.92	2.658		
10,600.0	6,870.4	10,937.7	6,696.1	107.1	116.4	71.62	-461.7	3,527.1	552.8	339.6	213.15	2.593		
10,700.0	6,869.7	11,037.7	6,695.1	109.9	119.2	71.59	-461.7	3,627.1	552.9	334.5	218.38	2.532		
10,800.0	6,869.0	11,137.7	6,694.0	112.6	122.0	71.56	-461.7	3,727.1	553.0	329.4	223.61	2.473		
10,900.0	6,868.3	11,237.7	6,693.0	115.4	124.7	71.52	-461.7	3,827.1	553.1	324.3	228.84	2.417		
11,000.0	6,867.6	11,337.7	6,691.9	118.2	127.5	71.49	-461.7	3,927.1	553.2	319.2	234.08	2.363		
11,100.0	6,866.9	11,437.7	6,690.9	121.0	130.3	71.45	-461.7	4,027.1	553.3	314.0	239.31	2.312		
11,200.0	6,866.2	11,537.7	6,689.8	123.8	133.1	71.42	-461.7	4,127.1	553.5	308.9	244.55	2.263		
11,300.0	6,865.5	11,637.7	6,688.8	126.5	135.8	71.38	-461.7	4,227.1	553.6	303.8	249.78	2.216		
11,400.0	6,864.8	11,737.7	6,687.7	129.3	138.6	71.35	-461.7	4,327.1	553.7	298.7	255.02	2.171		
11,500.0	6,864.1	11,837.7	6,686.7	132.1	141.4	71.32	-461.7	4,427.1	553.8	293.5	260.26	2.128		
11,600.0	6,863.4	11,937.7	6,685.7	134.9	144.2	71.28	-461.7	4,527.0	553.9	288.4	265.49	2.086		
11,700.0	6,862.7	12,037.7	6,684.6	137.7	146.9	71.25	-461.7	4,627.0	554.0	283.3	270.73	2.046		
11,800.0	6,862.0	12,137.7	6,683.6	140.5	149.7	71.21	-461.7	4,727.0	554.1	278.2	275.97	2.008		
11,900.0	6,861.3	12,237.7	6,682.5	143.3	152.5	71.18	-461.7	4,827.0	554.2	273.0	281.20	1.971		
12,000.0	6,860.6	12,337.7	6,681.5	146.0	155.3	71.14	-461.7	4,927.0	554.4	267.9	286.44	1.935		
12,100.0	6,859.9	12,437.7	6,680.4	148.8	158.1	71.11	-461.7	5,027.0	554.5	262.8	291.68	1.901		
12,200.0	6,859.2	12,537.7	6,679.4	151.6	160.8	71.08	-461.7	5,127.0	554.6	257.7	296.91	1.868		
12,300.0	6,858.5	12,637.7	6,678.3	154.4	163.6	71.04	-461.7	5,227.0	554.7	252.5	302.15	1.836		
12,400.0	6,857.8	12,737.7	6,677.3	157.2	166.4	71.01	-461.7	5,327.0	554.8	247.4	307.38	1.805		
12,500.0	6,857.1	12,837.7	6,676.2	160.0	169.2	70.97	-461.7	5,427.0	554.9	242.3	312.61	1.775		
12,600.0	6,856.4	12,937.7	6,675.2	162.8	172.0	70.94	-461.7	5,527.0	555.0	237.2	317.85	1.746		
12,700.0	6,855.7	13,037.7	6,674.1	165.6	174.8	70.91	-461.7	5,627.0	555.1	232.1	323.08	1.718		
12,800.0	6,855.0	13,137.7	6,673.1	168.4	177.6	70.87	-461.7	5,727.0	555.3	227.0	328.31	1.691		
12,900.0	6,854.3	13,237.7	6,672.0	171.2	180.3	70.84	-461.7	5,827.0	555.4	221.8	333.54	1.665		
13,000.0	6,853.6	13,337.7	6,671.0	174.0	183.1	70.80	-461.7	5,927.0	555.5	216.7	338.77	1.640		
13,100.0	6,852.9	13,437.7	6,669.9	176.8	185.9	70.77	-461.7	6,027.0	555.6	211.6	343.99	1.615		
13,200.0	6,852.2	13,537.7	6,668.9	179.6	188.7	70.74	-461.7	6,126.9	555.7	206.5	349.22	1.591		
13,300.0	6,851.5	13,637.7	6,667.9	182.4	191.5	70.70	-461.7	6,226.9	555.8	201.4	354.44	1.568		
13,400.0	6,850.8	13,737.7	6,666.8	185.2	194.3	70.67	-461.7	6,326.9	556.0	196.3	359.67	1.546		
13,500.0	6,850.1	13,837.7	6,665.8	187.9	197.1	70.63	-461.7	6,426.9	556.1	191.2	364.89	1.524		
13,600.0	6,849.4	13,937.7	6,664.7	190.7	199.9	70.60	-461.7	6,526.9	556.2	186.1	370.11	1.503		
13,700.0	6,848.7	14,037.7	6,663.7	193.5	202.7	70.57	-461.7	6,626.9	556.3	181.0	375.33	1.482 Level 3		
13,800.0	6,848.0	14,137.7	6,662.6	196.3	205.5	70.53	-461.7	6,726.9	556.4	175.9	380.55	1.462 Level 3		
13,900.0	6,847.3	14,237.7	6,661.6	199.1	208.3	70.50	-461.7	6,826.9	556.5	170.8	385.76	1.443 Level 3		
13,949.3	6,847.0	14,287.0	6,661.1	200.5	209.6	70.48	-461.7	6,876.2	556.6	168.3	388.34	1.433 Level 3, SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-5.46	29.1	-2.8	29.3					
100.0	100.0	100.0	100.0	0.1	0.1	-5.46	29.1	-2.8	29.3	29.1	0.22	130.277		
200.0	200.0	200.0	200.0	0.3	0.3	-5.46	29.1	-2.8	29.3	28.6	0.67	43.426		
300.0	300.0	300.0	300.0	0.6	0.6	-5.46	29.1	-2.8	29.3	28.2	1.12	26.055		
400.0	400.0	400.0	400.0	0.8	0.8	-5.46	29.1	-2.8	29.3	27.7	1.57	18.611		
500.0	500.0	500.0	500.0	1.0	1.0	-5.46	29.1	-2.8	29.3	27.3	2.02	14.475		
600.0	600.0	600.0	600.0	1.2	1.2	-5.46	29.1	-2.8	29.3	26.8	2.47	11.843		
700.0	700.0	700.0	700.0	1.5	1.5	-5.46	29.1	-2.8	29.3	26.4	2.92	10.021		
800.0	800.0	800.0	800.0	1.7	1.7	-5.46	29.1	-2.8	29.3	25.9	3.37	8.685		
900.0	900.0	900.0	900.0	1.9	1.9	-5.46	29.1	-2.8	29.3	25.5	3.82	7.663		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-5.46	29.1	-2.8	29.3	25.0	4.27	6.857		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-5.46	29.1	-2.8	29.3	24.6	4.72	6.204		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-5.46	29.1	-2.8	29.3	24.1	5.17	5.664		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-5.46	29.1	-2.8	29.3	23.7	5.62	5.211		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-5.46	29.1	-2.8	29.3	23.2	6.07	4.825		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-5.46	29.1	-2.8	29.3	22.8	6.52	4.492 CC		
1,600.0	1,600.0	1,599.5	1,599.5	3.5	3.5	-8.36	29.8	-4.4	30.1	23.2	6.96	4.331		
1,700.0	1,700.0	1,698.7	1,698.6	3.7	3.7	-16.06	31.8	-9.1	33.1	25.7	7.39	4.479		
1,800.0	1,800.0	1,797.5	1,797.0	3.9	3.9	-25.92	35.1	-17.0	39.1	31.3	7.83	4.992		
1,900.0	1,900.0	1,895.9	1,894.6	4.2	4.1	-35.20	39.6	-27.9	48.7	40.4	8.29	5.880		
2,000.0	2,000.0	1,995.1	1,993.0	4.4	4.4	-41.80	44.5	-39.8	60.1	51.3	8.76	6.862		
2,100.0	2,100.0	2,094.4	2,091.5	4.6	4.6	37.04	49.4	-51.7	70.6	61.5	9.15	7.715		
2,200.0	2,199.8	2,194.1	2,190.3	4.8	4.9	35.71	54.4	-63.6	78.5	68.9	9.57	8.200		
2,300.0	2,299.5	2,293.9	2,289.3	5.0	5.2	36.01	59.3	-75.6	83.6	73.6	10.00	8.357		
2,400.0	2,398.7	2,393.9	2,388.4	5.2	5.5	37.67	64.3	-87.5	85.9	75.5	10.44	8.225		
2,500.0	2,497.8	2,493.8	2,487.5	5.5	5.8	39.78	69.3	-99.5	87.3	76.4	10.92	7.996		
2,600.0	2,596.9	2,593.8	2,586.6	5.7	6.1	41.81	74.2	-111.4	88.9	77.5	11.41	7.787		
2,700.0	2,696.0	2,693.7	2,685.7	6.0	6.4	43.78	79.2	-123.4	90.5	78.6	11.92	7.594		
2,800.0	2,795.1	2,793.6	2,784.8	6.3	6.7	45.68	84.1	-135.3	92.3	79.8	12.44	7.418		
2,900.0	2,894.2	2,893.6	2,883.9	6.5	7.0	47.50	89.1	-147.3	94.1	81.2	12.97	7.255		
3,000.0	2,993.3	2,993.5	2,983.0	6.8	7.3	49.25	94.1	-159.3	96.1	82.5	13.52	7.105		
3,100.0	3,092.4	3,093.5	3,082.1	7.1	7.6	50.93	99.0	-171.2	98.1	84.0	14.08	6.968		
3,200.0	3,191.5	3,193.4	3,181.2	7.4	7.9	52.54	104.0	-183.2	100.2	85.6	14.65	6.841		
3,300.0	3,290.6	3,293.3	3,280.3	7.7	8.2	54.08	108.9	-195.1	102.4	87.2	15.23	6.724		
3,400.0	3,389.7	3,393.3	3,379.4	8.0	8.5	55.56	113.9	-207.1	104.6	88.8	15.82	6.616		
3,500.0	3,488.8	3,493.2	3,478.5	8.3	8.8	56.97	118.9	-219.1	107.0	90.6	16.42	6.516		
3,600.0	3,587.9	3,593.1	3,577.6	8.6	9.1	58.33	123.8	-231.0	109.4	92.3	17.02	6.424		
3,700.0	3,687.0	3,693.1	3,676.7	8.9	9.4	59.62	128.8	-243.0	111.8	94.2	17.63	6.340		
3,800.0	3,786.1	3,793.0	3,775.8	9.2	9.8	60.86	133.7	-254.9	114.3	96.0	18.25	6.261		
3,900.0	3,885.2	3,893.0	3,874.9	9.5	10.1	62.04	138.7	-266.9	116.8	98.0	18.88	6.189		
4,000.0	3,984.3	3,992.9	3,974.0	9.8	10.4	63.18	143.7	-278.8	119.4	99.9	19.51	6.122		
4,100.0	4,083.4	4,092.8	4,073.1	10.2	10.7	64.26	148.6	-290.8	122.1	101.9	20.15	6.060		
4,200.0	4,182.5	4,192.8	4,172.2	10.5	11.0	65.30	153.6	-302.8	124.8	104.0	20.79	6.002		
4,300.0	4,281.6	4,292.7	4,271.3	10.8	11.4	66.30	158.5	-314.7	127.5	106.1	21.43	5.949		
4,400.0	4,380.7	4,392.7	4,370.4	11.1	11.7	67.25	163.5	-326.7	130.2	108.2	22.08	5.899		
4,500.0	4,479.8	4,492.6	4,469.5	11.4	12.0	68.17	168.5	-338.6	133.0	110.3	22.73	5.854		
4,600.0	4,578.9	4,592.5	4,568.6	11.8	12.3	69.04	173.4	-350.6	135.9	112.5	23.38	5.811		
4,700.0	4,678.0	4,692.5	4,667.7	12.1	12.7	69.88	178.4	-362.6	138.7	114.7	24.04	5.772		
4,800.0	4,777.1	4,792.4	4,766.8	12.4	13.0	70.69	183.3	-374.5	141.6	116.9	24.69	5.735		
4,900.0	4,876.2	4,892.4	4,865.9	12.7	13.3	71.46	188.3	-386.5	144.5	119.2	25.35	5.700		
5,000.0	4,975.3	4,992.3	4,965.0	13.1	13.6	72.20	193.3	-398.4	147.5	121.4	26.01	5.669		

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 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,074.4	5,092.2	5,064.1	13.4	14.0	72.92		198.2	-410.4	150.4	123.7	26.68	5.639	
5,200.0	5,173.5	5,192.2	5,163.1	13.7	14.3	73.60		203.2	-422.4	153.4	126.1	27.34	5.611	
5,300.0	5,272.6	5,292.1	5,262.2	14.0	14.6	74.26		208.2	-434.3	156.4	128.4	28.00	5.585	
5,400.0	5,371.7	5,392.0	5,361.3	14.4	14.9	74.90		213.1	-446.3	159.4	130.8	28.67	5.561	
5,500.0	5,470.8	5,492.0	5,460.4	14.7	15.3	75.51		218.1	-458.2	162.5	133.1	29.34	5.538	
5,600.0	5,569.9	5,592.8	5,560.4	15.0	15.6	76.16		223.0	-470.1	165.5	135.5	30.00	5.516	
5,700.0	5,669.1	5,695.5	5,662.6	15.3	15.8	77.49		227.0	-479.7	167.3	136.7	30.59	5.470	
5,800.0	5,768.6	5,798.2	5,765.1	15.5	16.0	78.85		229.5	-485.8	168.2	137.2	31.06	5.415	
5,900.0	5,868.4	5,900.7	5,867.6	15.7	16.2	80.11		230.7	-488.6	168.3	136.8	31.48	5.347	
6,000.0	5,968.3	6,001.5	5,968.3	15.9	16.3	81.01		230.7	-488.8	167.9	136.1	31.85	5.273	
6,053.7	6,022.0	6,055.2	6,022.0	16.0	16.4	81.16		230.7	-488.8	167.9	135.8	32.04	5.240	
6,100.0	6,068.3	6,101.5	6,068.3	16.1	16.5	-1.53		230.7	-488.8	167.9	140.3	27.57	6.090	
6,198.1	6,166.3	6,200.0	6,166.5	16.2	16.6	-90.53		230.7	-482.7	167.9	135.4	32.50	5.165	
6,200.0	6,168.3	6,201.7	6,168.3	16.2	16.6	-89.93		230.7	-482.5	167.8	135.3	32.52	5.161	
6,300.0	6,267.4	6,301.1	6,265.7	16.3	16.6	-87.79		230.7	-463.4	168.0	135.3	32.68	5.141	
6,400.0	6,363.9	6,400.0	6,359.4	16.3	16.6	-85.69		230.7	-432.0	168.3	135.7	32.67	5.153	
6,500.0	6,456.2	6,497.5	6,447.1	16.2	16.5	-83.70		230.7	-389.4	168.9	136.3	32.56	5.187	
6,600.0	6,542.8	6,594.6	6,528.3	16.2	16.4	-81.82		230.7	-336.3	169.6	137.1	32.43	5.228	
6,700.0	6,622.1	6,691.1	6,601.7	16.2	16.4	-80.10		230.7	-273.8	170.4	138.0	32.43	5.254	
6,800.0	6,692.7	6,787.0	6,666.2	16.4	16.6	-78.56		230.7	-202.9	171.3	138.6	32.70	5.238	
6,900.0	6,753.6	6,882.4	6,721.1	16.8	17.0	-77.22		230.7	-125.0	172.1	138.7	33.39	5.154	
7,000.0	6,803.6	6,977.4	6,765.7	17.5	17.7	-76.09		230.7	-41.2	172.9	138.3	34.64	4.991	
7,100.0	6,841.8	7,072.0	6,799.5	18.5	18.7	-75.19		230.7	47.2	173.6	137.1	36.51	4.755	
7,200.0	6,867.7	7,166.4	6,822.0	19.9	20.0	-74.53		230.7	138.7	174.2	135.2	38.98	4.468	
7,300.0	6,881.4	7,260.5	6,833.1	21.5	21.6	-73.94		230.7	232.2	174.7	132.7	41.93	4.165	
7,400.0	6,890.5	7,356.6	6,833.6	23.4	23.3	-71.33		230.7	328.2	177.2	132.3	44.90	3.947	
7,500.0	6,892.0	7,456.5	6,832.2	25.3	25.3	-70.38		230.7	428.2	178.2	129.7	48.48	3.676	
7,600.0	6,891.3	7,556.5	6,830.8	27.5	27.5	-70.16		230.7	528.1	178.4	126.0	52.44	3.403	
7,700.0	6,890.6	7,656.5	6,829.4	29.7	29.7	-69.95		230.7	628.1	178.7	122.1	56.61	3.156	
7,800.0	6,889.9	7,756.5	6,827.9	32.1	32.1	-69.73		230.7	728.1	178.9	118.0	60.93	2.936	
7,900.0	6,889.2	7,856.5	6,826.5	34.5	34.5	-69.52		230.7	828.1	179.2	113.8	65.38	2.741	
8,000.0	6,888.5	7,956.5	6,825.1	36.9	36.9	-69.30		230.7	928.1	179.4	109.5	69.92	2.566	
8,100.0	6,887.8	8,056.5	6,823.7	39.4	39.4	-69.09		230.7	1,028.1	179.7	105.1	74.54	2.410	
8,200.0	6,887.1	8,156.5	6,822.3	42.0	42.0	-68.88		230.7	1,128.1	179.9	100.7	79.22	2.271	
8,300.0	6,886.4	8,256.5	6,820.9	44.6	44.6	-68.66		230.7	1,228.1	180.2	96.3	83.94	2.147	
8,400.0	6,885.7	8,356.5	6,819.5	47.2	47.2	-68.45		230.7	1,328.0	180.5	91.8	88.70	2.034	
8,500.0	6,885.0	8,456.5	6,818.1	49.8	49.8	-68.24		230.7	1,428.0	180.7	87.2	93.49	1.933	
8,600.0	6,884.3	8,556.5	6,816.6	52.4	52.4	-68.03		230.7	1,528.0	181.0	82.7	98.30	1.841	
8,700.0	6,883.6	8,656.5	6,815.2	55.1	55.1	-67.82		230.7	1,628.0	181.3	78.1	103.13	1.758	
8,800.0	6,882.9	8,756.5	6,813.8	57.8	57.8	-67.61		230.7	1,728.0	181.5	73.6	107.97	1.681	
8,900.0	6,882.3	8,856.5	6,812.4	60.5	60.5	-67.40		230.7	1,828.0	181.8	69.0	112.81	1.612	
9,000.0	6,881.6	8,956.5	6,811.0	63.2	63.2	-67.20		230.7	1,928.0	182.1	64.4	117.66	1.547	
9,100.0	6,880.9	9,056.5	6,809.6	65.9	65.9	-66.99		230.7	2,028.0	182.4	59.8	122.52	1.488 Level 3	
9,200.0	6,880.2	9,156.5	6,808.2	68.6	68.6	-66.78		230.7	2,127.9	182.6	55.3	127.37	1.434 Level 3	
9,300.0	6,879.5	9,256.5	6,806.7	71.3	71.3	-66.58		230.7	2,227.9	182.9	50.7	132.23	1.383 Level 3	
9,400.0	6,878.8	9,356.5	6,805.3	74.0	74.0	-66.37		230.7	2,327.9	183.2	46.1	137.08	1.337 Level 3	
9,500.0	6,878.1	9,456.5	6,803.9	76.8	76.8	-66.17		230.7	2,427.9	183.5	41.6	141.92	1.293 Level 3	
9,600.0	6,877.4	9,556.5	6,802.5	79.5	79.5	-65.96		230.7	2,527.9	183.8	37.0	146.76	1.252 Level 3	
9,700.0	6,876.7	9,656.5	6,801.1	82.2	82.2	-65.76		230.7	2,627.9	184.1	32.5	151.59	1.214 Level 2	
9,800.0	6,876.0	9,756.5	6,799.7	85.0	85.0	-65.55		230.7	2,727.9	184.4	28.0	156.42	1.179 Level 2	
9,900.0	6,875.3	9,856.5	6,798.3	87.7	87.7	-65.35		230.7	2,827.9	184.7	23.4	161.23	1.145 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 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
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
10,000.0	6,874.6	9,956.5	6,796.8	90.5	90.5	-65.15	230.7	2,927.8	185.0	18.9	166.04	1.114	Level 2
10,100.0	6,873.9	10,056.5	6,795.4	93.3	93.3	-64.95	230.7	3,027.8	185.3	14.4	170.83	1.085	Level 2
10,200.0	6,873.2	10,156.5	6,794.0	96.0	96.0	-64.75	230.7	3,127.8	185.6	10.0	175.62	1.057	Level 2
10,300.0	6,872.5	10,256.5	6,792.6	98.8	98.8	-64.55	230.7	3,227.8	185.9	5.5	180.39	1.030	Level 2
10,400.0	6,871.8	10,356.5	6,791.2	101.6	101.6	-64.35	230.7	3,327.8	186.2	1.0	185.16	1.006	Level 2
10,500.0	6,871.1	10,456.4	6,789.8	104.3	104.3	-64.15	230.7	3,427.8	186.5	-3.4	189.91	0.982	Level 1
10,600.0	6,870.4	10,556.4	6,788.4	107.1	107.1	-63.96	230.7	3,527.8	186.8	-7.8	194.64	0.960	Level 1
10,700.0	6,869.7	10,656.4	6,787.0	109.9	109.9	-63.76	230.7	3,627.8	187.1	-12.2	199.37	0.939	Level 1
10,800.0	6,869.0	10,756.4	6,785.5	112.6	112.6	-63.56	230.7	3,727.7	187.4	-16.6	204.08	0.919	Level 1
10,900.0	6,868.3	10,856.4	6,784.1	115.4	115.4	-63.37	230.7	3,827.7	187.8	-21.0	208.78	0.899	Level 1
11,000.0	6,867.6	10,956.4	6,782.7	118.2	118.2	-63.17	230.7	3,927.7	188.1	-25.4	213.46	0.881	Level 1
11,100.0	6,866.9	11,056.4	6,781.3	121.0	121.0	-62.98	230.7	4,027.7	188.4	-29.7	218.13	0.864	Level 1
11,200.0	6,866.2	11,156.4	6,779.9	123.8	123.8	-62.79	230.7	4,127.7	188.7	-34.0	222.78	0.847	Level 1
11,300.0	6,865.5	11,256.4	6,778.5	126.5	126.5	-62.59	230.7	4,227.7	189.1	-38.4	227.42	0.831	Level 1
11,400.0	6,864.8	11,356.4	6,777.1	129.3	129.3	-62.40	230.7	4,327.7	189.4	-42.7	232.05	0.816	Level 1
11,500.0	6,864.1	11,456.4	6,775.6	132.1	132.1	-62.21	230.7	4,427.7	189.7	-46.9	236.66	0.802	Level 1
11,600.0	6,863.4	11,556.4	6,774.2	134.9	134.9	-62.02	230.7	4,527.6	190.1	-51.2	241.26	0.788	Level 1
11,700.0	6,862.7	11,656.4	6,772.8	137.7	137.7	-61.83	230.7	4,627.6	190.4	-55.4	245.84	0.775	Level 1
11,800.0	6,862.0	11,756.4	6,771.4	140.5	140.5	-61.64	230.7	4,727.6	190.7	-59.7	250.40	0.762	Level 1
11,900.0	6,861.3	11,856.4	6,770.0	143.3	143.2	-61.45	230.7	4,827.6	191.1	-63.9	254.95	0.749	Level 1
12,000.0	6,860.6	11,956.4	6,768.6	146.0	146.0	-61.26	230.7	4,927.6	191.4	-68.1	259.48	0.738	Level 1
12,100.0	6,859.9	12,056.4	6,767.2	148.8	148.8	-61.07	230.7	5,027.6	191.8	-72.2	264.00	0.726	Level 1
12,200.0	6,859.2	12,156.4	6,765.7	151.6	151.6	-60.89	230.7	5,127.6	192.1	-76.4	268.50	0.716	Level 1
12,300.0	6,858.5	12,256.4	6,764.3	154.4	154.4	-60.70	230.7	5,227.6	192.5	-80.5	272.99	0.705	Level 1
12,400.0	6,857.8	12,356.4	6,762.9	157.2	157.2	-60.52	230.7	5,327.5	192.8	-84.6	277.46	0.695	Level 1
12,500.0	6,857.1	12,456.4	6,761.5	160.0	160.0	-60.33	230.7	5,427.5	193.2	-88.7	281.91	0.685	Level 1
12,600.0	6,856.4	12,556.4	6,760.1	162.8	162.8	-60.15	230.7	5,527.5	193.5	-92.8	286.35	0.676	Level 1
12,700.0	6,855.7	12,656.4	6,758.7	165.6	165.6	-59.96	230.7	5,627.5	193.9	-96.9	290.77	0.667	Level 1
12,800.0	6,855.0	12,756.4	6,757.3	168.4	168.4	-59.78	230.7	5,727.5	194.2	-100.9	295.18	0.658	Level 1
12,900.0	6,854.3	12,856.4	6,755.9	171.2	171.2	-59.60	230.7	5,827.5	194.6	-105.0	299.57	0.650	Level 1
13,000.0	6,853.6	12,956.4	6,754.4	174.0	174.0	-59.42	230.7	5,927.5	195.0	-109.0	303.94	0.641	Level 1
13,100.0	6,852.9	13,056.4	6,753.0	176.8	176.7	-59.24	230.7	6,027.5	195.3	-113.0	308.30	0.634	Level 1
13,200.0	6,852.2	13,156.4	6,751.6	179.6	179.5	-59.06	230.7	6,127.4	195.7	-116.9	312.63	0.626	Level 1
13,300.0	6,851.5	13,256.4	6,750.2	182.4	182.3	-58.88	230.7	6,227.4	196.1	-120.9	316.96	0.619	Level 1
13,400.0	6,850.8	13,356.4	6,748.8	185.2	185.1	-58.70	230.7	6,327.4	196.4	-124.8	321.26	0.611	Level 1
13,500.0	6,850.1	13,456.4	6,747.4	187.9	187.9	-58.52	230.7	6,427.4	196.8	-128.7	325.55	0.605	Level 1
13,600.0	6,849.4	13,556.4	6,746.0	190.7	190.7	-58.34	230.7	6,527.4	197.2	-132.6	329.83	0.598	Level 1
13,700.0	6,848.7	13,656.4	6,744.5	193.5	193.5	-58.17	230.7	6,627.4	197.6	-136.5	334.08	0.591	Level 1
13,800.0	6,848.0	13,756.4	6,743.1	196.3	196.3	-57.99	230.7	6,727.4	197.9	-140.4	338.32	0.585	Level 1
13,900.0	6,847.3	13,856.4	6,741.7	199.1	199.1	-57.81	230.7	6,827.4	198.3	-144.2	342.55	0.579	Level 1
13,949.3	6,847.0	13,905.7	6,741.0	200.5	200.5	-57.73	230.7	6,876.7	198.5	-146.1	344.62	0.576 Level 1, ES, SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-432 - Wellbore #1 - Plan #2 (3-11-14)													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	180.00	-61.9	0.0	61.9					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-61.9	0.0	61.9	61.7	0.22	275.526		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-61.9	0.0	61.9	61.3	0.67	91.842		
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-61.9	0.0	61.9	60.8	1.12	55.105		
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-61.9	0.0	61.9	60.4	1.57	39.361		
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-61.9	0.0	61.9	59.9	2.02	30.614		
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-61.9	0.0	61.9	59.5	2.47	25.048		
700.0	700.0	700.0	700.0	1.5	1.5	180.00	-61.9	0.0	61.9	59.0	2.92	21.194		
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-61.9	0.0	61.9	58.6	3.37	18.368		
900.0	900.0	900.0	900.0	1.9	1.9	180.00	-61.9	0.0	61.9	58.1	3.82	16.207		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	180.00	-61.9	0.0	61.9	57.7	4.27	14.501 CC, ES		
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.3	-178.61	-62.7	-1.5	62.7	58.0	4.70	13.352		
1,200.0	1,200.0	1,197.8	1,197.6	2.6	2.5	-174.65	-65.0	-6.1	65.3	60.2	5.11	12.780		
1,300.0	1,300.0	1,296.0	1,295.5	2.8	2.7	-168.79	-68.8	-13.6	70.3	64.8	5.53	12.703		
1,400.0	1,400.0	1,393.6	1,392.4	3.0	3.0	-161.98	-74.1	-24.1	78.3	72.3	5.97	13.114		
1,500.0	1,500.0	1,490.3	1,487.9	3.3	3.2	-155.18	-80.8	-37.4	89.8	83.4	6.43	13.974		
1,600.0	1,600.0	1,585.9	1,581.8	3.5	3.5	-149.04	-88.8	-53.3	105.2	98.3	6.92	15.197		
1,700.0	1,700.0	1,680.2	1,673.8	3.7	3.8	-143.83	-98.1	-71.7	124.4	116.9	7.46	16.675		
1,800.0	1,800.0	1,773.0	1,763.6	3.9	4.2	-139.58	-108.6	-92.5	147.3	139.2	8.04	18.306		
1,900.0	1,900.0	1,866.5	1,853.4	4.2	4.7	-136.11	-120.4	-115.8	173.4	164.7	8.69	19.963		
2,000.0	2,000.0	1,962.4	1,945.4	4.4	5.1	-133.44	-132.6	-140.1	200.5	191.1	9.38	21.380		
2,100.0	2,100.0	2,058.7	2,037.8	4.6	5.6	-48.73	-144.9	-164.4	226.7	217.6	9.15	24.786		
2,200.0	2,199.8	2,155.7	2,130.8	4.8	6.2	-47.62	-157.3	-188.9	250.9	241.3	9.60	26.138		
2,300.0	2,299.5	2,253.3	2,224.4	5.0	6.7	-47.23	-169.8	-213.6	272.7	262.7	10.06	27.097		
2,400.0	2,398.7	2,351.3	2,318.4	5.2	7.2	-47.44	-182.3	-238.4	292.3	281.7	10.56	27.692		
2,500.0	2,497.8	2,449.5	2,412.5	5.5	7.8	-48.01	-194.8	-263.2	311.1	300.0	11.07	28.089		
2,600.0	2,596.9	2,547.6	2,506.7	5.7	8.3	-48.52	-207.4	-288.1	329.9	318.3	11.61	28.422		
2,700.0	2,696.0	2,645.8	2,600.8	6.0	8.9	-48.98	-219.9	-312.9	348.7	336.5	12.15	28.701		
2,800.0	2,795.1	2,744.0	2,695.0	6.3	9.5	-49.38	-232.4	-337.7	367.5	354.8	12.70	28.935		
2,900.0	2,894.2	2,842.2	2,789.2	6.5	10.0	-49.75	-245.0	-362.6	386.4	373.1	13.26	29.131		
3,000.0	2,993.3	2,940.4	2,883.3	6.8	10.6	-50.08	-257.5	-387.4	405.3	391.4	13.83	29.295		
3,100.0	3,092.4	3,038.5	2,977.5	7.1	11.2	-50.39	-270.0	-412.2	424.1	409.7	14.41	29.433		
3,200.0	3,191.5	3,136.7	3,071.6	7.4	11.8	-50.67	-282.6	-437.0	443.0	428.0	14.99	29.548		
3,300.0	3,290.6	3,234.9	3,165.8	7.7	12.4	-50.92	-295.1	-461.9	461.9	446.3	15.58	29.644		
3,400.0	3,389.7	3,333.1	3,259.9	8.0	12.9	-51.16	-307.6	-486.7	480.8	464.7	16.18	29.724		
3,500.0	3,488.8	3,431.2	3,354.1	8.3	13.5	-51.37	-320.2	-511.5	499.8	483.0	16.78	29.790		
3,600.0	3,587.9	3,529.4	3,448.2	8.6	14.1	-51.58	-332.7	-536.4	518.7	501.3	17.38	29.845		
3,700.0	3,687.0	3,627.6	3,542.4	8.9	14.7	-51.76	-345.2	-561.2	537.6	519.6	17.99	29.890		
3,800.0	3,786.1	3,725.8	3,636.6	9.2	15.3	-51.94	-357.8	-586.0	556.5	537.9	18.60	29.927		
3,900.0	3,885.2	3,824.0	3,730.7	9.5	15.9	-52.10	-370.3	-610.8	575.5	556.3	19.21	29.956		
4,000.0	3,984.3	3,922.1	3,824.9	9.8	16.5	-52.25	-382.8	-635.7	594.4	574.6	19.83	29.980		
4,100.0	4,083.4	4,020.3	3,919.0	10.2	17.1	-52.40	-395.4	-660.5	613.4	592.9	20.45	29.998		
4,200.0	4,182.5	4,118.5	4,013.2	10.5	17.6	-52.53	-407.9	-685.3	632.3	611.2	21.07	30.012		
4,300.0	4,281.6	4,216.7	4,107.3	10.8	18.2	-52.66	-420.4	-710.2	651.3	629.6	21.69	30.022		
4,400.0	4,380.7	4,314.8	4,201.5	11.1	18.8	-52.78	-433.0	-735.0	670.2	647.9	22.32	30.029		
4,500.0	4,479.8	4,413.0	4,295.6	11.4	19.4	-52.89	-445.5	-759.8	689.2	666.2	22.95	30.033		
4,600.0	4,578.9	4,511.2	4,389.8	11.8	20.0	-53.00	-458.0	-784.6	708.1	684.6	23.58	30.035		
4,700.0	4,678.0	4,609.4	4,484.0	12.1	20.6	-53.10	-470.6	-809.5	727.1	702.9	24.21	30.035		
4,800.0	4,777.1	4,707.6	4,578.1	12.4	21.2	-53.20	-483.1	-834.3	746.1	721.2	24.84	30.033		
4,900.0	4,876.2	4,805.7	4,672.3	12.7	21.8	-53.29	-495.6	-859.1	765.0	739.6	25.48	30.029		
5,000.0	4,975.3	4,903.9	4,766.4	13.1	22.4	-53.37	-508.2	-884.0	784.0	757.9	26.11	30.024		

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 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-432 - Wellbore #1 - Plan #2 (3-11-14)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
5,100.0	5,074.4	5,002.1	4,860.6	13.4	23.0	-53.46	-520.7	-908.8	803.0	776.2	26.75	30.018			
5,200.0	5,173.5	5,100.3	4,954.7	13.7	23.6	-53.54	-533.2	-933.6	822.0	794.6	27.39	30.012			
5,300.0	5,272.6	5,198.4	5,048.9	14.0	24.2	-53.61	-545.8	-958.4	840.9	812.9	28.03	30.004			
5,400.0	5,371.7	5,296.6	5,143.0	14.4	24.7	-53.68	-558.3	-983.3	859.9	831.2	28.67	29.996			
5,500.0	5,470.8	5,415.3	5,257.1	14.7	25.4	-53.79	-573.1	-1,012.5	878.3	848.9	29.36	29.915			
5,600.0	5,569.9	5,554.6	5,392.5	15.0	25.9	-54.03	-587.9	-1,041.8	892.7	862.6	30.08	29.682			
5,700.0	5,669.1	5,695.3	5,530.7	15.3	26.4	-54.47	-599.8	-1,065.4	902.9	872.1	30.77	29.348			
5,800.0	5,768.6	5,836.9	5,670.8	15.5	26.7	-54.87	-608.7	-1,083.1	910.3	879.0	31.33	29.059			
5,900.0	5,868.4	5,979.1	5,812.4	15.7	27.0	-55.13	-614.5	-1,094.5	915.1	883.3	31.80	28.780			
6,000.0	5,968.3	6,121.6	5,954.8	15.9	27.2	-55.24	-617.1	-1,099.7	917.3	885.1	32.18	28.508			
6,100.0	6,068.3	6,235.1	6,068.3	16.1	27.3	-137.85	-617.2	-1,100.0	917.4	876.8	40.60	22.596			
6,200.0	6,168.3	6,568.7	6,394.8	16.2	27.1	130.24	-617.2	-1,044.6	910.9	877.8	33.03	27.577			
6,300.0	6,267.4	6,940.2	6,692.8	16.3	26.1	122.62	-617.2	-829.0	879.0	844.9	34.12	25.765			
6,400.0	6,363.9	7,170.2	6,812.8	16.3	26.1	115.47	-617.2	-633.7	836.7	800.6	36.10	23.177			
6,500.0	6,456.2	7,324.9	6,858.2	16.2	26.6	110.18	-617.2	-486.1	794.2	755.9	38.23	20.775			
6,600.0	6,542.8	7,421.8	6,871.6	16.2	27.2	107.27	-617.2	-390.2	756.3	716.5	39.74	19.030			
6,700.0	6,622.1	7,496.6	6,879.2	16.2	27.8	105.24	-617.2	-315.8	727.4	686.4	41.05	17.720			
6,800.0	6,692.7	7,588.0	6,883.0	16.4	28.8	101.89	-617.2	-224.5	706.2	663.1	43.12	16.378			
6,900.0	6,753.6	7,668.2	6,882.6	16.8	29.8	98.93	-617.2	-144.3	692.3	647.0	45.27	15.293			
7,000.0	6,803.6	7,754.5	6,882.1	17.5	31.1	95.90	-617.2	-58.0	684.7	636.8	47.83	14.315			
7,100.0	6,841.8	7,846.6	6,881.7	18.5	32.6	93.17	-617.2	34.1	681.3	630.5	50.79	13.414			
7,200.0	6,867.7	7,943.0	6,881.2	19.9	34.4	91.11	-617.2	130.5	680.3	626.2	54.12	12.571			
7,282.7	6,880.8	8,024.6	6,880.8	21.2	36.0	90.00	-617.2	212.1	680.1	623.0	57.13	11.905			
7,300.0	6,881.4	8,042.0	6,880.7	21.5	36.3	89.94	-617.2	229.5	680.1	622.4	57.77	11.773			
7,400.0	6,890.5	8,141.5	6,880.2	23.4	38.4	89.14	-617.2	329.0	680.2	618.5	61.72	11.020			
7,500.0	6,892.0	8,241.5	6,879.7	25.3	40.6	88.96	-617.2	428.9	680.2	614.3	65.91	10.321			
7,600.0	6,891.3	8,341.5	6,879.2	27.5	42.8	88.98	-617.2	528.9	680.2	609.9	70.31	9.675			
7,700.0	6,890.6	8,441.4	6,878.7	29.7	45.2	88.99	-617.2	628.9	680.2	605.4	74.88	9.084			
7,800.0	6,889.9	8,541.4	6,878.2	32.1	47.5	89.01	-617.2	728.9	680.2	600.6	79.59	8.546			
7,900.0	6,889.2	8,641.4	6,877.6	34.5	50.0	89.02	-617.2	828.9	680.2	595.8	84.42	8.057			
8,000.0	6,888.5	8,741.4	6,877.1	36.9	52.4	89.04	-617.2	928.9	680.2	590.9	89.35	7.613			
8,100.0	6,887.8	8,841.4	6,876.6	39.4	54.9	89.06	-617.2	1,028.9	680.2	585.9	94.35	7.210			
8,200.0	6,887.1	8,941.4	6,876.1	42.0	57.4	89.07	-617.2	1,128.9	680.2	580.8	99.42	6.842			
8,300.0	6,886.4	9,041.4	6,875.6	44.6	60.0	89.09	-617.2	1,228.9	680.2	575.7	104.55	6.506			
8,400.0	6,885.7	9,141.4	6,875.1	47.2	62.6	89.11	-617.2	1,328.9	680.2	570.5	109.72	6.199			
8,500.0	6,885.0	9,241.4	6,874.6	49.8	65.2	89.12	-617.2	1,428.9	680.2	565.3	114.94	5.918			
8,600.0	6,884.3	9,341.4	6,874.1	52.4	67.8	89.14	-617.2	1,528.9	680.2	560.0	120.20	5.659			
8,700.0	6,883.6	9,441.4	6,873.6	55.1	70.4	89.15	-617.2	1,628.9	680.2	554.7	125.48	5.421			
8,800.0	6,882.9	9,541.4	6,873.1	57.8	73.0	89.17	-617.2	1,728.9	680.2	549.4	130.80	5.201			
8,900.0	6,882.3	9,641.4	6,872.6	60.5	75.7	89.19	-617.2	1,828.9	680.2	544.1	136.13	4.997			
9,000.0	6,881.6	9,741.4	6,872.1	63.2	78.4	89.20	-617.2	1,928.9	680.2	538.7	141.49	4.807			
9,100.0	6,880.9	9,841.4	6,871.6	65.9	81.0	89.22	-617.2	2,028.9	680.2	533.3	146.87	4.631			
9,200.0	6,880.2	9,941.4	6,871.1	68.6	83.7	89.23	-617.2	2,128.9	680.2	527.9	152.27	4.467			
9,300.0	6,879.5	10,041.4	6,870.6	71.3	86.4	89.25	-617.2	2,228.9	680.2	522.5	157.68	4.314			
9,400.0	6,878.8	10,141.4	6,870.1	74.0	89.1	89.27	-617.2	2,328.9	680.2	517.1	163.10	4.170			
9,500.0	6,878.1	10,241.4	6,869.5	76.8	91.8	89.28	-617.2	2,428.9	680.2	511.6	168.54	4.036			
9,600.0	6,877.4	10,341.4	6,869.0	79.5	94.5	89.30	-617.2	2,528.9	680.2	506.2	173.99	3.909			
9,700.0	6,876.7	10,441.4	6,868.5	82.2	97.2	89.32	-617.2	2,628.9	680.2	500.7	179.45	3.790			
9,800.0	6,876.0	10,541.4	6,868.0	85.0	99.9	89.33	-617.2	2,728.9	680.2	495.3	184.92	3.678			
9,900.0	6,875.3	10,641.4	6,867.5	87.7	102.7	89.35	-617.2	2,828.9	680.2	489.8	190.39	3.572			
10,000.0	6,874.6	10,741.4	6,867.0	90.5	105.4	89.36	-617.2	2,928.9	680.2	484.3	195.88	3.472			

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 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-432 - Wellbore #1 - Plan #2 (3-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,873.9	10,841.4	6,866.5	93.3	108.1	89.38		-617.2	3,028.9	680.2	478.8	201.37	3.378	
10,200.0	6,873.2	10,941.4	6,866.0	96.0	110.9	89.40		-617.2	3,128.9	680.2	473.3	206.87	3.288	
10,300.0	6,872.5	11,041.4	6,865.5	98.8	113.6	89.41		-617.2	3,228.9	680.2	467.8	212.38	3.203	
10,400.0	6,871.8	11,141.4	6,865.0	101.6	116.4	89.43		-617.2	3,328.9	680.2	462.3	217.89	3.122	
10,500.0	6,871.1	11,241.4	6,864.5	104.3	119.1	89.44		-617.2	3,428.9	680.2	456.8	223.40	3.045	
10,600.0	6,870.4	11,341.4	6,864.0	107.1	121.9	89.46		-617.2	3,528.9	680.2	451.2	228.92	2.971	
10,700.0	6,869.7	11,441.4	6,863.5	109.9	124.6	89.48		-617.2	3,628.9	680.2	445.7	234.45	2.901	
10,800.0	6,869.0	11,541.4	6,863.0	112.6	127.4	89.49		-617.2	3,728.9	680.2	440.2	239.98	2.834	
10,900.0	6,868.3	11,641.4	6,862.5	115.4	130.1	89.51		-617.2	3,828.9	680.2	434.6	245.51	2.770	
11,000.0	6,867.6	11,741.4	6,862.0	118.2	132.9	89.53		-617.2	3,928.9	680.2	429.1	251.05	2.709	
11,100.0	6,866.9	11,841.4	6,861.5	121.0	135.6	89.54		-617.2	4,028.9	680.2	423.6	256.59	2.651	
11,200.0	6,866.2	11,941.4	6,860.9	123.8	138.4	89.56		-617.2	4,128.9	680.2	418.0	262.14	2.595	
11,300.0	6,865.5	12,041.4	6,860.4	126.5	141.2	89.57		-617.2	4,228.9	680.2	412.5	267.68	2.541	
11,400.0	6,864.8	12,141.4	6,859.9	129.3	143.9	89.59		-617.2	4,328.9	680.2	406.9	273.23	2.489	
11,500.0	6,864.1	12,241.4	6,859.4	132.1	146.7	89.61		-617.2	4,428.9	680.2	401.4	278.79	2.440	
11,600.0	6,863.4	12,341.4	6,858.9	134.9	149.5	89.62		-617.2	4,528.9	680.1	395.8	284.34	2.392	
11,700.0	6,862.7	12,441.4	6,858.4	137.7	152.2	89.64		-617.2	4,628.9	680.1	390.2	289.90	2.346	
11,800.0	6,862.0	12,541.4	6,857.9	140.5	155.0	89.65		-617.2	4,728.9	680.1	384.7	295.46	2.302	
11,900.0	6,861.3	12,641.4	6,857.4	143.3	157.8	89.67		-617.2	4,828.9	680.1	379.1	301.02	2.259	
12,000.0	6,860.6	12,741.4	6,856.9	146.0	160.6	89.69		-617.2	4,928.9	680.1	373.6	306.59	2.218	
12,100.0	6,859.9	12,841.4	6,856.4	148.8	163.3	89.70		-617.2	5,028.9	680.1	368.0	312.15	2.179	
12,200.0	6,859.2	12,941.4	6,855.9	151.6	166.1	89.72		-617.2	5,128.9	680.1	362.4	317.72	2.141	
12,300.0	6,858.5	13,041.4	6,855.4	154.4	168.9	89.74		-617.2	5,228.9	680.1	356.9	323.29	2.104	
12,400.0	6,857.8	13,141.4	6,854.9	157.2	171.7	89.75		-617.2	5,328.9	680.1	351.3	328.86	2.068	
12,500.0	6,857.1	13,241.4	6,854.4	160.0	174.5	89.77		-617.2	5,428.9	680.1	345.7	334.43	2.034	
12,600.0	6,856.4	13,341.4	6,853.9	162.8	177.2	89.78		-617.2	5,528.9	680.1	340.1	340.01	2.000	
12,700.0	6,855.7	13,441.4	6,853.4	165.6	180.0	89.80		-617.2	5,628.9	680.1	334.6	345.58	1.968	
12,800.0	6,855.0	13,541.4	6,852.8	168.4	182.8	89.82		-617.2	5,728.9	680.1	329.0	351.16	1.937	
12,900.0	6,854.3	13,641.4	6,852.3	171.2	185.6	89.83		-617.2	5,828.9	680.1	323.4	356.74	1.907	
13,000.0	6,853.6	13,741.4	6,851.8	174.0	188.4	89.85		-617.2	5,928.9	680.1	317.8	362.32	1.877	
13,100.0	6,852.9	13,841.4	6,851.3	176.8	191.2	89.87		-617.2	6,028.9	680.1	312.2	367.90	1.849	
13,200.0	6,852.2	13,941.4	6,850.8	179.6	193.9	89.88		-617.2	6,128.9	680.1	306.7	373.48	1.821	
13,300.0	6,851.5	14,041.4	6,850.3	182.4	196.7	89.90		-617.2	6,228.9	680.1	301.1	379.06	1.794	
13,400.0	6,850.8	14,141.4	6,849.8	185.2	199.5	89.91		-617.2	6,328.9	680.1	295.5	384.64	1.768	
13,500.0	6,850.1	14,241.4	6,849.3	187.9	202.3	89.93		-617.2	6,428.9	680.1	289.9	390.23	1.743	
13,600.0	6,849.4	14,341.4	6,848.8	190.7	205.1	89.95		-617.2	6,528.9	680.1	284.3	395.81	1.718	
13,700.0	6,848.7	14,441.4	6,848.3	193.5	207.9	89.96		-617.2	6,628.9	680.1	278.7	401.40	1.694	
13,800.0	6,848.0	14,541.4	6,847.8	196.3	210.7	89.98		-617.2	6,728.9	680.1	273.1	406.99	1.671	
13,831.5	6,847.8	14,572.9	6,847.6	197.2	211.5	89.98		-617.2	6,760.4	680.1	271.4	408.75	1.664	
13,900.0	6,847.3	14,641.4	6,847.3	199.1	213.5	89.99		-617.2	6,828.9	680.1	267.6	412.57	1.649	
13,949.3	6,847.0	14,690.8	6,847.0	200.5	214.8	90.00		-617.2	6,878.2	680.1	264.8	415.33	1.638 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-312 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-102.29	-102.29	-32.8	-150.4	154.0				
100.0	100.0	100.0	100.0	0.1	0.1	-102.29	-102.29	-32.8	-150.4	154.0	153.7	0.22	685.003	
200.0	200.0	200.0	200.0	0.3	0.3	-102.29	-102.29	-32.8	-150.4	154.0	153.3	0.67	228.334	
300.0	300.0	300.0	300.0	0.6	0.6	-102.29	-102.29	-32.8	-150.4	154.0	152.8	1.12	137.001	
400.0	400.0	400.0	400.0	0.8	0.8	-102.29	-102.29	-32.8	-150.4	154.0	152.4	1.57	97.858 CC, ES	
500.0	500.0	495.8	495.8	1.0	1.0	-102.65	-102.65	-34.0	-151.5	155.3	153.3	1.99	77.961	
600.0	600.0	591.5	591.3	1.2	1.2	-103.67	-103.67	-37.6	-154.6	159.4	157.0	2.41	66.227	
700.0	700.0	686.7	686.2	1.5	1.4	-105.26	-105.26	-43.6	-159.8	166.2	163.4	2.84	58.505	
800.0	800.0	781.2	780.1	1.7	1.6	-107.26	-107.26	-51.9	-167.0	176.0	172.7	3.31	53.261	
900.0	900.0	875.0	872.8	1.9	1.9	-109.52	-109.52	-62.5	-176.2	188.9	185.1	3.80	49.658	
1,000.0	1,000.0	967.7	964.0	2.1	2.2	-111.87	-111.87	-75.1	-187.2	204.9	200.5	4.34	47.167	
1,100.0	1,100.0	1,059.2	1,053.4	2.4	2.6	-114.19	-114.19	-89.8	-199.9	224.1	219.1	4.93	45.457	
1,200.0	1,200.0	1,149.4	1,140.9	2.6	3.0	-116.40	-116.40	-106.4	-214.3	246.5	240.9	5.56	44.314	
1,300.0	1,300.0	1,238.1	1,226.2	2.8	3.5	-118.44	-118.44	-124.7	-230.2	272.0	265.8	6.24	43.593	
1,400.0	1,400.0	1,325.2	1,309.2	3.0	4.0	-120.30	-120.30	-144.6	-247.5	300.7	293.8	6.96	43.226	
1,500.0	1,500.0	1,419.4	1,398.4	3.3	4.5	-122.06	-122.06	-167.3	-267.2	331.2	323.5	7.76	42.687	
1,600.0	1,600.0	1,514.1	1,488.2	3.5	5.1	-123.53	-123.53	-190.2	-287.0	362.0	353.4	8.58	42.197	
1,700.0	1,700.0	1,608.9	1,578.1	3.7	5.7	-124.77	-124.77	-213.0	-306.9	393.0	383.6	9.41	41.773	
1,800.0	1,800.0	1,703.7	1,667.9	3.9	6.3	-125.83	-125.83	-235.9	-326.7	424.1	413.8	10.24	41.406	
1,900.0	1,900.0	1,798.4	1,757.7	4.2	6.9	-126.75	-126.75	-258.7	-346.5	455.3	444.2	11.08	41.088	
2,000.0	2,000.0	1,893.2	1,847.5	4.4	7.6	-127.55	-127.55	-281.6	-366.4	486.6	474.7	11.92	40.812 SF	
2,100.0	2,100.0	1,988.3	1,937.6	4.6	8.2	-45.34	-45.34	-304.5	-386.2	516.8	507.2	9.58	53.936	
2,200.0	2,199.8	2,083.8	2,028.1	4.8	8.8	-45.95	-45.95	-327.5	-406.2	544.8	534.7	10.07	54.087	
2,300.0	2,299.5	2,179.8	2,119.0	5.0	9.4	-46.75	-46.75	-350.7	-426.3	570.7	560.1	10.56	54.034	
2,400.0	2,398.7	2,276.0	2,210.2	5.2	10.1	-47.77	-47.77	-373.9	-446.4	594.5	583.4	11.05	53.809	
2,500.0	2,497.8	2,372.2	2,301.5	5.5	10.7	-49.09	-49.09	-397.1	-466.6	617.8	606.3	11.54	53.557	
2,600.0	2,596.9	2,468.5	2,392.7	5.7	11.3	-50.31	-50.31	-420.3	-486.7	641.4	629.4	12.03	53.299	
2,700.0	2,696.0	2,564.8	2,483.9	6.0	12.0	-51.45	-51.45	-443.5	-506.9	665.3	652.7	12.54	53.035	
2,800.0	2,795.1	2,661.1	2,575.2	6.3	12.6	-52.51	-52.51	-466.7	-527.0	689.4	676.3	13.07	52.765	
2,900.0	2,894.2	2,757.3	2,666.4	6.5	13.2	-53.49	-53.49	-489.9	-547.2	713.7	700.1	13.60	52.490	
3,000.0	2,993.3	2,853.6	2,757.7	6.8	13.9	-54.42	-54.42	-513.1	-567.3	738.2	724.1	14.14	52.212	
3,100.0	3,092.4	2,949.9	2,848.9	7.1	14.5	-55.28	-55.28	-536.3	-587.5	762.9	748.2	14.69	51.932	
3,200.0	3,191.5	3,046.2	2,940.1	7.4	15.1	-56.09	-56.09	-559.5	-607.6	787.7	772.5	15.25	51.652	
3,300.0	3,290.6	3,142.4	3,031.4	7.7	15.8	-56.85	-56.85	-582.8	-627.7	812.7	796.9	15.82	51.373	
3,400.0	3,389.7	3,238.7	3,122.6	8.0	16.4	-57.57	-57.57	-606.0	-647.9	837.8	821.4	16.40	51.096	
3,500.0	3,488.8	3,335.0	3,213.8	8.3	17.0	-58.24	-58.24	-629.2	-668.0	863.0	846.0	16.98	50.823	
3,600.0	3,587.9	3,431.3	3,305.1	8.6	17.7	-58.88	-58.88	-652.4	-688.2	888.3	870.7	17.57	50.554	
3,700.0	3,687.0	3,527.6	3,396.3	8.9	18.3	-59.48	-59.48	-675.6	-708.3	913.7	895.6	18.17	50.289	
3,800.0	3,786.1	3,623.8	3,487.6	9.2	19.0	-60.05	-60.05	-698.8	-728.5	939.2	920.5	18.77	50.031	
3,900.0	3,885.2	3,720.1	3,578.8	9.5	19.6	-60.59	-60.59	-722.0	-748.6	964.8	945.5	19.38	49.778	
4,000.0	3,984.3	3,816.4	3,670.0	9.8	20.2	-61.10	-61.10	-745.2	-768.8	990.5	970.5	20.00	49.531	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-402 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-112.38		-61.9	-150.4	162.7				
100.0	100.0	100.0	100.0	0.1	0.1	-112.38		-61.9	-150.4	162.7	162.5	0.22	723.795	
200.0	200.0	200.0	200.0	0.3	0.3	-112.38		-61.9	-150.4	162.7	162.0	0.67	241.265 CC, ES	
300.0	300.0	295.3	295.3	0.6	0.5	-112.65		-63.2	-151.4	164.1	163.0	1.09	150.032	
400.0	400.0	390.3	390.2	0.8	0.7	-113.45		-66.9	-154.3	168.5	167.0	1.52	110.881	
500.0	500.0	485.0	484.5	1.0	1.0	-114.70		-73.2	-159.1	175.8	173.8	1.97	89.172	
600.0	600.0	579.0	577.9	1.2	1.2	-116.26		-81.8	-165.7	186.1	183.6	2.46	75.744	
700.0	700.0	672.2	670.1	1.5	1.5	-118.03		-92.7	-174.1	199.5	196.5	2.98	66.953	
800.0	800.0	764.5	760.8	1.7	1.9	-119.88		-105.8	-184.3	216.1	212.5	3.54	60.954	
900.0	900.0	855.5	849.8	1.9	2.3	-121.71		-121.1	-196.0	235.8	231.6	4.15	56.764	
1,000.0	1,000.0	945.2	936.9	2.1	2.7	-123.46		-138.3	-209.2	258.6	253.8	4.81	53.807	
1,100.0	1,100.0	1,033.5	1,021.8	2.4	3.2	-125.09		-157.3	-223.9	284.6	279.1	5.50	51.725	
1,200.0	1,200.0	1,120.1	1,104.4	2.6	3.7	-126.58		-178.0	-239.8	313.6	307.4	6.24	50.278	
1,300.0	1,300.0	1,207.9	1,187.2	2.8	4.2	-127.97		-201.0	-257.5	345.6	338.5	7.02	49.193	
1,400.0	1,400.0	1,298.6	1,272.4	3.0	4.8	-129.22		-225.7	-276.6	379.1	371.3	7.87	48.191	
1,500.0	1,500.0	1,392.5	1,360.5	3.3	5.5	-130.31		-251.4	-296.3	412.8	404.1	8.74	47.245	
1,600.0	1,600.0	1,486.4	1,448.6	3.5	6.1	-131.23		-277.0	-316.1	446.7	437.1	9.61	46.458	
1,700.0	1,700.0	1,580.2	1,536.8	3.7	6.8	-132.03		-302.6	-335.8	480.6	470.1	10.49	45.797	
1,800.0	1,800.0	1,674.1	1,624.9	3.9	7.4	-132.71		-328.2	-355.5	514.6	503.2	11.38	45.235	
1,900.0	1,900.0	1,768.0	1,713.0	4.2	8.1	-133.32		-353.9	-375.3	548.7	536.4	12.26	44.753	
2,000.0	2,000.0	1,861.9	1,801.1	4.4	8.8	-133.85		-379.5	-395.0	582.8	569.6	13.14	44.335 SF	
2,100.0	2,100.0	1,956.0	1,889.5	4.6	9.4	-51.31		-405.2	-414.8	615.9	606.1	9.80	62.839	
2,200.0	2,199.8	2,050.7	1,978.4	4.8	10.1	-51.60		-431.1	-434.7	647.0	636.7	10.31	62.751	
2,300.0	2,299.5	2,145.7	2,067.6	5.0	10.8	-52.09		-457.0	-454.7	676.2	665.4	10.82	62.502	
2,400.0	2,398.7	2,241.0	2,157.0	5.2	11.4	-52.82		-483.0	-474.7	703.6	692.3	11.33	62.121	
2,500.0	2,497.8	2,336.3	2,246.5	5.5	12.1	-53.94		-509.0	-494.8	730.6	718.7	11.83	61.774	
2,600.0	2,596.9	2,431.7	2,336.1	5.7	12.8	-54.97		-535.1	-514.8	757.7	745.4	12.34	61.414	
2,700.0	2,696.0	2,527.0	2,425.6	6.0	13.5	-55.93		-561.1	-534.9	785.1	772.2	12.86	61.044	
2,800.0	2,795.1	2,622.4	2,515.1	6.3	14.1	-56.83		-587.1	-554.9	812.7	799.3	13.40	60.667	
2,900.0	2,894.2	2,717.7	2,604.6	6.5	14.8	-57.68		-613.2	-575.0	840.4	826.5	13.94	60.285	
3,000.0	2,993.3	2,813.1	2,694.1	6.8	15.5	-58.46		-639.2	-595.0	868.3	853.8	14.50	59.902	
3,100.0	3,092.4	2,908.4	2,783.6	7.1	16.2	-59.20		-665.2	-615.1	896.4	881.3	15.06	59.521	
3,200.0	3,191.5	3,003.8	2,873.1	7.4	16.8	-59.90		-691.3	-635.1	924.6	909.0	15.63	59.142	
3,300.0	3,290.6	3,099.1	2,962.6	7.7	17.5	-60.55		-717.3	-655.2	952.9	936.7	16.21	58.768	
3,400.0	3,389.7	3,194.5	3,052.1	8.0	18.2	-61.17		-743.3	-675.2	981.3	964.5	16.80	58.399	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Klein 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

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

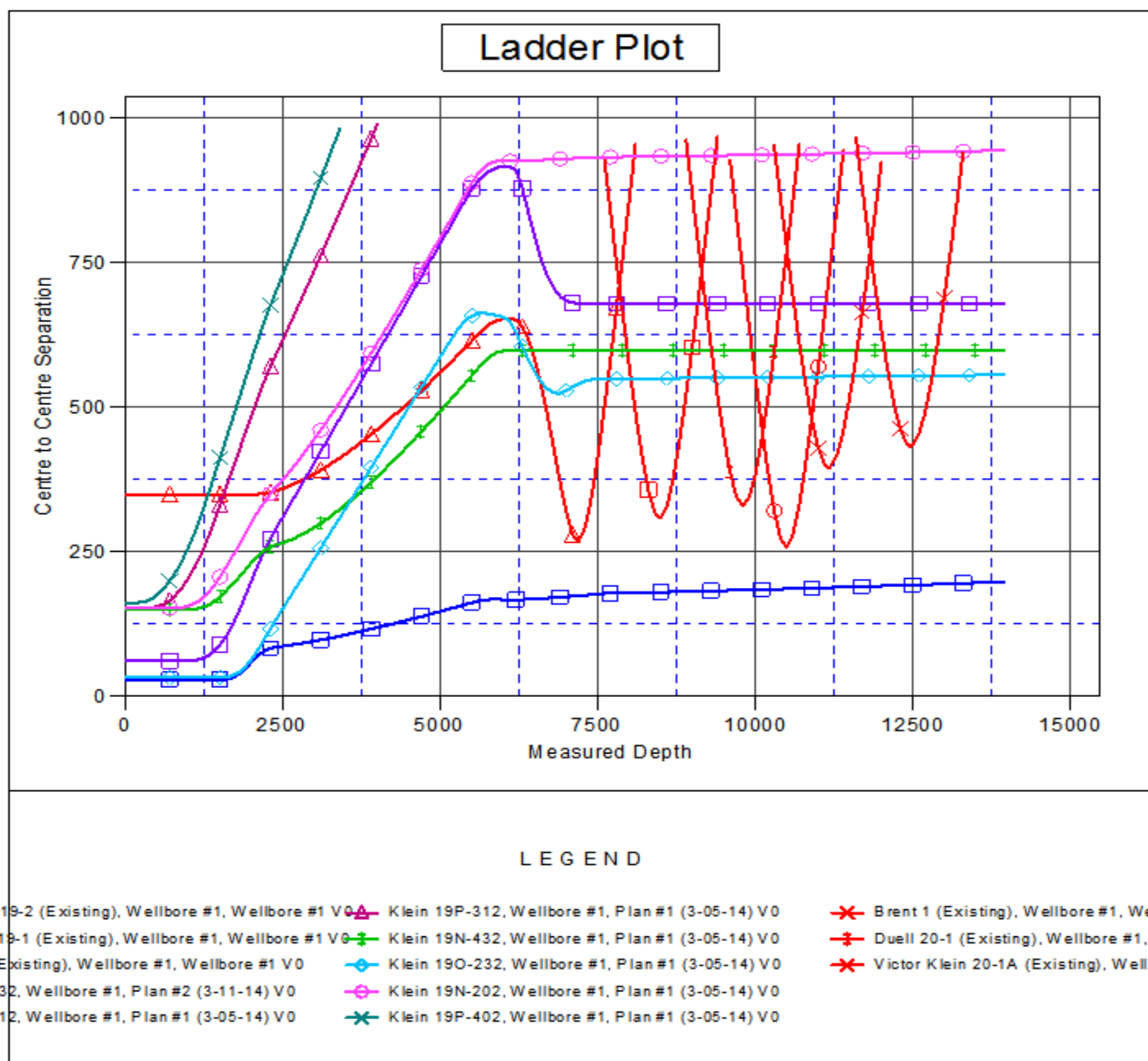
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Klein 19O-412

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 19O-412
<b>Project:</b>	SEC.19-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Reference Site:</b>	Klein 19O-HZ Pad Sec.19-T5N-R64W	<b>MD Reference:</b>	WELL @ 4641.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Klein 19O-412	<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 (3-05-14)	<b>Offset TVD Reference:</b>	Offset Datum

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

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Klein 19O-412

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.59°

