

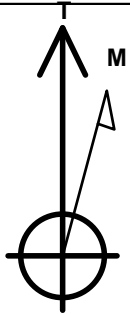
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Klein 190-232**

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 1384481.69 3253261.17 40.385240 -104.590840
 RKB - 15' WELL @ 4641.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2418'FNL & 2100 FEL, Sec.19	1.0	0.0	0.0	Point
BHL 2385'FSL 500'FEL, Sec.20	6661.0	-428.9	6881.1	Point



Azimuths to True North
 Magnetic North: 8.40°

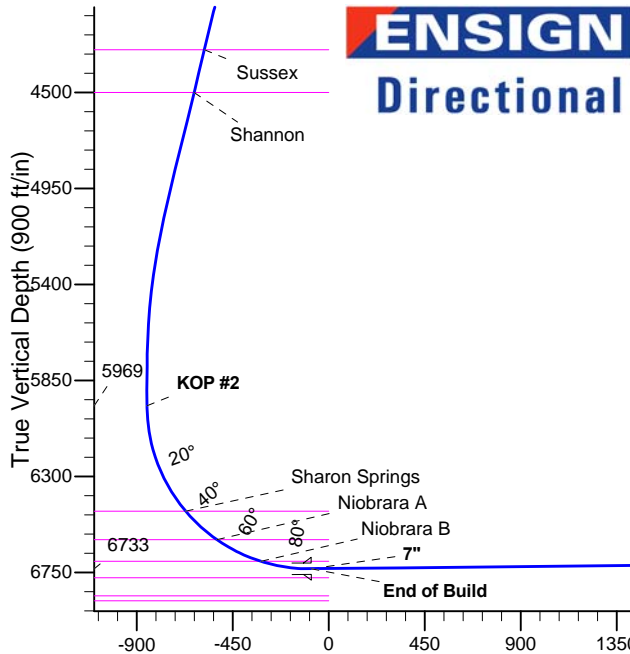
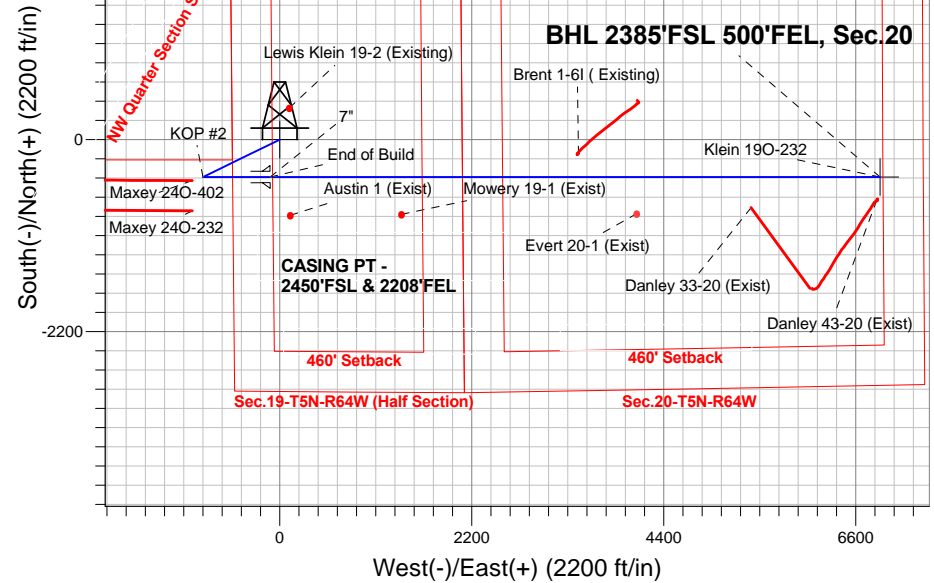
Magnetic Field
 Strength: 52855.0nT
 Dip Angle: 66.97°
 Date: 3/11/2014
 Model: IGRF2010

Klein 190-HZ Pad Sec.19-T5N-R64W
 Klein 190-232
 Plan #1 (3-05-14)
 9:22, March 17 2014

ANNOTATIONS

TVD	MD	Annotation
1500.0	1500.0	KOP #1
5969.0	6093.1	KOP #2
6733.0	7301.0	End of Build

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



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	2277.6	15.55	244.01	2268.1	-46.0	-94.3	2.00	244.01	-91.2	
4	5146.5	15.55	244.01	5031.9	-383.0	-785.7	0.00	0.00	-760.4	
5	5924.1	0.00	0.00	5800.0	-428.9	-880.0	2.00	180.00	-851.6	
6	6093.1	0.00	0.00	5969.1	-428.9	-880.0	0.00	0.00	-851.6	
7	7301.0	90.59	90.00	6733.0	-428.9	-108.2	7.50	90.00	-81.3	
8	14290.7	90.59	90.00	6661.0	-428.9	6881.1	0.00	0.00	6894.5	BHL 2385'FSL 500'FEL, Sec.20

BHL 2385'FSL 500'FEL, Sec.20

Vertical Section at 93.57° (900 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

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

Klein 19O-232

Wellbore #1

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

Standard Planning Report

17 March, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Klein 19O-232
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-05-14)		

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

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

Well	Klein 19O-232					
Well Position	+N/-S	-61.9 ft	Northing:	1,384,481.69 ft	Latitude:	40.385240
	+E/-W	150.4 ft	Easting:	3,253,261.17 ft	Longitude:	-104.590840
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,626.0 ft

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

Design	Plan #1 (3-05-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	93.57

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,277.6	15.55	244.01	2,268.1	-46.0	-94.3	2.00	2.00	0.00	244.01	
5,146.5	15.55	244.01	5,031.9	-383.0	-785.7	0.00	0.00	0.00	0.00	
5,924.1	0.00	0.00	5,800.0	-428.9	-880.0	2.00	-2.00	0.00	180.00	
6,093.1	0.00	0.00	5,969.1	-428.9	-880.0	0.00	0.00	0.00	0.00	
7,301.0	90.59	90.00	6,733.0	-428.9	-108.2	7.50	7.50	0.00	90.00	
14,290.7	90.59	90.00	6,661.0	-428.9	6,881.1	0.00	0.00	0.00	0.00	BHL 2385'FSL 500'

Database:	landmark	Local Co-ordinate Reference:	Well Klein 190-232
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 190-232	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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
SHL 2418°FNL & 2100 FEL, Sec.19									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
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
KOP #1									
1,600.0	2.00	244.01	1,600.0	-0.8	-1.6	-1.5	2.00	2.00	0.00
1,700.0	4.00	244.01	1,699.8	-3.1	-6.3	-6.1	2.00	2.00	0.00
1,800.0	6.00	244.01	1,799.5	-6.9	-14.1	-13.7	2.00	2.00	0.00
1,900.0	8.00	244.01	1,898.7	-12.2	-25.1	-24.3	2.00	2.00	0.00
2,000.0	10.00	244.01	1,997.5	-19.1	-39.1	-37.9	2.00	2.00	0.00
2,100.0	12.00	244.01	2,095.6	-27.4	-56.3	-54.5	2.00	2.00	0.00
2,200.0	14.00	244.01	2,193.1	-37.3	-76.5	-74.0	2.00	2.00	0.00
2,277.6	15.55	244.01	2,268.1	-46.0	-94.3	-91.2	2.00	2.00	0.00
2,300.0	15.55	244.01	2,289.7	-48.6	-99.7	-96.5	0.00	0.00	0.00
2,400.0	15.55	244.01	2,386.0	-60.3	-123.8	-119.8	0.00	0.00	0.00
2,500.0	15.55	244.01	2,482.3	-72.1	-147.9	-143.1	0.00	0.00	0.00
2,600.0	15.55	244.01	2,578.7	-83.8	-172.0	-166.4	0.00	0.00	0.00
2,700.0	15.55	244.01	2,675.0	-95.6	-196.1	-189.8	0.00	0.00	0.00
2,800.0	15.55	244.01	2,771.4	-107.3	-220.2	-213.1	0.00	0.00	0.00
2,900.0	15.55	244.01	2,867.7	-119.1	-244.3	-236.4	0.00	0.00	0.00
3,000.0	15.55	244.01	2,964.0	-130.8	-268.4	-259.7	0.00	0.00	0.00
3,100.0	15.55	244.01	3,060.4	-142.6	-292.5	-283.1	0.00	0.00	0.00
3,200.0	15.55	244.01	3,156.7	-154.3	-316.6	-306.4	0.00	0.00	0.00
3,300.0	15.55	244.01	3,253.1	-166.1	-340.7	-329.7	0.00	0.00	0.00
3,400.0	15.55	244.01	3,349.4	-177.8	-364.8	-353.0	0.00	0.00	0.00
3,500.0	15.55	244.01	3,445.7	-189.6	-388.9	-376.4	0.00	0.00	0.00
3,600.0	15.55	244.01	3,542.1	-201.3	-413.0	-399.7	0.00	0.00	0.00
3,608.2	15.55	244.01	3,550.0	-202.3	-415.0	-401.6	0.00	0.00	0.00
Parkman									
3,700.0	15.55	244.01	3,638.4	-213.0	-437.1	-423.0	0.00	0.00	0.00
3,800.0	15.55	244.01	3,734.7	-224.8	-461.2	-446.3	0.00	0.00	0.00
3,900.0	15.55	244.01	3,831.1	-236.5	-485.3	-469.6	0.00	0.00	0.00
4,000.0	15.55	244.01	3,927.4	-248.3	-509.4	-493.0	0.00	0.00	0.00
4,100.0	15.55	244.01	4,023.8	-260.0	-533.5	-516.3	0.00	0.00	0.00
4,200.0	15.55	244.01	4,120.1	-271.8	-557.6	-539.6	0.00	0.00	0.00
4,300.0	15.55	244.01	4,216.4	-283.5	-581.7	-562.9	0.00	0.00	0.00
4,386.7	15.55	244.01	4,300.0	-293.7	-602.6	-583.2	0.00	0.00	0.00
Sussex									
4,400.0	15.55	244.01	4,312.8	-295.3	-605.8	-586.3	0.00	0.00	0.00

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Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 190-232	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	15.55	244.01	4,409.1	-307.0	-629.9	-609.6	0.00	0.00	0.00
4,594.3	15.55	244.01	4,500.0	-318.1	-652.6	-631.6	0.00	0.00	0.00
Shannon									
4,600.0	15.55	244.01	4,505.5	-318.8	-654.0	-632.9	0.00	0.00	0.00
4,700.0	15.55	244.01	4,601.8	-330.5	-678.1	-656.2	0.00	0.00	0.00
4,800.0	15.55	244.01	4,698.1	-342.3	-702.2	-679.6	0.00	0.00	0.00
4,900.0	15.55	244.01	4,794.5	-354.0	-726.3	-702.9	0.00	0.00	0.00
5,000.0	15.55	244.01	4,890.8	-365.8	-750.4	-726.2	0.00	0.00	0.00
5,100.0	15.55	244.01	4,987.1	-377.5	-774.5	-749.5	0.00	0.00	0.00
5,146.5	15.55	244.01	5,031.9	-383.0	-785.7	-760.4	0.00	0.00	0.00
5,200.0	14.48	244.01	5,083.6	-389.0	-798.2	-772.4	2.00	-2.00	0.00
5,300.0	12.48	244.01	5,180.9	-399.3	-819.1	-792.7	2.00	-2.00	0.00
5,400.0	10.48	244.01	5,278.9	-408.0	-837.0	-810.0	2.00	-2.00	0.00
5,500.0	8.48	244.01	5,377.5	-415.2	-851.8	-824.4	2.00	-2.00	0.00
5,600.0	6.48	244.01	5,476.6	-420.9	-863.5	-835.7	2.00	-2.00	0.00
5,700.0	4.48	244.01	5,576.2	-425.1	-872.1	-844.0	2.00	-2.00	0.00
5,800.0	2.48	244.01	5,676.0	-427.7	-877.6	-849.3	2.00	-2.00	0.00
5,900.0	0.48	244.01	5,775.9	-428.9	-879.9	-851.5	2.00	-2.00	0.00
5,924.1	0.00	0.00	5,800.0	-428.9	-880.0	-851.6	2.00	-2.00	0.00
6,000.0	0.00	0.00	5,875.9	-428.9	-880.0	-851.6	0.00	0.00	0.00
6,093.1	0.00	0.00	5,969.0	-428.9	-880.0	-851.6	0.00	0.00	0.00
KOP #2									
6,100.0	0.51	90.00	5,975.9	-428.9	-880.0	-851.6	7.46	7.46	0.00
6,200.0	8.01	90.00	6,075.6	-428.9	-872.5	-844.2	7.50	7.50	0.00
6,300.0	15.51	90.00	6,173.4	-428.9	-852.2	-823.8	7.50	7.50	0.00
6,400.0	23.01	90.00	6,267.7	-428.9	-819.2	-790.9	7.50	7.50	0.00
6,500.0	30.51	90.00	6,357.0	-428.9	-774.2	-746.0	7.50	7.50	0.00
6,600.0	38.01	90.00	6,439.6	-428.9	-717.9	-689.9	7.50	7.50	0.00
6,630.2	40.28	90.00	6,463.0	-428.9	-698.8	-670.8	7.50	7.50	0.00
Sharon Springs									
6,700.0	45.51	90.00	6,514.1	-428.9	-651.4	-623.4	7.50	7.50	0.00
6,800.0	53.01	90.00	6,579.3	-428.9	-575.7	-547.9	7.50	7.50	0.00
6,828.5	55.15	90.00	6,596.0	-428.9	-552.6	-524.8	7.50	7.50	0.00
Niobrara A									
6,900.0	60.51	90.00	6,634.1	-428.9	-492.1	-464.4	7.50	7.50	0.00
7,000.0	68.01	90.00	6,677.5	-428.9	-402.1	-374.6	7.50	7.50	0.00
7,060.9	72.59	90.00	6,698.0	-428.9	-344.7	-317.3	7.50	7.50	0.00
Niobrara B									
7,100.0	75.51	90.00	6,708.7	-428.9	-307.1	-279.9	7.50	7.50	0.00
7,200.0	83.01	90.00	6,727.3	-428.9	-209.0	-181.9	7.50	7.50	0.00
7,300.0	90.51	90.00	6,733.0	-428.9	-109.2	-82.3	7.50	7.50	0.00
7,301.0	90.59	90.00	6,733.0	-428.9	-108.2	-81.3	7.50	7.50	0.00
End of Build - 7"									
7,400.0	90.59	90.00	6,732.0	-428.9	-9.2	17.5	0.00	0.00	0.00
7,500.0	90.59	90.00	6,730.9	-428.9	90.8	117.3	0.00	0.00	0.00
7,600.0	90.59	90.00	6,729.9	-428.9	190.8	217.1	0.00	0.00	0.00
7,700.0	90.59	90.00	6,728.9	-428.9	290.8	316.9	0.00	0.00	0.00
7,800.0	90.59	90.00	6,727.8	-428.9	390.8	416.7	0.00	0.00	0.00
7,900.0	90.59	90.00	6,726.8	-428.9	490.8	516.5	0.00	0.00	0.00
8,000.0	90.59	90.00	6,725.8	-428.9	590.8	616.3	0.00	0.00	0.00
8,100.0	90.59	90.00	6,724.7	-428.9	690.8	716.1	0.00	0.00	0.00
8,200.0	90.59	90.00	6,723.7	-428.9	790.8	815.9	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Klein 190-232
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 190-232	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
8,300.0	90.59	90.00	6,722.7	-428.9	890.8	915.7	0.00	0.00	0.00
8,400.0	90.59	90.00	6,721.7	-428.9	990.7	1,015.5	0.00	0.00	0.00
8,500.0	90.59	90.00	6,720.6	-428.9	1,090.7	1,115.3	0.00	0.00	0.00
8,600.0	90.59	90.00	6,719.6	-428.9	1,190.7	1,215.1	0.00	0.00	0.00
8,700.0	90.59	90.00	6,718.6	-428.9	1,290.7	1,314.9	0.00	0.00	0.00
8,800.0	90.59	90.00	6,717.5	-428.9	1,390.7	1,414.7	0.00	0.00	0.00
8,900.0	90.59	90.00	6,716.5	-428.9	1,490.7	1,514.5	0.00	0.00	0.00
9,000.0	90.59	90.00	6,715.5	-428.9	1,590.7	1,614.3	0.00	0.00	0.00
9,100.0	90.59	90.00	6,714.4	-428.9	1,690.7	1,714.1	0.00	0.00	0.00
9,200.0	90.59	90.00	6,713.4	-428.9	1,790.7	1,813.9	0.00	0.00	0.00
9,300.0	90.59	90.00	6,712.4	-428.9	1,890.7	1,913.7	0.00	0.00	0.00
9,400.0	90.59	90.00	6,711.4	-428.9	1,990.7	2,013.5	0.00	0.00	0.00
9,500.0	90.59	90.00	6,710.3	-428.9	2,090.7	2,113.3	0.00	0.00	0.00
9,600.0	90.59	90.00	6,709.3	-428.9	2,190.7	2,213.1	0.00	0.00	0.00
9,700.0	90.59	90.00	6,708.3	-428.9	2,290.7	2,312.9	0.00	0.00	0.00
9,800.0	90.59	90.00	6,707.2	-428.9	2,390.7	2,412.7	0.00	0.00	0.00
9,900.0	90.59	90.00	6,706.2	-428.9	2,490.7	2,512.5	0.00	0.00	0.00
10,000.0	90.59	90.00	6,705.2	-428.9	2,590.7	2,612.3	0.00	0.00	0.00
10,100.0	90.59	90.00	6,704.2	-428.9	2,690.7	2,712.1	0.00	0.00	0.00
10,200.0	90.59	90.00	6,703.1	-428.9	2,790.7	2,811.9	0.00	0.00	0.00
10,300.0	90.59	90.00	6,702.1	-428.9	2,890.6	2,911.7	0.00	0.00	0.00
10,400.0	90.59	90.00	6,701.1	-428.9	2,990.6	3,011.5	0.00	0.00	0.00
10,500.0	90.59	90.00	6,700.0	-428.9	3,090.6	3,111.3	0.00	0.00	0.00
10,600.0	90.59	90.00	6,699.0	-428.9	3,190.6	3,211.1	0.00	0.00	0.00
10,700.0	90.59	90.00	6,698.0	-428.9	3,290.6	3,310.9	0.00	0.00	0.00
10,800.0	90.59	90.00	6,696.9	-428.9	3,390.6	3,410.7	0.00	0.00	0.00
10,900.0	90.59	90.00	6,695.9	-428.9	3,490.6	3,510.5	0.00	0.00	0.00
11,000.0	90.59	90.00	6,694.9	-428.9	3,590.6	3,610.3	0.00	0.00	0.00
11,100.0	90.59	90.00	6,693.9	-428.9	3,690.6	3,710.1	0.00	0.00	0.00
11,200.0	90.59	90.00	6,692.8	-428.9	3,790.6	3,809.9	0.00	0.00	0.00
11,300.0	90.59	90.00	6,691.8	-428.9	3,890.6	3,909.7	0.00	0.00	0.00
11,400.0	90.59	90.00	6,690.8	-428.9	3,990.6	4,009.5	0.00	0.00	0.00
11,500.0	90.59	90.00	6,689.7	-428.9	4,090.6	4,109.3	0.00	0.00	0.00
11,600.0	90.59	90.00	6,688.7	-428.9	4,190.6	4,209.1	0.00	0.00	0.00
11,700.0	90.59	90.00	6,687.7	-428.9	4,290.6	4,308.9	0.00	0.00	0.00
11,800.0	90.59	90.00	6,686.6	-428.9	4,390.6	4,408.7	0.00	0.00	0.00
11,900.0	90.59	90.00	6,685.6	-428.9	4,490.6	4,508.5	0.00	0.00	0.00
12,000.0	90.59	90.00	6,684.6	-428.9	4,590.6	4,608.3	0.00	0.00	0.00
12,100.0	90.59	90.00	6,683.6	-428.9	4,690.6	4,708.2	0.00	0.00	0.00
12,200.0	90.59	90.00	6,682.5	-428.9	4,790.5	4,808.0	0.00	0.00	0.00
12,300.0	90.59	90.00	6,681.5	-428.9	4,890.5	4,907.8	0.00	0.00	0.00
12,400.0	90.59	90.00	6,680.5	-428.9	4,990.5	5,007.6	0.00	0.00	0.00
12,500.0	90.59	90.00	6,679.4	-428.9	5,090.5	5,107.4	0.00	0.00	0.00
12,600.0	90.59	90.00	6,678.4	-428.9	5,190.5	5,207.2	0.00	0.00	0.00
12,700.0	90.59	90.00	6,677.4	-428.9	5,290.5	5,307.0	0.00	0.00	0.00
12,800.0	90.59	90.00	6,676.3	-428.9	5,390.5	5,406.8	0.00	0.00	0.00
12,900.0	90.59	90.00	6,675.3	-428.9	5,490.5	5,506.6	0.00	0.00	0.00
13,000.0	90.59	90.00	6,674.3	-428.9	5,590.5	5,606.4	0.00	0.00	0.00
13,100.0	90.59	90.00	6,673.3	-428.9	5,690.5	5,706.2	0.00	0.00	0.00
13,200.0	90.59	90.00	6,672.2	-428.9	5,790.5	5,806.0	0.00	0.00	0.00
13,300.0	90.59	90.00	6,671.2	-428.9	5,890.5	5,905.8	0.00	0.00	0.00
13,400.0	90.59	90.00	6,670.2	-428.9	5,990.5	6,005.6	0.00	0.00	0.00
13,500.0	90.59	90.00	6,669.1	-428.9	6,090.5	6,105.4	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Klein 19O-232
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
13,600.0	90.59	90.00	6,668.1	-428.9	6,190.5	6,205.2	0.00	0.00	0.00
13,700.0	90.59	90.00	6,667.1	-428.9	6,290.5	6,305.0	0.00	0.00	0.00
13,800.0	90.59	90.00	6,666.1	-428.9	6,390.5	6,404.8	0.00	0.00	0.00
13,900.0	90.59	90.00	6,665.0	-428.9	6,490.5	6,504.6	0.00	0.00	0.00
14,000.0	90.59	90.00	6,664.0	-428.9	6,590.5	6,604.4	0.00	0.00	0.00
14,100.0	90.59	90.00	6,663.0	-428.9	6,690.4	6,704.2	0.00	0.00	0.00
14,200.0	90.59	90.00	6,661.9	-428.9	6,790.4	6,804.0	0.00	0.00	0.00
14,290.7	90.59	90.00	6,661.0	-428.9	6,881.1	6,894.5	0.00	0.00	0.00
BHL 2385'FSL 500'FEL, Sec.20									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,301.0	6,733.0	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,608.2	3,550.0	Parkman		0.00	
4,386.7	4,300.0	Sussex		0.00	
4,594.3	4,500.0	Shannon		0.00	
6,630.2	6,463.0	Sharon Springs		0.00	
6,828.5	6,596.0	Niobrara A		0.00	
7,060.9	6,698.0	Niobrara B		0.00	
	6,775.0	Niobrara C		0.00	
	6,860.0	Ft Hays		0.00	
	6,883.0	Codell		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,500.0	1,500.0	0.0	0.0	KOP #1
6,093.1	5,969.0	-428.9	-880.0	KOP #2
7,301.0	6,733.0	-428.9	-108.2	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

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

Klein 19O-232

Wellbore #1

Plan #1 (3-05-14)

Anticollision Report

13 March, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 190-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

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

Survey Tool Program	Date	3/11/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,291.9	Plan #1 (3-05-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Klein (Existing) Sec.19-T5N-R64W						
Brent 1-6I (Existing) - Wellbore #1 - Wellbore #1	10,827.3	6,814.4	265.8	-22.0	0.924	Level 1, CC, ES, SF
Lewis Klein 19-2 (Existing) - Wellbore #1 - Wellbore #1	1,500.0	1,484.0	381.0	348.0	11.566	CC
Lewis Klein 19-2 (Existing) - Wellbore #1 - Wellbore #1	1,600.0	1,584.0	382.2	347.0	10.877	ES
Lewis Klein 19-2 (Existing) - Wellbore #1 - Wellbore #1	7,600.0	6,715.1	797.1	633.1	4.863	SF
Klein 190-HZ Pad Sec.19-T5N-R64W						
Klein 19N-202 - Wellbore #1 - Plan #1 (3-05-14)	800.0	800.0	162.7	159.3	48.253	CC, ES
Klein 19N-202 - Wellbore #1 - Plan #1 (3-05-14)	1,500.0	1,463.7	225.0	218.3	33.574	SF
Klein 19N-432 - Wellbore #1 - Plan #1 (3-05-14)	1,000.0	1,000.0	153.2	149.0	35.881	CC, ES
Klein 19N-432 - Wellbore #1 - Plan #1 (3-05-14)	2,400.0	2,354.8	278.0	267.0	25.206	SF
Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)	1,500.0	1,500.0	62.0	55.5	9.511	CC, ES
Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)	14,291.9	13,907.1	697.1	289.3	1.710	SF
Klein 19O-412 - Wellbore #1 - Plan #1 (3-05-14)	1,500.0	1,500.0	32.8	26.3	5.030	CC, ES
Klein 19O-412 - Wellbore #1 - Plan #1 (3-05-14)	14,291.9	13,949.3	556.6	168.1	1.433	Level 3, SF
Klein 19O-432 - Wellbore #1 - Plan #2 (3-11-14)	1,000.0	1,000.0	29.1	24.9	6.825	CC
Klein 19O-432 - Wellbore #1 - Plan #2 (3-11-14)	14,291.9	14,694.6	242.5	-43.8	0.847	Level 1, ES, SF
Klein 19P-312 - Wellbore #1 - Plan #1 (3-05-14)	400.0	400.0	150.4	148.9	95.614	CC, ES
Klein 19P-312 - Wellbore #1 - Plan #1 (3-05-14)	14,291.9	14,752.5	734.5	310.5	1.732	SF
Klein 19P-402 - Wellbore #1 - Plan #1 (3-05-14)	200.0	200.0	153.2	152.6	227.248	CC, ES
Klein 19P-402 - Wellbore #1 - Plan #1 (3-05-14)	5,400.0	5,236.2	952.5	916.8	26.645	SF
Maxey 24O-HZ Pad Sec.24-T5N-R65W						
Maxey 24O-232 - Wellbore #1 - Plan #2 (8-9-13)	6,628.3	11,137.6	552.4	445.1	5.150	CC, ES, SF
Maxey 24O-402 - Wellbore #1 - Plan #2 (8-9-13)	6,713.0	11,295.6	524.2	484.3	13.122	CC, ES, SF
Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W						
Austin 1 (Exist) - Wellbore #1 - Wellbore #1	7,533.0	6,716.8	438.1	275.5	2.693	CC, ES, SF
Danley 33-20 (Exist) - Wellbore #1 - Wellbore #1	12,812.0	6,845.1	350.2	162.9	1.870	CC, ES, SF
Danley 43-20 (Exist) - Wellbore #1 - Wellbore #1	14,259.6	6,856.3	251.0	25.8	1.115	Level 2, CC, ES, SF
Evert 20-1 (Exist) - Wellbore #1 - Wellbore #1	11,500.4	6,683.2	419.6	153.9	1.579	CC, ES, SF
Mowery 19-1 (Exist) - Wellbore #1 - Wellbore #1	8,806.2	6,701.4	427.2	234.6	2.218	CC, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Brent 1-6I (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 647-UNKNOWN												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,900.0	6,707.0	6,804.2	6,668.4	87.9	189.2	-87.66	-163.1	3,416.5	964.6	703.6	261.02	3.696	
10,000.0	6,705.9	6,805.4	6,669.6	90.7	189.2	-87.92	-163.1	3,416.5	868.9	605.0	263.93	3.292	
10,100.0	6,704.9	6,806.6	6,670.8	93.4	189.2	-88.17	-163.1	3,416.5	774.4	507.5	266.83	2.902	
10,200.0	6,703.8	6,807.7	6,671.9	96.1	189.2	-88.42	-163.1	3,416.6	681.3	411.6	269.72	2.526	
10,300.0	6,702.8	6,808.8	6,673.1	98.9	189.2	-88.66	-163.1	3,416.6	590.5	317.9	272.62	2.166	
10,400.0	6,701.8	6,809.9	6,674.2	101.6	189.2	-88.90	-163.1	3,416.6	503.3	227.7	275.51	1.827	
10,500.0	6,700.7	6,811.0	6,675.2	104.4	189.1	-89.13	-163.1	3,416.6	421.7	143.3	278.40	1.515	
10,600.0	6,699.7	6,812.1	6,676.3	107.1	189.1	-89.36	-163.1	3,416.7	349.8	68.5	281.28	1.244	Level 2
10,700.0	6,698.6	6,813.1	6,677.3	109.9	189.1	-89.58	-163.1	3,416.7	294.8	10.6	284.16	1.037	Level 2
10,800.0	6,697.6	6,814.1	6,678.4	112.6	189.1	-89.80	-163.1	3,416.7	267.2	-19.8	287.04	0.931	Level 1
10,827.3	6,697.3	6,814.4	6,678.6	113.4	189.1	-89.86	-163.1	3,416.7	265.8	-22.0	287.83	0.924	Level 1, CC, ES, SF
10,900.0	6,696.5	6,815.1	6,679.4	115.4	189.1	-90.02	-163.1	3,416.7	275.6	-14.3	289.92	0.951	Level 1
11,000.0	6,695.5	6,816.1	6,680.3	118.2	189.1	-90.23	-163.1	3,416.7	317.0	24.2	292.79	1.083	Level 2
11,100.0	6,694.4	6,817.1	6,681.3	120.9	189.1	-90.44	-163.1	3,416.8	380.8	85.2	295.65	1.288	Level 3
11,200.0	6,693.4	6,818.0	6,682.3	123.7	189.1	-90.64	-163.1	3,416.8	457.8	159.2	298.52	1.533	
11,300.0	6,692.3	6,819.0	6,683.2	126.5	189.0	-90.84	-163.1	3,416.8	542.3	240.9	301.37	1.799	
11,400.0	6,691.3	6,819.9	6,684.1	129.2	189.0	-91.04	-163.1	3,416.8	631.3	327.1	304.23	2.075	
11,500.0	6,690.2	6,820.8	6,685.0	132.0	189.0	-91.24	-163.1	3,416.8	723.3	416.2	307.08	2.355	
11,600.0	6,689.2	6,821.7	6,685.9	134.8	189.0	-91.43	-163.1	3,416.9	817.1	507.2	309.93	2.636	
11,700.0	6,688.1	6,822.5	6,686.8	137.6	189.0	-91.61	-163.1	3,416.9	912.2	599.5	312.78	2.917	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Lewis Klein 19-2 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7082-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (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	17.01	364.3	111.4	381.3					
100.0	100.0	84.0	84.0	0.1	1.7	17.01	364.3	111.4	381.0	379.2	1.79	212.523		
200.0	200.0	184.0	184.0	0.3	3.7	17.01	364.3	111.4	381.0	376.9	4.02	94.830		
300.0	300.0	284.0	284.0	0.6	5.7	17.01	364.3	111.4	381.0	374.7	6.24	61.031		
400.0	400.0	384.0	384.0	0.8	7.7	17.01	364.3	111.4	381.0	372.5	8.47	44.995		
500.0	500.0	484.0	484.0	1.0	9.7	17.01	364.3	111.4	381.0	370.3	10.69	35.632		
600.0	600.0	584.0	584.0	1.2	11.7	17.01	364.3	111.4	381.0	368.0	12.92	29.495		
700.0	700.0	684.0	684.0	1.5	13.7	17.01	364.3	111.4	381.0	365.8	15.14	25.161		
800.0	800.0	784.0	784.0	1.7	15.7	17.01	364.3	111.4	381.0	363.6	17.37	21.937		
900.0	900.0	884.0	884.0	1.9	17.7	17.01	364.3	111.4	381.0	361.4	19.59	19.446		
1,000.0	1,000.0	984.0	984.0	2.1	19.7	17.01	364.3	111.4	381.0	359.1	21.82	17.463		
1,100.0	1,100.0	1,084.0	1,084.0	2.4	21.7	17.01	364.3	111.4	381.0	356.9	24.04	15.847		
1,200.0	1,200.0	1,184.0	1,184.0	2.6	23.7	17.01	364.3	111.4	381.0	354.7	26.26	14.505		
1,300.0	1,300.0	1,284.0	1,284.0	2.8	25.7	17.01	364.3	111.4	381.0	352.5	28.49	13.372		
1,400.0	1,400.0	1,384.0	1,384.0	3.0	27.7	17.01	364.3	111.4	381.0	350.2	30.71	12.403		
1,500.0	1,500.0	1,484.0	1,484.0	3.3	29.7	17.01	364.3	111.4	381.0	348.0	32.94	11.566 CC		
1,600.0	1,600.0	1,584.0	1,584.0	3.5	31.7	133.17	364.3	111.4	382.2	347.0	35.13	10.877 ES		
1,700.0	1,699.8	1,683.8	1,683.8	3.7	33.7	133.68	364.3	111.4	385.8	348.5	37.29	10.345		
1,800.0	1,799.5	1,783.5	1,783.5	3.9	35.7	134.51	364.3	111.4	391.8	352.4	39.42	9.940		
1,900.0	1,898.7	1,882.7	1,882.7	4.1	37.7	135.63	364.3	111.4	400.5	359.0	41.52	9.647		
2,000.0	1,997.5	1,981.5	1,981.5	4.3	39.6	136.99	364.3	111.4	411.9	368.3	43.57	9.453		
2,100.0	2,095.6	2,079.6	2,079.6	4.6	41.6	138.53	364.3	111.4	426.1	380.5	45.57	9.350		
2,200.0	2,193.1	2,177.1	2,177.1	4.9	43.5	140.22	364.3	111.4	443.4	395.9	47.51	9.332		
2,300.0	2,289.7	2,273.7	2,273.7	5.3	45.5	142.03	364.3	111.4	463.7	414.3	49.44	9.380		
2,400.0	2,386.0	2,370.0	2,370.0	5.7	47.4	143.96	364.3	111.4	485.4	433.9	51.55	9.417		
2,500.0	2,482.3	2,466.3	2,466.3	6.2	49.3	145.72	364.3	111.4	507.6	454.0	53.66	9.459		
2,600.0	2,578.7	2,562.7	2,562.7	6.7	51.3	147.33	364.3	111.4	530.2	474.5	55.78	9.505		
2,700.0	2,675.0	2,659.0	2,659.0	7.1	53.2	148.82	364.3	111.4	553.2	495.3	57.90	9.554		
2,800.0	2,771.4	2,755.4	2,755.4	7.6	55.1	150.18	364.3	111.4	576.5	516.5	60.02	9.605		
2,900.0	2,867.7	2,851.7	2,851.7	8.1	57.0	151.45	364.3	111.4	600.2	538.0	62.15	9.657		
3,000.0	2,964.0	2,948.0	2,948.0	8.7	59.0	152.61	364.3	111.4	624.0	559.8	64.27	9.709		
3,100.0	3,060.4	3,044.4	3,044.4	9.2	60.9	153.70	364.3	111.4	648.1	581.7	66.39	9.762		
3,200.0	3,156.7	3,140.7	3,140.7	9.7	62.8	154.70	364.3	111.4	672.4	603.9	68.52	9.814		
3,300.0	3,253.1	3,237.1	3,237.1	10.2	64.7	155.64	364.3	111.4	696.9	626.3	70.64	9.866		
3,400.0	3,349.4	3,333.4	3,333.4	10.8	66.7	156.51	364.3	111.4	721.6	648.8	72.77	9.917		
3,500.0	3,445.7	3,429.7	3,429.7	11.3	68.6	157.33	364.3	111.4	746.4	671.5	74.89	9.966		
3,600.0	3,542.1	3,526.1	3,526.1	11.9	70.5	158.09	364.3	111.4	771.3	694.3	77.01	10.015		
3,700.0	3,638.4	3,622.4	3,622.4	12.4	72.4	158.81	364.3	111.4	796.4	717.2	79.14	10.063		
3,800.0	3,734.7	3,718.7	3,718.7	13.0	74.4	159.48	364.3	111.4	821.5	740.3	81.26	10.110		
3,900.0	3,831.1	3,815.1	3,815.1	13.5	76.3	160.11	364.3	111.4	846.8	763.4	83.39	10.155		
4,000.0	3,927.4	3,911.4	3,911.4	14.1	78.2	160.71	364.3	111.4	872.2	786.7	85.51	10.199		
4,100.0	4,023.8	4,007.8	4,007.8	14.6	80.2	161.27	364.3	111.4	897.6	810.0	87.64	10.242		
4,200.0	4,120.1	4,104.1	4,104.1	15.2	82.1	161.81	364.3	111.4	923.2	833.4	89.77	10.284		
4,300.0	4,216.4	4,200.4	4,200.4	15.8	84.0	162.31	364.3	111.4	948.8	856.9	91.89	10.325		
4,400.0	4,312.8	4,296.8	4,296.8	16.3	85.9	162.79	364.3	111.4	974.4	880.4	94.02	10.364		
6,900.0	6,634.7	6,618.7	6,618.7	21.9	132.4	-69.38	364.3	111.4	997.3	852.7	144.62	6.896		
7,000.0	6,678.2	6,662.2	6,662.2	22.2	133.2	-76.30	364.3	111.4	945.5	795.4	150.16	6.297		
7,100.0	6,709.6	6,693.6	6,693.6	22.7	133.9	-82.41	364.3	111.4	897.4	743.0	154.42	5.812		
7,200.0	6,728.4	6,712.4	6,712.4	23.6	134.2	-87.14	364.3	111.4	855.9	698.8	157.13	5.447		
7,300.0	6,734.2	6,718.2	6,718.2	24.8	134.4	-90.12	364.3	111.4	823.7	664.8	158.83	5.186		
7,400.0	6,733.2	6,717.2	6,717.2	26.2	134.3	-90.09	364.3	111.4	802.5	642.2	160.33	5.005		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein (Existing) Sec.19-T5N-R64W - Lewis Klein 19-2 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7082-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
7,500.0	6,732.1	6,716.1	6,716.1	27.8	134.3	-90.02	364.3	111.4	793.5	631.5	162.04	4.897		
7,521.9	6,731.9	6,715.9	6,715.9	28.2	134.3	-90.00	364.3	111.4	793.2	630.8	162.45	4.883		
7,600.0	6,731.1	6,715.1	6,715.1	29.7	134.3	-89.94	364.3	111.4	797.1	633.1	163.91	4.863 SF		
7,700.0	6,730.0	6,714.0	6,714.0	31.7	134.3	-89.87	364.3	111.4	813.0	647.1	165.92	4.900		
7,800.0	6,729.0	6,713.0	6,713.0	33.8	134.3	-89.79	364.3	111.4	840.6	672.5	168.04	5.002		
7,900.0	6,727.9	6,711.9	6,711.9	36.0	134.2	-89.71	364.3	111.4	878.7	708.5	170.26	5.161		
8,000.0	6,726.9	6,710.9	6,710.9	38.3	134.2	-89.64	364.3	111.4	926.2	753.6	172.54	5.368		
8,100.0	6,725.8	6,709.8	6,709.8	40.7	134.2	-89.56	364.3	111.4	981.5	806.6	174.89	5.612		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19N-202 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+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	-67.62	61.9	-150.4	162.7					
100.0	100.0	100.0	100.0	0.1	0.1	-67.62	61.9	-150.4	162.7	162.5	0.22	723.788		
200.0	200.0	200.0	200.0	0.3	0.3	-67.62	61.9	-150.4	162.7	162.0	0.67	241.263		
300.0	300.0	300.0	300.0	0.6	0.6	-67.62	61.9	-150.4	162.7	161.6	1.12	144.758		
400.0	400.0	400.0	400.0	0.8	0.8	-67.62	61.9	-150.4	162.7	161.1	1.57	103.398		
500.0	500.0	500.0	500.0	1.0	1.0	-67.62	61.9	-150.4	162.7	160.7	2.02	80.421		
600.0	600.0	600.0	600.0	1.2	1.2	-67.62	61.9	-150.4	162.7	160.2	2.47	65.799		
700.0	700.0	700.0	700.0	1.5	1.5	-67.62	61.9	-150.4	162.7	159.8	2.92	55.676		
800.0	800.0	800.0	800.0	1.7	1.7	-67.62	61.9	-150.4	162.7	159.3	3.37	48.253 CC, ES		
900.0	900.0	896.3	896.3	1.9	1.9	-67.20	63.5	-151.0	163.8	160.0	3.81	42.972		
1,000.0	1,000.0	992.4	992.3	2.1	2.1	-65.97	68.0	-152.6	167.2	163.0	4.25	39.316		
1,100.0	1,100.0	1,088.1	1,087.6	2.4	2.3	-64.03	75.6	-155.2	173.1	168.4	4.70	36.820		
1,200.0	1,200.0	1,183.1	1,182.0	2.6	2.6	-61.55	86.1	-158.9	181.6	176.4	5.16	35.180		
1,300.0	1,300.0	1,277.3	1,275.1	2.8	2.8	-58.71	99.4	-163.5	193.0	187.3	5.64	34.189		
1,400.0	1,400.0	1,370.5	1,366.7	3.0	3.1	-55.70	115.4	-169.1	207.4	201.3	6.16	33.695		
1,500.0	1,500.0	1,463.7	1,457.8	3.3	3.4	-52.64	134.1	-175.7	225.0	218.3	6.70	33.574 SF		
1,600.0	1,600.0	1,561.2	1,552.8	3.5	3.8	66.23	154.6	-182.9	243.4	236.4	7.01	34.720		
1,700.0	1,699.8	1,658.4	1,647.6	3.7	4.2	69.37	175.0	-190.0	261.1	253.7	7.45	35.058		
1,800.0	1,799.5	1,755.3	1,742.0	3.9	4.6	72.72	195.4	-197.1	278.7	270.9	7.89	35.322		
1,900.0	1,898.7	1,851.7	1,836.1	4.1	5.0	76.25	215.6	-204.2	296.6	288.2	8.35	35.536		
2,000.0	1,997.5	1,947.6	1,929.5	4.3	5.4	79.90	235.8	-211.3	315.0	306.2	8.82	35.721		
2,100.0	2,095.6	2,042.8	2,022.4	4.6	5.8	83.64	255.8	-218.3	334.4	325.1	9.32	35.877		
2,200.0	2,193.1	2,137.2	2,114.4	4.9	6.2	87.40	275.6	-225.2	355.3	345.4	9.87	36.006		
2,300.0	2,289.7	2,230.7	2,205.6	5.3	6.7	91.24	295.3	-232.1	378.0	367.5	10.47	36.117		
2,400.0	2,386.0	2,323.9	2,296.4	5.7	7.1	95.10	314.9	-239.0	402.6	391.5	11.10	36.261		
2,500.0	2,482.3	2,417.2	2,387.3	6.2	7.5	98.54	334.5	-245.8	428.8	417.1	11.77	36.439		
2,600.0	2,578.7	2,510.4	2,478.2	6.7	7.9	101.60	354.1	-252.7	456.5	444.0	12.46	36.640		
2,700.0	2,675.0	2,603.6	2,569.1	7.1	8.4	104.31	373.6	-259.5	485.2	472.0	13.16	36.857		
2,800.0	2,771.4	2,696.8	2,660.0	7.6	8.8	106.74	393.2	-266.4	514.9	501.0	13.88	37.083		
2,900.0	2,867.7	2,790.1	2,750.9	8.1	9.2	108.91	412.8	-273.2	545.4	530.7	14.61	37.315		
3,000.0	2,964.0	2,883.3	2,841.7	8.7	9.6	110.85	432.4	-280.1	576.5	561.1	15.35	37.549		
3,100.0	3,060.4	2,976.5	2,932.6	9.2	10.1	112.60	452.0	-286.9	608.2	592.1	16.10	37.782		
3,200.0	3,156.7	3,069.7	3,023.5	9.7	10.5	114.19	471.6	-293.8	640.3	623.5	16.85	38.012		
3,300.0	3,253.1	3,163.0	3,114.4	10.2	10.9	115.62	491.2	-300.7	672.9	655.3	17.60	38.238		
3,400.0	3,349.4	3,256.2	3,205.3	10.8	11.4	116.92	510.8	-307.5	705.8	687.5	18.35	38.458		
3,500.0	3,445.7	3,349.4	3,296.2	11.3	11.8	118.11	530.4	-314.4	739.1	720.0	19.11	38.672		
3,600.0	3,542.1	3,442.6	3,387.1	11.9	12.2	119.20	550.0	-321.2	772.6	752.7	19.87	38.880		
3,700.0	3,638.4	3,535.9	3,477.9	12.4	12.7	120.20	569.6	-328.1	806.3	785.7	20.63	39.081		
3,800.0	3,734.7	3,629.1	3,568.8	13.0	13.1	121.13	589.1	-334.9	840.2	818.8	21.39	39.275		
3,900.0	3,831.1	3,722.3	3,659.7	13.5	13.5	121.98	608.7	-341.8	874.3	852.2	22.16	39.463		
4,000.0	3,927.4	3,815.5	3,750.6	14.1	14.0	122.76	628.3	-348.7	908.6	885.7	22.92	39.643		
4,100.0	4,023.8	3,908.7	3,841.5	14.6	14.4	123.50	647.9	-355.5	943.0	919.3	23.68	39.817		
4,200.0	4,120.1	4,002.0	3,932.4	15.2	14.8	124.18	667.5	-362.4	977.6	953.1	24.45	39.985		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19N-432 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-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		
900.0	900.0	900.0	900.0	1.9	1.9	-79.04	29.1	-150.4	153.2	149.4	3.82	40.102		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-79.04	29.1	-150.4	153.2	149.0	4.27	35.881 CC, ES		
1,100.0	1,100.0	1,096.8	1,096.8	2.4	2.4	-78.56	30.6	-151.2	154.3	149.6	4.71	32.743		
1,200.0	1,200.0	1,193.4	1,193.2	2.6	2.6	-77.16	35.0	-153.4	157.5	152.3	5.15	30.555		
1,300.0	1,300.0	1,289.5	1,289.0	2.8	2.8	-74.96	42.2	-157.0	163.0	157.4	5.60	29.101		
1,400.0	1,400.0	1,385.0	1,383.8	3.0	3.0	-72.15	52.2	-162.1	171.0	165.0	6.06	28.231		
1,500.0	1,500.0	1,480.2	1,478.0	3.3	3.3	-68.92	65.0	-168.5	182.0	175.4	6.54	27.836		
1,600.0	1,600.0	1,578.9	1,575.3	3.5	3.6	50.47	79.2	-175.7	193.3	186.3	6.95	27.826		
1,700.0	1,699.8	1,677.4	1,672.6	3.7	3.9	54.27	93.5	-183.0	203.2	195.8	7.37	27.565		
1,800.0	1,799.5	1,775.7	1,769.6	3.9	4.2	58.46	107.7	-190.1	212.2	204.4	7.80	27.190		
1,900.0	1,898.7	1,873.7	1,866.2	4.1	4.5	63.06	121.9	-197.3	220.7	212.5	8.25	26.765		
2,000.0	1,997.5	1,971.2	1,962.4	4.3	4.8	68.02	136.0	-204.4	229.4	220.7	8.71	26.328		
2,100.0	2,095.6	2,068.1	2,058.1	4.6	5.1	73.31	150.1	-211.5	238.8	229.6	9.21	25.916		
2,200.0	2,193.1	2,164.3	2,153.0	4.9	5.5	78.82	164.0	-218.6	249.6	239.8	9.77	25.561		
2,300.0	2,289.7	2,259.7	2,247.1	5.3	5.8	84.51	177.8	-225.6	262.5	252.1	10.38	25.298		
2,400.0	2,386.0	2,354.8	2,341.0	5.7	6.1	90.02	191.6	-232.5	278.0	267.0	11.03	25.206 SF		
2,500.0	2,482.3	2,449.9	2,434.8	6.2	6.5	94.95	205.4	-239.5	296.0	284.3	11.71	25.276		
2,600.0	2,578.7	2,545.1	2,528.7	6.7	6.8	99.31	219.1	-246.4	315.9	303.5	12.41	25.466		
2,700.0	2,675.0	2,640.2	2,622.6	7.1	7.1	103.17	232.9	-253.4	337.5	324.4	13.11	25.741		
2,800.0	2,771.4	2,735.3	2,716.4	7.6	7.5	106.57	246.7	-260.3	360.5	346.7	13.82	26.074		
2,900.0	2,867.7	2,830.4	2,810.3	8.1	7.8	109.57	260.4	-267.3	384.5	370.0	14.54	26.446		
3,000.0	2,964.0	2,925.6	2,904.2	8.7	8.2	112.23	274.2	-274.3	409.5	394.2	15.26	26.840		
3,100.0	3,060.4	3,020.7	2,998.0	9.2	8.5	114.58	288.0	-281.2	435.2	419.2	15.97	27.246		
3,200.0	3,156.7	3,115.8	3,091.9	9.7	8.9	116.68	301.8	-288.2	461.5	444.8	16.69	27.655		
3,300.0	3,253.1	3,210.9	3,185.8	10.2	9.2	118.55	315.5	-295.1	488.4	471.0	17.40	28.062		
3,400.0	3,349.4	3,306.1	3,279.6	10.8	9.6	120.23	329.3	-302.1	515.7	497.6	18.12	28.462		
3,500.0	3,445.7	3,401.2	3,373.5	11.3	9.9	121.75	343.1	-309.1	543.4	524.6	18.83	28.853		
3,600.0	3,542.1	3,496.3	3,467.4	11.9	10.3	123.12	356.9	-316.0	571.4	551.9	19.55	29.234		
3,700.0	3,638.4	3,591.4	3,561.2	12.4	10.6	124.36	370.6	-323.0	599.7	579.5	20.26	29.602		
3,800.0	3,734.7	3,686.6	3,655.1	13.0	11.0	125.49	384.4	-329.9	628.2	607.3	20.97	29.958		
3,900.0	3,831.1	3,781.7	3,749.0	13.5	11.3	126.53	398.2	-336.9	657.0	635.3	21.68	30.300		
4,000.0	3,927.4	3,876.8	3,842.8	14.1	11.7	127.47	411.9	-343.9	685.9	663.5	22.39	30.630		
4,100.0	4,023.8	3,971.9	3,936.7	14.6	12.0	128.35	425.7	-350.8	715.0	691.9	23.10	30.947		
4,200.0	4,120.1	4,067.1	4,030.6	15.2	12.4	129.15	439.5	-357.8	744.2	720.4	23.81	31.252		
4,300.0	4,216.4	4,162.2	4,124.4	15.8	12.7	129.90	453.3	-364.7	773.6	749.0	24.52	31.544		
4,400.0	4,312.8	4,257.3	4,218.3	16.3	13.1	130.59	467.0	-371.7	803.0	777.8	25.23	31.825		
4,500.0	4,409.1	4,352.4	4,312.1	16.9	13.4	131.23	480.8	-378.6	832.6	806.7	25.94	32.094		
4,600.0	4,505.5	4,447.6	4,406.0	17.5	13.8	131.83	494.6	-385.6	862.3	835.6	26.65	32.353		
4,700.0	4,601.8	4,542.7	4,499.9	18.0	14.1	132.39	508.4	-392.6	892.0	864.6	27.36	32.601		
4,800.0	4,698.1	4,637.8	4,593.7	18.6	14.5	132.91	522.1	-399.5	921.8	893.7	28.07	32.839		
4,900.0	4,794.5	4,732.9	4,687.6	19.2	14.8	133.40	535.9	-406.5	951.7	922.9	28.78	33.068		
5,000.0	4,890.8	4,828.1	4,781.5	19.7	15.2	133.86	549.7	-413.4	981.6	952.1	29.49	33.288		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-2.58	61.9	-2.8	62.0					
100.0	100.0	100.0	100.0	0.1	0.1	-2.58	61.9	-2.8	62.0	61.8	0.22	275.822		
200.0	200.0	200.0	200.0	0.3	0.3	-2.58	61.9	-2.8	62.0	61.3	0.67	91.941		
300.0	300.0	300.0	300.0	0.6	0.6	-2.58	61.9	-2.8	62.0	60.9	1.12	55.164		
400.0	400.0	400.0	400.0	0.8	0.8	-2.58	61.9	-2.8	62.0	60.4	1.57	39.403		
500.0	500.0	500.0	500.0	1.0	1.0	-2.58	61.9	-2.8	62.0	60.0	2.02	30.647		
600.0	600.0	600.0	600.0	1.2	1.2	-2.58	61.9	-2.8	62.0	59.5	2.47	25.075		
700.0	700.0	700.0	700.0	1.5	1.5	-2.58	61.9	-2.8	62.0	59.1	2.92	21.217		
800.0	800.0	800.0	800.0	1.7	1.7	-2.58	61.9	-2.8	62.0	58.6	3.37	18.388		
900.0	900.0	900.0	900.0	1.9	1.9	-2.58	61.9	-2.8	62.0	58.2	3.82	16.225		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-2.58	61.9	-2.8	62.0	57.7	4.27	14.517		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-2.58	61.9	-2.8	62.0	57.3	4.72	13.134		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-2.58	61.9	-2.8	62.0	56.8	5.17	11.992		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-2.58	61.9	-2.8	62.0	56.4	5.62	11.033		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-2.58	61.9	-2.8	62.0	55.9	6.07	10.216		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-2.58	61.9	-2.8	62.0	55.5	6.52	9.511 CC, ES		
1,600.0	1,600.0	1,599.1	1,599.1	3.5	3.5	113.42	62.6	-4.4	63.4	56.5	6.94	9.141		
1,700.0	1,699.8	1,698.0	1,697.9	3.7	3.7	113.43	64.6	-9.1	67.7	60.4	7.34	9.224		
1,800.0	1,799.5	1,796.7	1,796.2	3.9	3.9	113.44	67.8	-17.0	74.8	67.1	7.76	9.643		
1,900.0	1,898.7	1,895.4	1,894.1	4.1	4.1	113.49	72.3	-27.9	84.7	76.5	8.21	10.324		
2,000.0	1,997.5	1,994.6	1,992.6	4.3	4.4	114.82	77.3	-39.7	96.5	87.8	8.68	11.107		
2,100.0	2,095.6	2,093.6	2,090.7	4.6	4.6	117.43	82.2	-51.6	109.8	100.6	9.19	11.948		
2,200.0	2,193.1	2,192.2	2,188.4	4.9	4.9	120.79	87.1	-63.4	125.1	115.4	9.72	12.866		
2,300.0	2,289.7	2,290.2	2,285.6	5.3	5.2	124.53	91.9	-75.1	142.7	132.4	10.28	13.878		
2,400.0	2,386.0	2,388.0	2,382.6	5.7	5.5	127.93	96.8	-86.8	161.4	150.6	10.87	14.850		
2,500.0	2,482.3	2,485.8	2,479.6	6.2	5.7	130.61	101.6	-98.5	180.6	169.2	11.47	15.744		
2,600.0	2,578.7	2,583.7	2,576.6	6.7	6.0	132.78	106.5	-110.2	200.1	188.0	12.08	16.561		
2,700.0	2,675.0	2,681.5	2,673.6	7.1	6.3	134.56	111.4	-121.9	219.8	207.1	12.70	17.306		
2,800.0	2,771.4	2,779.3	2,770.6	7.6	6.6	136.05	116.2	-133.6	239.7	226.4	13.33	17.986		
2,900.0	2,867.7	2,877.1	2,867.6	8.1	6.9	137.31	121.1	-145.3	259.7	245.8	13.96	18.607		
3,000.0	2,964.0	2,975.0	2,964.6	8.7	7.2	138.39	125.9	-157.0	279.8	265.3	14.59	19.175		
3,100.0	3,060.4	3,072.8	3,061.6	9.2	7.5	139.33	130.8	-168.7	300.0	284.8	15.23	19.696		
3,200.0	3,156.7	3,170.6	3,158.6	9.7	7.8	140.15	135.6	-180.5	320.3	304.4	15.88	20.174		
3,300.0	3,253.1	3,268.4	3,255.6	10.2	8.1	140.87	140.5	-192.2	340.6	324.1	16.52	20.614		
3,400.0	3,349.4	3,366.3	3,352.6	10.8	8.4	141.51	145.3	-203.9	361.0	343.8	17.17	21.021		
3,500.0	3,445.7	3,464.1	3,449.6	11.3	8.7	142.08	150.2	-215.6	381.4	363.6	17.83	21.397		
3,600.0	3,542.1	3,561.9	3,546.6	11.9	9.0	142.59	155.1	-227.3	401.9	383.4	18.48	21.745		
3,700.0	3,638.4	3,659.8	3,643.6	12.4	9.3	143.06	159.9	-239.0	422.3	403.2	19.14	22.069		
3,800.0	3,734.7	3,757.6	3,740.6	13.0	9.7	143.48	164.8	-250.7	442.8	423.0	19.80	22.370		
3,900.0	3,831.1	3,855.4	3,837.7	13.5	10.0	143.86	169.6	-262.4	463.4	442.9	20.46	22.651		
4,000.0	3,927.4	3,953.2	3,934.7	14.1	10.3	144.21	174.5	-274.1	483.9	462.8	21.12	22.914		
4,100.0	4,023.8	4,051.1	4,031.7	14.6	10.6	144.53	179.3	-285.8	504.4	482.7	21.78	23.160		
4,200.0	4,120.1	4,148.9	4,128.7	15.2	10.9	144.83	184.2	-297.5	525.0	502.6	22.45	23.391		
4,300.0	4,216.4	4,246.7	4,225.7	15.8	11.2	145.11	189.0	-309.2	545.6	522.5	23.11	23.607		
4,400.0	4,312.8	4,344.5	4,322.7	16.3	11.5	145.36	193.9	-320.9	566.2	542.4	23.78	23.811		
4,500.0	4,409.1	4,442.4	4,419.7	16.9	11.9	145.60	198.8	-332.6	586.8	562.3	24.44	24.004		
4,600.0	4,505.5	4,540.2	4,516.7	17.5	12.2	145.82	203.6	-344.3	607.4	582.3	25.11	24.186		
4,700.0	4,601.8	4,638.0	4,613.7	18.0	12.5	146.03	208.5	-356.0	628.0	602.2	25.78	24.357		
4,800.0	4,698.1	4,735.9	4,710.7	18.6	12.8	146.22	213.3	-367.8	648.6	622.2	26.45	24.520		
4,900.0	4,794.5	4,833.7	4,807.7	19.2	13.1	146.40	218.2	-379.5	669.2	642.1	27.12	24.674		
5,000.0	4,890.8	4,931.5	4,904.7	19.7	13.4	146.57	223.0	-391.2	689.9	662.1	27.80	24.820		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-312 - Wellbore #1 - Plan #1 (3-05-14)												Offset Site Error:	0.0 ft	
Survey Program: 0-MWD												Offset Well Error:	0.0 ft	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,987.1	5,029.3	5,001.7	20.3	13.8	146.73		227.9	-402.9	710.5	682.1	28.47	24.959	
5,200.0	5,083.6	5,127.3	5,098.8	20.8	14.1	146.98		232.8	-414.6	730.8	701.6	29.15	25.067	
5,300.0	5,180.9	5,225.7	5,196.4	21.2	14.4	147.17		237.6	-426.4	748.4	718.6	29.81	25.107	
5,400.0	5,278.9	5,324.6	5,294.4	21.5	14.7	147.18		242.5	-438.2	763.2	732.8	30.46	25.057	
5,500.0	5,377.5	5,423.8	5,392.8	21.8	15.0	147.02		247.5	-450.1	775.1	744.0	31.10	24.925	
5,600.0	5,476.6	5,523.2	5,491.4	22.1	15.4	146.70		252.4	-462.0	784.1	752.4	31.72	24.717	
5,700.0	5,576.2	5,620.5	5,587.9	22.3	15.6	146.27		257.0	-473.0	790.3	758.1	32.28	24.483	
5,800.0	5,676.0	5,716.7	5,683.7	22.5	15.9	145.91		260.4	-481.2	794.2	761.4	32.72	24.272	
5,900.0	5,775.9	5,813.2	5,780.1	22.6	16.0	145.63		262.6	-486.5	795.6	762.5	33.08	24.051	
6,000.0	5,875.9	5,909.9	5,876.7	22.7	16.2	29.47		263.5	-488.7	795.3	761.6	33.74	23.573	
6,100.0	5,975.9	6,009.1	5,975.9	22.8	16.4	-60.54		263.5	-488.8	795.3	761.6	33.70	23.597	
6,200.0	6,075.6	6,103.5	6,070.3	22.9	16.5	-61.18		263.5	-488.8	791.8	757.9	33.93	23.336	
6,300.0	6,173.5	6,173.2	6,139.9	22.8	16.6	-62.36		263.5	-485.6	784.4	750.3	34.03	23.046	
6,400.0	6,267.8	6,239.9	6,206.0	22.6	16.6	-63.85		263.5	-476.6	775.2	741.2	34.06	22.759	
6,500.0	6,357.1	6,300.0	6,264.7	22.4	16.6	-65.53		263.5	-463.7	764.8	730.7	34.07	22.449	
6,600.0	6,439.8	6,375.4	6,336.5	22.2	16.6	-67.80		263.5	-440.9	753.2	719.0	34.19	22.032	
6,700.0	6,514.5	6,450.0	6,405.1	22.0	16.5	-70.38		263.5	-411.5	741.2	706.8	34.45	21.514	
6,800.0	6,579.8	6,515.3	6,462.5	21.9	16.5	-72.99		263.5	-380.5	729.2	694.3	34.89	20.899	
6,900.0	6,634.7	6,587.5	6,522.6	21.9	16.4	-75.99		263.5	-340.5	717.9	682.3	35.62	20.154	
7,000.0	6,678.2	6,661.7	6,580.2	22.2	16.4	-79.21		263.5	-293.8	707.9	671.2	36.65	19.316	
7,100.0	6,709.6	6,738.4	6,634.6	22.7	16.5	-82.61		263.5	-239.8	699.9	661.9	37.98	18.428	
7,200.0	6,728.4	6,818.1	6,685.2	23.6	16.7	-86.13		263.5	-178.3	694.5	654.9	39.61	17.535	
7,300.0	6,734.2	6,901.5	6,730.9	24.8	17.1	-89.73		263.5	-108.5	692.5	651.0	41.51	16.682	
7,307.5	6,734.2	6,908.0	6,734.2	24.9	17.2	-90.00		263.5	-102.9	692.5	650.8	41.68	16.615	
7,400.0	6,733.2	6,992.7	6,771.9	26.2	17.8	-93.19		263.5	-27.1	693.7	650.0	43.78	15.848	
7,500.0	6,732.1	7,094.6	6,805.9	27.8	19.0	-96.06		263.5	68.9	696.7	650.1	46.54	14.969	
7,600.0	6,731.1	7,205.1	6,827.9	29.7	20.6	-97.95		263.5	177.0	699.3	649.4	49.89	14.017	
7,700.0	6,730.0	7,319.4	6,834.1	31.7	22.6	-98.55		263.5	291.0	700.2	646.4	53.80	13.015	
7,800.0	6,729.0	7,419.4	6,832.7	33.8	24.6	-98.52		263.5	391.0	700.2	642.3	57.84	12.105	
7,900.0	6,727.9	7,519.4	6,831.3	36.0	26.7	-98.49		263.5	491.0	700.1	638.0	62.12	11.271	
8,000.0	6,726.9	7,619.4	6,829.9	38.3	28.9	-98.46		263.5	591.0	700.1	633.5	66.59	10.513	
8,100.0	6,725.8	7,719.4	6,828.5	40.7	31.2	-98.43		263.5	691.0	700.0	628.8	71.22	9.829	
8,200.0	6,724.8	7,819.4	6,827.1	43.1	33.6	-98.40		263.5	791.0	700.0	624.0	75.98	9.212	
8,300.0	6,723.7	7,919.4	6,825.6	45.6	36.0	-98.37		263.5	891.0	699.9	619.1	80.85	8.657	
8,400.0	6,722.7	8,019.4	6,824.2	48.1	38.5	-98.34		263.5	991.0	699.9	614.1	85.80	8.157	
8,500.0	6,721.7	8,119.4	6,822.8	50.7	41.0	-98.31		263.5	1,091.0	699.8	609.0	90.83	7.705	
8,600.0	6,720.6	8,219.4	6,821.4	53.2	43.6	-98.28		263.5	1,190.9	699.8	603.8	95.92	7.296	
8,700.0	6,719.6	8,319.4	6,820.0	55.8	46.2	-98.25		263.5	1,290.9	699.7	598.6	101.05	6.924	
8,800.0	6,718.5	8,419.4	6,818.6	58.4	48.8	-98.22		263.5	1,390.9	699.6	593.4	106.24	6.586	
8,900.0	6,717.5	8,519.4	6,817.2	61.0	51.4	-98.19		263.5	1,490.9	699.6	588.1	111.46	6.277	
9,000.0	6,716.4	8,619.4	6,815.8	63.7	54.1	-98.16		263.5	1,590.9	699.5	582.8	116.71	5.994	
9,100.0	6,715.4	8,719.4	6,814.3	66.4	56.8	-98.13		263.5	1,690.9	699.5	577.5	121.99	5.734	
9,200.0	6,714.3	8,819.4	6,812.9	69.0	59.5	-98.10		263.5	1,790.9	699.4	572.1	127.30	5.494	
9,300.0	6,713.3	8,919.4	6,811.5	71.7	62.2	-98.08		263.5	1,890.9	699.4	566.8	132.63	5.273	
9,400.0	6,712.2	9,019.4	6,810.1	74.4	64.9	-98.05		263.5	1,990.9	699.3	561.4	137.98	5.068	
9,500.0	6,711.2	9,119.4	6,808.7	77.1	67.6	-98.02		263.5	2,090.8	699.3	555.9	143.35	4.878	
9,600.0	6,710.1	9,219.4	6,807.3	79.8	70.3	-97.99		263.5	2,190.8	699.2	550.5	148.73	4.701	
9,700.0	6,709.1	9,319.4	6,805.9	82.5	73.0	-97.96		263.5	2,290.8	699.2	545.1	154.13	4.536	
9,800.0	6,708.0	9,419.4	6,804.4	85.2	75.7	-97.93		263.5	2,390.8	699.1	539.6	159.54	4.382	
9,900.0	6,707.0	9,519.4	6,803.0	87.9	78.5	-97.90		263.5	2,490.8	699.1	534.1	164.96	4.238	
10,000.0	6,705.9	9,619.4	6,801.6	90.7	81.2	-97.87		263.5	2,590.8	699.0	528.6	170.40	4.102	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 190-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 190-HZ Pad Sec.19-T5N-R64W - Klein 190-312 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,100.0	6,704.9	9,719.4	6,800.2	93.4	84.0	-97.84	263.5	2,690.8	699.0	523.1	175.84	3.975		
10,200.0	6,703.8	9,819.4	6,798.8	96.1	86.7	-97.81	263.5	2,790.8	698.9	517.6	181.29	3.855		
10,300.0	6,702.8	9,919.4	6,797.4	98.9	89.5	-97.78	263.5	2,890.8	698.9	512.1	186.75	3.742		
10,400.0	6,701.8	10,019.4	6,796.0	101.6	92.2	-97.75	263.5	2,990.7	698.8	506.6	192.22	3.636		
10,500.0	6,700.7	10,119.4	6,794.5	104.4	95.0	-97.72	263.5	3,090.7	698.8	501.1	197.69	3.535		
10,600.0	6,699.7	10,219.4	6,793.1	107.1	97.8	-97.69	263.5	3,190.7	698.7	495.6	203.17	3.439		
10,700.0	6,698.6	10,319.4	6,791.7	109.9	100.5	-97.66	263.5	3,290.7	698.7	490.0	208.66	3.348		
10,800.0	6,697.6	10,419.4	6,790.3	112.6	103.3	-97.63	263.5	3,390.7	698.6	484.5	214.15	3.262		
10,900.0	6,696.5	10,519.4	6,788.9	115.4	106.1	-97.60	263.5	3,490.7	698.6	478.9	219.65	3.181		
11,000.0	6,695.5	10,619.4	6,787.5	118.2	108.8	-97.57	263.5	3,590.7	698.5	473.4	225.15	3.103		
11,100.0	6,694.4	10,719.4	6,786.1	120.9	111.6	-97.54	263.5	3,690.7	698.5	467.8	230.65	3.028		
11,200.0	6,693.4	10,819.4	6,784.7	123.7	114.4	-97.51	263.5	3,790.7	698.4	462.3	236.17	2.957		
11,300.0	6,692.3	10,919.4	6,783.2	126.5	117.2	-97.48	263.5	3,890.7	698.4	456.7	241.68	2.890		
11,400.0	6,691.3	11,019.4	6,781.8	129.2	119.9	-97.45	263.5	3,990.6	698.3	451.1	247.20	2.825		
11,500.0	6,690.2	11,119.4	6,780.4	132.0	122.7	-97.42	263.5	4,090.6	698.3	445.6	252.72	2.763		
11,600.0	6,689.2	11,219.4	6,779.0	134.8	125.5	-97.39	263.5	4,190.6	698.3	440.0	258.25	2.704		
11,700.0	6,688.1	11,319.4	6,777.6	137.6	128.3	-97.36	263.5	4,290.6	698.2	434.4	263.78	2.647		
11,800.0	6,687.1	11,419.4	6,776.2	140.3	131.1	-97.33	263.5	4,390.6	698.2	428.8	269.31	2.592		
11,900.0	6,686.0	11,519.4	6,774.8	143.1	133.9	-97.30	263.5	4,490.6	698.1	423.3	274.84	2.540		
12,000.0	6,685.0	11,619.4	6,773.3	145.9	136.6	-97.27	263.5	4,590.6	698.1	417.7	280.38	2.490		
12,100.0	6,684.0	11,719.4	6,771.9	148.7	139.4	-97.24	263.5	4,690.6	698.0	412.1	285.92	2.441		
12,200.0	6,682.9	11,819.4	6,770.5	151.4	142.2	-97.21	263.5	4,790.6	698.0	406.5	291.46	2.395		
12,300.0	6,681.9	11,919.4	6,769.1	154.2	145.0	-97.18	263.5	4,890.5	697.9	400.9	297.01	2.350		
12,400.0	6,680.8	12,019.4	6,767.7	157.0	147.8	-97.15	263.5	4,990.5	697.9	395.3	302.56	2.307		
12,500.0	6,679.8	12,119.4	6,766.3	159.8	150.6	-97.12	263.5	5,090.5	697.8	389.7	308.11	2.265		
12,600.0	6,678.7	12,219.4	6,764.9	162.6	153.4	-97.09	263.5	5,190.5	697.8	384.1	313.66	2.225		
12,700.0	6,677.7	12,319.4	6,763.4	165.4	156.2	-97.06	263.5	5,290.5	697.7	378.5	319.21	2.186		
12,800.0	6,676.6	12,419.4	6,762.0	168.1	159.0	-97.03	263.5	5,390.5	697.7	372.9	324.77	2.148		
12,900.0	6,675.6	12,519.4	6,760.6	170.9	161.7	-97.00	263.5	5,490.5	697.7	367.3	330.33	2.112		
13,000.0	6,674.5	12,619.4	6,759.2	173.7	164.5	-96.97	263.5	5,590.5	697.6	361.7	335.89	2.077		
13,100.0	6,673.5	12,719.4	6,757.8	176.5	167.3	-96.94	263.5	5,690.5	697.6	356.1	341.45	2.043		
13,200.0	6,672.4	12,819.4	6,756.4	179.3	170.1	-96.91	263.5	5,790.5	697.5	350.5	347.01	2.010		
13,300.0	6,671.4	12,919.4	6,755.0	182.1	172.9	-96.88	263.5	5,890.4	697.5	344.9	352.58	1.978		
13,400.0	6,670.3	13,019.3	6,753.5	184.9	175.7	-96.85	263.5	5,990.4	697.4	339.3	358.14	1.947		
13,500.0	6,669.3	13,119.3	6,752.1	187.7	178.5	-96.82	263.5	6,090.4	697.4	333.7	363.71	1.917		
13,600.0	6,668.2	13,219.3	6,750.7	190.5	181.3	-96.79	263.5	6,190.4	697.3	328.1	369.28	1.888		
13,700.0	6,667.2	13,319.3	6,749.3	193.2	184.1	-96.76	263.5	6,290.4	697.3	322.4	374.85	1.860		
13,800.0	6,666.2	13,419.3	6,747.9	196.0	186.9	-96.73	263.5	6,390.4	697.3	316.8	380.43	1.833		
13,900.0	6,665.1	13,519.3	6,746.5	198.8	189.7	-96.70	263.5	6,490.4	697.2	311.2	386.00	1.806		
14,000.0	6,664.1	13,619.3	6,745.1	201.6	192.5	-96.67	263.5	6,590.4	697.2	305.6	391.57	1.780		
14,100.0	6,663.0	13,719.3	6,743.7	204.4	195.3	-96.64	263.5	6,690.4	697.1	300.0	397.15	1.755		
14,200.0	6,662.0	13,819.3	6,742.2	207.2	198.1	-96.61	263.5	6,790.3	697.1	294.4	402.73	1.731		
14,268.1	6,661.2	13,887.5	6,741.3	209.1	200.0	-96.59	263.5	6,858.5	697.1	290.5	406.53	1.715		
14,291.9	6,661.0	13,907.1	6,741.0	209.8	200.5	-96.59	263.5	6,878.1	697.1	289.3	407.74	1.710 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-412 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	0.00	32.8	0.0	32.8					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	32.8	0.0	32.8	32.6	0.22	145.858		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	32.8	0.0	32.8	32.1	0.67	48.619		
300.0	300.0	300.0	300.0	0.6	0.6	0.00	32.8	0.0	32.8	31.7	1.12	29.172		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	32.8	0.0	32.8	31.2	1.57	20.837		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	32.8	0.0	32.8	30.8	2.02	16.206		
600.0	600.0	600.0	600.0	1.2	1.2	0.00	32.8	0.0	32.8	30.3	2.47	13.260		
700.0	700.0	700.0	700.0	1.5	1.5	0.00	32.8	0.0	32.8	29.9	2.92	11.220		
800.0	800.0	800.0	800.0	1.7	1.7	0.00	32.8	0.0	32.8	29.4	3.37	9.724		
900.0	900.0	900.0	900.0	1.9	1.9	0.00	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	0.00	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	0.00	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	0.00	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	0.00	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	0.00	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	0.00	32.8	0.0	32.8	26.3	6.52	5.030 CC, ES		
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	118.65	32.8	0.0	33.6	26.6	6.95	4.834		
1,700.0	1,699.8	1,699.8	1,699.8	3.7	3.7	125.85	32.8	0.0	36.4	29.0	7.36	4.944		
1,800.0	1,799.5	1,799.5	1,799.5	3.9	3.9	135.41	32.8	0.0	42.1	34.3	7.77	5.417		
1,900.0	1,898.7	1,898.7	1,898.7	4.1	4.2	144.84	32.8	0.0	51.5	43.3	8.17	6.301		
2,000.0	1,997.5	1,997.5	1,997.5	4.3	4.4	152.66	32.8	0.0	65.0	56.4	8.57	7.580		
2,100.0	2,095.6	2,097.2	2,097.2	4.6	4.6	157.75	33.0	-1.6	81.5	72.5	8.95	9.107		
2,200.0	2,193.1	2,197.4	2,197.2	4.9	4.8	160.15	33.7	-6.7	99.6	90.3	9.32	10.688		
2,300.0	2,289.7	2,297.8	2,297.3	5.3	5.0	160.99	34.8	-15.3	118.8	109.1	9.71	12.236		
2,400.0	2,386.0	2,398.5	2,397.2	5.7	5.2	160.66	36.3	-27.4	137.0	126.8	10.18	13.455		
2,500.0	2,482.3	2,497.0	2,494.8	6.2	5.5	160.02	38.0	-40.5	154.3	143.7	10.67	14.459		
2,600.0	2,578.7	2,595.5	2,592.4	6.7	5.7	159.51	39.7	-53.6	171.7	160.5	11.18	15.354		
2,700.0	2,675.0	2,693.9	2,690.0	7.1	6.0	159.09	41.4	-66.6	189.1	177.4	11.71	16.151		
2,800.0	2,771.4	2,792.4	2,787.6	7.6	6.2	158.75	43.1	-79.7	206.5	194.2	12.24	16.863		
2,900.0	2,867.7	2,890.9	2,885.1	8.1	6.5	158.46	44.8	-92.8	223.9	211.1	12.79	17.500		
3,000.0	2,964.0	2,989.3	2,982.7	8.7	6.8	158.21	46.5	-105.9	241.3	227.9	13.35	18.071		
3,100.0	3,060.4	3,087.8	3,080.3	9.2	7.1	157.99	48.2	-118.9	258.7	244.8	13.92	18.584		
3,200.0	3,156.7	3,186.3	3,177.9	9.7	7.4	157.80	49.9	-132.0	276.1	261.6	14.50	19.048		
3,300.0	3,253.1	3,284.7	3,275.5	10.2	7.7	157.64	51.6	-145.1	293.5	278.4	15.08	19.467		
3,400.0	3,349.4	3,383.2	3,373.1	10.8	7.9	157.49	53.3	-158.2	310.9	295.3	15.67	19.847		
3,500.0	3,445.7	3,481.7	3,470.6	11.3	8.2	157.36	55.0	-171.2	328.4	312.1	16.26	20.193		
3,600.0	3,542.1	3,580.1	3,568.2	11.9	8.5	157.24	56.7	-184.3	345.8	328.9	16.86	20.509		
3,700.0	3,638.4	3,678.6	3,665.8	12.4	8.8	157.13	58.4	-197.4	363.2	345.7	17.46	20.797		
3,800.0	3,734.7	3,777.1	3,763.4	13.0	9.1	157.03	60.1	-210.4	380.6	362.5	18.07	21.062		
3,900.0	3,831.1	3,875.5	3,861.0	13.5	9.5	156.94	61.8	-223.5	398.0	379.4	18.68	21.305		
4,000.0	3,927.4	3,974.0	3,958.5	14.1	9.8	156.86	63.5	-236.6	415.5	396.2	19.30	21.530		
4,100.0	4,023.8	4,072.5	4,056.1	14.6	10.1	156.79	65.2	-249.7	432.9	413.0	19.92	21.737		
4,200.0	4,120.1	4,171.0	4,153.7	15.2	10.4	156.72	66.9	-262.7	450.3	429.8	20.54	21.929		
4,300.0	4,216.4	4,269.4	4,251.3	15.8	10.7	156.65	68.6	-275.8	467.7	446.6	21.16	22.107		
4,400.0	4,312.8	4,367.9	4,348.9	16.3	11.0	156.60	70.3	-288.9	485.2	463.4	21.78	22.272		
4,500.0	4,409.1	4,466.4	4,446.5	16.9	11.3	156.54	72.0	-302.0	502.6	480.2	22.41	22.426		
4,600.0	4,505.5	4,564.8	4,544.0	17.5	11.6	156.49	73.7	-315.0	520.0	497.0	23.04	22.570		
4,700.0	4,601.8	4,663.3	4,641.6	18.0	12.0	156.44	75.4	-328.1	537.5	513.8	23.67	22.705		
4,800.0	4,698.1	4,761.8	4,739.2	18.6	12.3	156.39	77.1	-341.2	554.9	530.6	24.30	22.831		
4,900.0	4,794.5	4,860.2	4,836.8	19.2	12.6	156.35	78.8	-354.3	572.3	547.4	24.94	22.949		
5,000.0	4,890.8	4,958.7	4,934.4	19.7	12.9	156.31	80.5	-367.3	589.7	564.2	25.57	23.060		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-412 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	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	4,987.1	5,057.2	5,032.0	20.3	13.2	156.27	156.27	82.2	-380.4	607.2	581.0	26.21	23.164	
5,200.0	5,083.6	5,155.7	5,129.6	20.8	13.6	156.29	156.29	83.9	-393.5	624.1	597.3	26.87	23.226	
5,300.0	5,180.9	5,254.7	5,227.7	21.2	13.9	156.24	156.24	85.6	-406.6	638.3	610.8	27.52	23.191	
5,400.0	5,278.9	5,354.0	5,326.1	21.5	14.2	156.05	156.05	87.3	-419.8	649.3	621.1	28.16	23.054	
5,500.0	5,377.5	5,453.6	5,424.8	21.8	14.5	155.71	155.71	89.0	-433.0	657.2	628.4	28.79	22.824	
5,600.0	5,476.6	5,553.3	5,523.6	22.1	14.9	155.24	155.24	90.7	-446.3	661.9	632.5	29.41	22.508	
5,700.0	5,576.2	5,652.4	5,621.8	22.3	15.2	154.62	154.62	92.5	-459.4	663.5	633.5	30.01	22.113	
5,800.0	5,676.0	5,741.4	5,710.3	22.5	15.4	154.05	154.05	93.8	-469.7	663.0	632.5	30.48	21.751	
5,900.0	5,775.9	5,830.8	5,799.2	22.6	15.6	153.55	153.55	94.8	-477.3	660.9	630.1	30.87	21.409	
6,000.0	5,875.9	5,920.3	5,888.7	22.7	15.8	153.19	153.19	95.4	-482.2	658.3	623.1	35.20	18.700	
6,100.0	5,975.9	6,010.1	5,978.4	22.8	15.9	152.97	152.97	95.7	-484.2	657.1	625.6	31.59	20.805	
6,200.0	6,075.6	6,107.3	6,075.6	22.9	16.1	152.75	152.75	95.7	-484.3	652.7	621.0	31.78	20.539	
6,300.0	6,173.5	6,187.2	6,155.5	22.8	16.2	152.50	152.50	95.7	-483.4	641.7	609.7	32.00	20.055	
6,400.0	6,267.8	6,250.0	6,218.0	22.6	16.3	152.49	152.49	95.7	-477.8	628.2	596.0	32.13	19.553	
6,500.0	6,357.1	6,320.2	6,287.1	22.4	16.3	152.05	152.05	95.7	-465.5	613.0	580.7	32.34	18.955	
6,600.0	6,439.8	6,388.1	6,352.5	22.2	16.3	152.98	152.98	95.7	-447.6	596.9	564.3	32.69	18.263	
6,700.0	6,514.5	6,457.1	6,417.2	22.0	16.2	152.34	152.34	95.7	-423.5	580.5	547.3	33.24	17.465	
6,800.0	6,579.8	6,527.7	6,480.8	21.9	16.2	152.12	152.12	95.7	-392.9	564.6	530.5	34.05	16.583	
6,900.0	6,634.7	6,600.0	6,542.8	21.9	16.2	152.22	152.22	95.7	-355.6	550.1	514.9	35.11	15.666	
7,000.0	6,678.2	6,674.7	6,602.8	22.2	16.2	152.74	152.74	95.7	-311.2	537.9	501.5	36.42	14.771	
7,100.0	6,709.6	6,752.2	6,660.1	22.7	16.2	153.44	153.44	95.7	-259.1	529.2	491.3	37.91	13.962	
7,200.0	6,728.4	6,833.3	6,714.1	23.6	16.5	158.30	158.30	95.7	-198.7	524.9	485.4	39.55	13.271	
7,234.6	6,731.9	6,862.3	6,731.9	24.0	16.6	159.00	159.00	95.7	-175.7	524.6	484.4	40.17	13.058	
7,300.0	6,734.2	6,918.8	6,763.8	24.8	16.9	159.22	159.22	95.7	-129.2	525.8	484.5	41.32	12.724	
7,400.0	6,733.2	7,013.3	6,809.4	26.2	17.6	158.22	158.22	95.7	-46.4	531.3	488.0	43.31	12.267	
7,500.0	6,732.1	7,120.7	6,848.2	27.8	18.8	152.44	152.44	95.7	53.6	538.5	492.8	45.73	11.776	
7,600.0	6,731.1	7,238.6	6,874.3	29.7	20.5	152.25	152.25	95.7	168.5	544.2	495.4	48.78	11.157	
7,700.0	6,730.0	7,343.9	6,885.9	31.7	22.3	152.53	152.53	95.7	273.2	547.5	495.3	52.22	10.485	
7,800.0	6,729.0	7,460.0	6,892.2	33.8	24.5	152.78	152.78	95.7	389.0	549.4	493.2	56.25	9.768	
7,900.0	6,727.9	7,561.7	6,891.6	36.0	26.7	152.33	152.33	95.7	490.7	549.5	489.1	60.41	9.097	
8,000.0	6,726.9	7,661.7	6,890.9	38.3	28.9	152.36	152.36	95.7	590.7	549.6	484.9	64.71	8.494	
8,100.0	6,725.8	7,761.7	6,890.2	40.7	31.2	152.40	152.40	95.7	690.7	549.8	480.6	69.17	7.948	
8,200.0	6,724.8	7,861.7	6,889.5	43.1	33.5	152.43	152.43	95.7	790.7	549.9	476.1	73.75	7.456	
8,300.0	6,723.7	7,961.7	6,888.8	45.6	36.0	152.47	152.47	95.7	890.7	550.0	471.5	78.43	7.012	
8,400.0	6,722.7	8,061.7	6,888.1	48.1	38.5	152.50	152.50	95.7	990.7	550.1	466.9	83.19	6.612	
8,500.0	6,721.7	8,161.7	6,887.4	50.7	41.0	152.53	152.53	95.7	1,090.7	550.2	462.1	88.02	6.250	
8,600.0	6,720.6	8,261.7	6,886.7	53.2	43.6	152.57	152.57	95.7	1,190.7	550.3	457.4	92.91	5.923	
8,700.0	6,719.6	8,361.7	6,886.0	55.8	46.2	152.60	152.60	95.7	1,290.7	550.4	452.5	97.85	5.625	
8,800.0	6,718.5	8,461.7	6,885.3	58.4	48.8	152.64	152.64	95.7	1,390.7	550.5	447.7	102.82	5.354	
8,900.0	6,717.5	8,561.7	6,884.6	61.0	51.4	152.67	152.67	95.7	1,490.7	550.6	442.8	107.83	5.106	
9,000.0	6,716.4	8,661.7	6,883.9	63.7	54.1	152.71	152.71	95.7	1,590.7	550.7	437.8	112.87	4.879	
9,100.0	6,715.4	8,761.7	6,883.2	66.4	56.7	152.74	152.74	95.7	1,690.7	550.8	432.9	117.94	4.670	
9,200.0	6,714.3	8,861.7	6,882.5	69.0	59.4	152.78	152.78	95.7	1,790.7	550.9	427.9	123.02	4.478	
9,300.0	6,713.3	8,961.7	6,881.8	71.7	62.1	152.81	152.81	95.7	1,890.7	551.0	422.9	128.13	4.300	
9,400.0	6,712.2	9,061.7	6,881.1	74.4	64.8	152.85	152.85	95.7	1,990.7	551.1	417.9	133.25	4.136	
9,500.0	6,711.2	9,161.7	6,880.4	77.1	67.5	152.88	152.88	95.7	2,090.6	551.2	412.8	138.39	3.983	
9,600.0	6,710.1	9,261.7	6,879.7	79.8	70.3	152.92	152.92	95.7	2,190.6	551.3	407.8	143.54	3.841	
9,700.0	6,709.1	9,361.7	6,879.0	82.5	73.0	152.95	152.95	95.7	2,290.6	551.4	402.7	148.71	3.708	
9,800.0	6,708.0	9,461.7	6,878.3	85.2	75.7	152.98	152.98	95.7	2,390.6	551.6	397.7	153.88	3.584	
9,900.0	6,707.0	9,561.7	6,877.6	87.9	78.5	153.02	153.02	95.7	2,490.6	551.7	392.6	159.06	3.468	
10,000.0	6,705.9	9,661.7	6,876.9	90.7	81.2	153.05	153.05	95.7	2,590.6	551.8	387.5	164.25	3.359	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19O-412 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	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	6,704.9	9,761.7	6,876.2	93.4	83.9	-108.09		95.7	2,690.6	551.9	382.4	169.44	3.257	
10,200.0	6,703.8	9,861.7	6,875.5	96.1	86.7	-108.12		95.7	2,790.6	552.0	377.3	174.64	3.161	
10,300.0	6,702.8	9,961.7	6,874.8	98.9	89.4	-108.16		95.7	2,890.6	552.1	372.2	179.85	3.070	
10,400.0	6,701.8	10,061.7	6,874.1	101.6	92.2	-108.19		95.7	2,990.6	552.2	367.1	185.06	2.984	
10,500.0	6,700.7	10,161.7	6,873.4	104.4	95.0	-108.23		95.7	3,090.6	552.3	362.0	190.27	2.903	
10,600.0	6,699.7	10,261.7	6,872.7	107.1	97.7	-108.26		95.7	3,190.6	552.4	356.9	195.49	2.826	
10,700.0	6,698.6	10,361.7	6,872.0	109.9	100.5	-108.29		95.7	3,290.6	552.5	351.8	200.71	2.753	
10,800.0	6,697.6	10,461.7	6,871.3	112.6	103.3	-108.33		95.7	3,390.6	552.6	346.7	205.94	2.684	
10,900.0	6,696.5	10,561.7	6,870.7	115.4	106.0	-108.36		95.7	3,490.6	552.8	341.6	211.16	2.618	
11,000.0	6,695.5	10,661.7	6,870.0	118.2	108.8	-108.40		95.7	3,590.6	552.9	336.5	216.39	2.555	
11,100.0	6,694.4	10,761.7	6,869.3	120.9	111.6	-108.43		95.7	3,690.6	553.0	331.3	221.62	2.495	
11,200.0	6,693.4	10,861.7	6,868.6	123.7	114.4	-108.47		95.7	3,790.6	553.1	326.2	226.86	2.438	
11,300.0	6,692.3	10,961.7	6,867.9	126.5	117.1	-108.50		95.7	3,890.6	553.2	321.1	232.09	2.384	
11,400.0	6,691.3	11,061.7	6,867.2	129.2	119.9	-108.53		95.7	3,990.6	553.3	316.0	237.32	2.331	
11,500.0	6,690.2	11,161.7	6,866.5	132.0	122.7	-108.57		95.7	4,090.6	553.4	310.9	242.56	2.282	
11,600.0	6,689.2	11,261.7	6,865.8	134.8	125.5	-108.60		95.7	4,190.6	553.5	305.7	247.80	2.234	
11,700.0	6,688.1	11,361.7	6,865.1	137.6	128.3	-108.64		95.7	4,290.6	553.6	300.6	253.03	2.188	
11,800.0	6,687.1	11,461.7	6,864.4	140.3	131.0	-108.67		95.7	4,390.6	553.8	295.5	258.27	2.144	
11,900.0	6,686.0	11,561.7	6,863.7	143.1	133.8	-108.71		95.7	4,490.6	553.9	290.4	263.51	2.102	
12,000.0	6,685.0	11,661.7	6,863.0	145.9	136.6	-108.74		95.7	4,590.6	554.0	285.2	268.74	2.061	
12,100.0	6,684.0	11,761.7	6,862.3	148.7	139.4	-108.77		95.7	4,690.6	554.1	280.1	273.98	2.022	
12,200.0	6,682.9	11,861.7	6,861.6	151.4	142.2	-108.81		95.7	4,790.6	554.2	275.0	279.22	1.985	
12,300.0	6,681.9	11,961.7	6,860.9	154.2	145.0	-108.84		95.7	4,890.6	554.3	269.9	284.45	1.949	
12,400.0	6,680.8	12,061.7	6,860.2	157.0	147.8	-108.88		95.7	4,990.6	554.4	264.7	289.69	1.914	
12,500.0	6,679.8	12,161.7	6,859.5	159.8	150.6	-108.91		95.7	5,090.6	554.5	259.6	294.92	1.880	
12,600.0	6,678.7	12,261.7	6,858.8	162.6	153.3	-108.94		95.7	5,190.6	554.7	254.5	300.16	1.848	
12,700.0	6,677.7	12,361.7	6,858.1	165.4	156.1	-108.98		95.7	5,290.6	554.8	249.4	305.39	1.817	
12,800.0	6,676.6	12,461.7	6,857.4	168.1	158.9	-109.01		95.7	5,390.5	554.9	244.3	310.63	1.786	
12,900.0	6,675.6	12,561.7	6,856.7	170.9	161.7	-109.05		95.7	5,490.5	555.0	239.1	315.86	1.757	
13,000.0	6,674.5	12,661.7	6,856.0	173.7	164.5	-109.08		95.7	5,590.5	555.1	234.0	321.09	1.729	
13,100.0	6,673.5	12,761.7	6,855.3	176.5	167.3	-109.11		95.7	5,690.5	555.2	228.9	326.32	1.701	
13,200.0	6,672.4	12,861.7	6,854.6	179.3	170.1	-109.15		95.7	5,790.5	555.3	223.8	331.55	1.675	
13,300.0	6,671.4	12,961.7	6,853.9	182.1	172.9	-109.18		95.7	5,890.5	555.4	218.7	336.78	1.649	
13,400.0	6,670.3	13,061.7	6,853.2	184.9	175.7	-109.22		95.7	5,990.5	555.6	213.6	342.01	1.624	
13,500.0	6,669.3	13,161.7	6,852.5	187.7	178.5	-109.25		95.7	6,090.5	555.7	208.4	347.23	1.600	
13,600.0	6,668.2	13,261.7	6,851.8	190.5	181.3	-109.28		95.7	6,190.5	555.8	203.3	352.46	1.577	
13,700.0	6,667.2	13,361.7	6,851.1	193.2	184.1	-109.32		95.7	6,290.5	555.9	198.2	357.68	1.554	
13,800.0	6,666.2	13,461.7	6,850.4	196.0	186.9	-109.35		95.7	6,390.5	556.0	193.1	362.91	1.532	
13,900.0	6,665.1	13,561.7	6,849.7	198.8	189.7	-109.39		95.7	6,490.5	556.1	188.0	368.13	1.511	
14,000.0	6,664.1	13,661.7	6,849.0	201.6	192.5	-109.42		95.7	6,590.5	556.3	182.9	373.35	1.490 Level 3	
14,100.0	6,663.0	13,761.7	6,848.3	204.4	195.3	-109.45		95.7	6,690.5	556.4	177.8	378.57	1.470 Level 3	
14,200.0	6,662.0	13,861.7	6,847.6	207.2	198.1	-109.49		95.7	6,790.5	556.5	172.7	383.78	1.450 Level 3	
14,245.4	6,661.5	13,907.0	6,847.3	208.5	199.3	-109.50		95.7	6,835.9	556.5	170.4	386.15	1.441 Level 3	
14,291.9	6,661.0	13,949.3	6,847.0	209.8	200.5	-109.52		95.7	6,878.2	556.6	168.1	388.47	1.433 Level 3, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	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	-29.1	0.0	29.1					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-29.1	0.0	29.1	28.9	0.22	129.668		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-29.1	0.0	29.1	28.5	0.67	43.223		
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-29.1	0.0	29.1	28.0	1.12	25.934		
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-29.1	0.0	29.1	27.6	1.57	18.524		
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-29.1	0.0	29.1	27.1	2.02	14.408		
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-29.1	0.0	29.1	26.7	2.47	11.788		
700.0	700.0	700.0	700.0	1.5	1.5	180.00	-29.1	0.0	29.1	26.2	2.92	9.974		
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-29.1	0.0	29.1	25.8	3.37	8.645		
900.0	900.0	900.0	900.0	1.9	1.9	180.00	-29.1	0.0	29.1	25.3	3.82	7.628		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	180.00	-29.1	0.0	29.1	24.9	4.27	6.825 CC		
1,100.0	1,100.0	1,099.5	1,099.5	2.4	2.3	-177.05	-29.9	-1.5	30.0	25.3	4.70	6.378		
1,200.0	1,200.0	1,198.8	1,198.6	2.6	2.5	-169.20	-32.3	-6.2	32.9	27.7	5.11	6.425		
1,300.0	1,300.0	1,297.6	1,297.0	2.8	2.7	-159.11	-36.1	-13.8	38.8	33.2	5.55	6.990		
1,400.0	1,400.0	1,395.6	1,394.4	3.0	3.0	-149.56	-41.4	-24.3	48.4	42.4	6.00	8.066		
1,500.0	1,500.0	1,492.8	1,490.4	3.3	3.2	-141.94	-48.2	-37.7	62.0	55.5	6.48	9.558		
1,600.0	1,600.0	1,589.2	1,585.0	3.5	3.5	-20.62	-56.3	-53.9	77.8	71.0	6.83	11.386		
1,700.0	1,699.8	1,685.0	1,678.5	3.7	3.9	-17.15	-65.9	-72.8	93.9	86.7	7.23	12.991		
1,800.0	1,799.5	1,780.3	1,770.7	3.9	4.3	-14.75	-76.7	-94.3	110.2	102.5	7.63	14.430		
1,900.0	1,898.7	1,877.3	1,863.8	4.1	4.7	-13.01	-89.0	-118.5	125.9	117.8	8.05	15.640		
2,000.0	1,997.5	1,976.5	1,958.9	4.3	5.2	-11.91	-101.6	-143.6	138.7	130.2	8.47	16.369		
2,100.0	2,095.6	2,076.0	2,054.4	4.6	5.7	-11.27	-114.4	-168.8	148.0	139.1	8.90	16.628		
2,200.0	2,193.1	2,175.8	2,150.1	4.9	6.3	-10.95	-127.1	-194.0	154.0	144.7	9.35	16.479		
2,300.0	2,289.7	2,275.8	2,246.0	5.3	6.8	-10.90	-139.9	-219.3	156.7	146.9	9.81	15.966		
2,400.0	2,386.0	2,375.8	2,341.9	5.7	7.4	-10.93	-152.6	-244.6	158.3	148.0	10.34	15.317		
2,500.0	2,482.3	2,475.8	2,437.8	6.2	7.9	-10.97	-165.4	-269.9	159.9	149.1	10.87	14.716		
2,600.0	2,578.7	2,575.8	2,533.6	6.7	8.5	-11.00	-178.2	-295.2	161.6	150.1	11.41	14.159		
2,700.0	2,675.0	2,675.7	2,629.5	7.1	9.1	-11.03	-190.9	-320.5	163.2	151.2	11.96	13.644		
2,800.0	2,771.4	2,775.7	2,725.4	7.6	9.7	-11.06	-203.7	-345.7	164.8	152.3	12.52	13.167		
2,900.0	2,867.7	2,875.7	2,821.3	8.1	10.2	-11.09	-216.4	-371.0	166.4	153.3	13.08	12.725		
3,000.0	2,964.0	2,975.7	2,917.2	8.7	10.8	-11.12	-229.2	-396.3	168.0	154.4	13.65	12.314		
3,100.0	3,060.4	3,075.7	3,013.1	9.2	11.4	-11.15	-242.0	-421.6	169.7	155.5	14.22	11.932		
3,200.0	3,156.7	3,175.7	3,109.0	9.7	12.0	-11.17	-254.7	-446.9	171.3	156.5	14.80	11.576		
3,300.0	3,253.1	3,275.7	3,204.9	10.2	12.6	-11.20	-267.5	-472.2	172.9	157.5	15.38	11.244		
3,400.0	3,349.4	3,375.6	3,300.8	10.8	13.2	-11.23	-280.3	-497.5	174.5	158.6	15.96	10.934		
3,500.0	3,445.7	3,475.6	3,396.7	11.3	13.8	-11.26	-293.0	-522.7	176.2	159.6	16.55	10.644		
3,600.0	3,542.1	3,575.6	3,492.5	11.9	14.4	-11.28	-305.8	-548.0	177.8	160.6	17.14	10.372		
3,700.0	3,638.4	3,675.6	3,588.4	12.4	15.0	-11.31	-318.6	-573.3	179.4	161.7	17.73	10.117		
3,800.0	3,734.7	3,775.6	3,684.3	13.0	15.6	-11.33	-331.3	-598.6	181.0	162.7	18.33	9.877		
3,900.0	3,831.1	3,875.6	3,780.2	13.5	16.2	-11.36	-344.1	-623.9	182.7	163.7	18.93	9.651		
4,000.0	3,927.4	3,975.6	3,876.1	14.1	16.8	-11.38	-356.9	-649.2	184.3	164.8	19.52	9.438		
4,100.0	4,023.8	4,075.6	3,972.0	14.6	17.4	-11.40	-369.6	-674.5	185.9	165.8	20.13	9.237		
4,200.0	4,120.1	4,175.5	4,067.9	15.2	18.0	-11.43	-382.4	-699.8	187.5	166.8	20.73	9.047		
4,300.0	4,216.4	4,275.5	4,163.8	15.8	18.6	-11.45	-395.2	-725.0	189.1	167.8	21.33	8.867		
4,400.0	4,312.8	4,375.5	4,259.7	16.3	19.2	-11.47	-407.9	-750.3	190.8	168.8	21.94	8.696		
4,500.0	4,409.1	4,475.5	4,355.6	16.9	19.8	-11.50	-420.7	-775.6	192.4	169.9	22.54	8.534		
4,600.0	4,505.5	4,575.5	4,451.5	17.5	20.4	-11.52	-433.5	-800.9	194.0	170.9	23.15	8.380		
4,700.0	4,601.8	4,675.5	4,547.3	18.0	21.0	-11.54	-446.2	-826.2	195.6	171.9	23.76	8.234		
4,800.0	4,698.1	4,775.5	4,643.2	18.6	21.6	-11.56	-459.0	-851.5	197.3	172.9	24.37	8.094		
4,900.0	4,794.5	4,875.4	4,739.1	19.2	22.2	-11.58	-471.7	-876.8	198.9	173.9	24.98	7.961		
5,000.0	4,890.8	4,975.4	4,835.0	19.7	22.8	-11.60	-484.5	-902.0	200.5	174.9	25.59	7.834		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,987.1	5,075.4	4,930.9	20.3	23.4	-11.62	-497.3	-927.3	202.1	175.9	26.21	7.713		
5,200.0	5,083.6	5,175.4	5,026.8	20.8	24.0	-11.62	-510.0	-952.6	204.2	177.4	26.82	7.614		
5,300.0	5,180.9	5,275.3	5,122.6	21.2	24.6	-11.46	-522.8	-977.9	209.4	182.0	27.38	7.648		
5,400.0	5,278.9	5,377.4	5,220.5	21.5	25.2	-11.41	-535.7	-1,003.5	217.8	189.9	27.87	7.816		
5,500.0	5,377.5	5,485.2	5,324.8	21.8	25.7	-10.79	-548.1	-1,028.0	226.8	198.5	28.29	8.019		
5,600.0	5,476.6	5,593.4	5,430.5	22.1	26.1	-10.46	-558.7	-1,048.9	235.6	206.9	28.65	8.222		
5,700.0	5,576.2	5,702.0	5,537.3	22.3	26.4	-10.16	-567.5	-1,066.4	244.0	215.1	28.96	8.427		
5,800.0	5,676.0	5,811.0	5,645.1	22.5	26.7	-9.87	-574.5	-1,080.3	252.2	222.9	29.21	8.633		
5,900.0	5,775.9	5,920.3	5,753.9	22.6	26.9	-9.61	-579.7	-1,090.5	260.0	230.6	29.40	8.842		
6,000.0	5,875.9	6,030.1	5,863.4	22.7	27.1	-125.36	-583.0	-1,097.1	266.5	217.0	49.48	5.386		
6,100.0	5,975.9	6,140.2	5,973.5	22.8	27.2	144.74	-584.4	-1,099.9	269.3	239.3	30.02	8.972		
6,200.0	6,075.6	6,242.4	6,075.6	22.9	27.3	145.36	-584.4	-1,100.0	275.4	245.8	29.56	9.317		
6,300.0	6,173.5	6,370.6	6,203.5	22.8	27.4	147.16	-584.4	-1,094.2	289.0	260.3	28.65	10.085		
6,400.0	6,267.8	6,518.1	6,347.3	22.6	27.2	148.53	-584.4	-1,061.9	298.7	271.2	27.43	10.890		
6,500.0	6,357.1	6,668.9	6,485.0	22.4	26.8	149.11	-584.4	-1,001.1	302.9	276.9	26.01	11.647		
6,600.0	6,439.8	6,820.4	6,608.7	22.2	26.4	148.91	-584.4	-914.1	301.5	276.8	24.65	12.229		
6,700.0	6,514.5	6,969.8	6,711.5	22.0	26.1	147.93	-584.4	-806.0	294.4	270.6	23.78	12.378		
6,800.0	6,579.8	7,115.0	6,789.4	21.9	26.0	146.15	-584.4	-683.8	282.1	258.2	23.96	11.775		
6,900.0	6,634.7	7,254.1	6,841.1	21.9	26.3	143.48	-584.4	-554.8	265.7	240.1	25.66	10.354		
7,000.0	6,678.2	7,386.3	6,867.9	22.2	26.9	139.82	-584.4	-425.6	246.3	217.2	29.06	8.475		
7,100.0	6,709.6	7,489.1	6,878.5	22.7	27.8	137.07	-584.4	-323.2	230.1	197.4	32.65	7.046		
7,200.0	6,728.4	7,603.1	6,882.9	23.6	29.0	134.57	-584.4	-209.4	219.2	182.4	36.82	5.954		
7,298.2	6,734.2	7,701.1	6,882.4	24.7	30.3	133.62	-584.4	-111.4	214.8	174.5	40.33	5.327		
7,300.0	6,734.2	7,702.8	6,882.4	24.8	30.3	133.62	-584.4	-109.7	214.8	174.4	40.39	5.319		
7,400.0	6,733.2	7,802.8	6,881.9	26.2	31.9	133.72	-584.4	-9.7	215.2	172.4	42.76	5.032		
7,500.0	6,732.1	7,902.8	6,881.4	27.8	33.6	133.82	-584.4	90.3	215.6	170.2	45.38	4.751		
7,600.0	6,731.1	8,002.8	6,880.9	29.7	35.5	133.93	-584.4	190.3	215.9	167.7	48.20	4.480		
7,700.0	6,730.0	8,102.8	6,880.4	31.7	37.6	134.03	-584.4	290.3	216.3	165.1	51.19	4.226		
7,800.0	6,729.0	8,202.8	6,879.9	33.8	39.7	134.13	-584.4	390.3	216.7	162.4	54.32	3.989		
7,900.0	6,727.9	8,302.8	6,879.4	36.0	42.0	134.24	-584.4	490.3	217.1	159.5	57.57	3.770		
8,000.0	6,726.9	8,402.8	6,878.9	38.3	44.2	134.34	-584.4	590.3	217.4	156.5	60.91	3.570		
8,100.0	6,725.8	8,502.8	6,878.3	40.7	46.6	134.44	-584.4	690.3	217.8	153.5	64.33	3.386		
8,200.0	6,724.8	8,602.8	6,877.8	43.1	49.0	134.54	-584.4	790.3	218.2	150.4	67.81	3.218		
8,300.0	6,723.7	8,702.8	6,877.3	45.6	51.5	134.64	-584.4	890.3	218.6	147.2	71.34	3.064		
8,400.0	6,722.7	8,802.8	6,876.8	48.1	53.9	134.74	-584.4	990.3	219.0	144.1	74.91	2.923		
8,500.0	6,721.7	8,902.8	6,876.3	50.7	56.5	134.84	-584.4	1,090.3	219.3	140.8	78.52	2.794		
8,600.0	6,720.6	9,002.8	6,875.8	53.2	59.0	134.94	-584.4	1,190.3	219.7	137.6	82.15	2.675		
8,700.0	6,719.6	9,102.8	6,875.3	55.8	61.6	135.04	-584.4	1,290.3	220.1	134.3	85.81	2.565		
8,800.0	6,718.5	9,202.8	6,874.8	58.4	64.2	135.14	-584.4	1,390.3	220.5	131.0	89.48	2.464		
8,900.0	6,717.5	9,302.8	6,874.3	61.0	66.8	135.24	-584.4	1,490.3	220.9	127.7	93.17	2.371		
9,000.0	6,716.4	9,402.8	6,873.8	63.7	69.4	135.34	-584.4	1,590.3	221.3	124.4	96.87	2.284		
9,100.0	6,715.4	9,502.8	6,873.3	66.4	72.0	135.44	-584.4	1,690.3	221.6	121.1	100.58	2.204		
9,200.0	6,714.3	9,602.8	6,872.8	69.0	74.7	135.54	-584.4	1,790.3	222.0	117.7	104.30	2.129		
9,300.0	6,713.3	9,702.8	6,872.3	71.7	77.3	135.63	-584.4	1,890.3	222.4	114.4	108.02	2.059		
9,400.0	6,712.2	9,802.8	6,871.8	74.4	80.0	135.73	-584.4	1,990.3	222.8	111.1	111.74	1.994		
9,500.0	6,711.2	9,902.8	6,871.3	77.1	82.7	135.83	-584.4	2,090.3	223.2	107.7	115.46	1.933		
9,600.0	6,710.1	10,002.8	6,870.8	79.8	85.4	135.92	-584.4	2,190.3	223.6	104.4	119.19	1.876		
9,700.0	6,709.1	10,102.8	6,870.3	82.5	88.1	136.02	-584.4	2,290.3	224.0	101.1	122.91	1.822		
9,800.0	6,708.0	10,202.8	6,869.7	85.2	90.8	136.12	-584.4	2,390.3	224.4	97.7	126.64	1.772		
9,900.0	6,707.0	10,302.8	6,869.2	87.9	93.5	136.21	-584.4	2,490.3	224.8	94.4	130.36	1.724		
10,000.0	6,705.9	10,402.8	6,868.7	90.7	96.2	136.31	-584.4	2,590.3	225.1	91.1	134.07	1.679		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	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	
10,100.0	6,704.9	10,502.8	6,868.2	93.4	98.9	136.40	-584.4	2,690.3	225.5	87.8	137.78	1.637		
10,200.0	6,703.8	10,602.8	6,867.7	96.1	101.6	136.50	-584.4	2,790.3	225.9	84.4	141.49	1.597		
10,300.0	6,702.8	10,702.8	6,867.2	98.9	104.3	136.59	-584.4	2,890.3	226.3	81.1	145.19	1.559		
10,400.0	6,701.8	10,802.8	6,866.7	101.6	107.1	136.68	-584.4	2,990.3	226.7	77.8	148.89	1.523		
10,500.0	6,700.7	10,902.8	6,866.2	104.4	109.8	136.78	-584.4	3,090.2	227.1	74.5	152.58	1.488 Level 3		
10,600.0	6,699.7	11,002.8	6,865.7	107.1	112.6	136.87	-584.4	3,190.2	227.5	71.2	156.26	1.456 Level 3		
10,700.0	6,698.6	11,102.8	6,865.2	109.9	115.3	136.96	-584.4	3,290.2	227.9	68.0	159.94	1.425 Level 3		
10,800.0	6,697.6	11,202.8	6,864.7	112.6	118.0	137.06	-584.4	3,390.2	228.3	64.7	163.60	1.395 Level 3		
10,900.0	6,696.5	11,302.8	6,864.2	115.4	120.8	137.15	-584.4	3,490.2	228.7	61.4	167.27	1.367 Level 3		
11,000.0	6,695.5	11,402.8	6,863.7	118.2	123.5	137.24	-584.4	3,590.2	229.1	58.2	170.92	1.340 Level 3		
11,100.0	6,694.4	11,502.8	6,863.2	120.9	126.3	137.33	-584.4	3,690.2	229.5	54.9	174.57	1.315 Level 3		
11,200.0	6,693.4	11,602.8	6,862.7	123.7	129.1	137.42	-584.4	3,790.2	229.9	51.7	178.21	1.290 Level 3		
11,300.0	6,692.3	11,702.8	6,862.2	126.5	131.8	137.52	-584.4	3,890.2	230.3	48.4	181.84	1.266 Level 3		
11,400.0	6,691.3	11,802.8	6,861.6	129.2	134.6	137.61	-584.4	3,990.2	230.7	45.2	185.46	1.244 Level 2		
11,500.0	6,690.2	11,902.8	6,861.1	132.0	137.3	137.70	-584.4	4,090.2	231.1	42.0	189.07	1.222 Level 2		
11,600.0	6,689.2	12,002.8	6,860.6	134.8	140.1	137.79	-584.4	4,190.2	231.5	38.8	192.68	1.201 Level 2		
11,700.0	6,688.1	12,102.8	6,860.1	137.6	142.9	137.88	-584.4	4,290.2	231.9	35.6	196.27	1.181 Level 2		
11,800.0	6,687.1	12,202.8	6,859.6	140.3	145.6	137.97	-584.4	4,390.2	232.3	32.4	199.86	1.162 Level 2		
11,900.0	6,686.0	12,302.8	6,859.1	143.1	148.4	138.06	-584.4	4,490.2	232.7	29.2	203.44	1.144 Level 2		
12,000.0	6,685.0	12,402.8	6,858.6	145.9	151.2	138.14	-584.4	4,590.2	233.1	26.1	207.01	1.126 Level 2		
12,100.0	6,684.0	12,502.8	6,858.1	148.7	153.9	138.23	-584.4	4,690.2	233.5	22.9	210.57	1.109 Level 2		
12,200.0	6,682.9	12,602.8	6,857.6	151.4	156.7	138.32	-584.4	4,790.2	233.9	19.8	214.12	1.092 Level 2		
12,300.0	6,681.9	12,702.8	6,857.1	154.2	159.5	138.41	-584.4	4,890.2	234.3	16.6	217.66	1.076 Level 2		
12,400.0	6,680.8	12,802.8	6,856.6	157.0	162.3	138.50	-584.4	4,990.2	234.7	13.5	221.19	1.061 Level 2		
12,500.0	6,679.8	12,902.8	6,856.1	159.8	165.0	138.58	-584.4	5,090.2	235.1	10.4	224.72	1.046 Level 2		
12,600.0	6,678.7	13,002.8	6,855.6	162.6	167.8	138.67	-584.4	5,190.2	235.5	7.3	228.23	1.032 Level 2		
12,700.0	6,677.7	13,102.8	6,855.1	165.4	170.6	138.76	-584.4	5,290.2	235.9	4.2	231.74	1.018 Level 2		
12,800.0	6,676.6	13,202.8	6,854.6	168.1	173.4	138.84	-584.4	5,390.2	236.3	1.1	235.24	1.005 Level 2		
12,900.0	6,675.6	13,302.8	6,854.1	170.9	176.2	138.93	-584.4	5,490.2	236.7	-2.0	238.72	0.992 Level 1		
13,000.0	6,674.5	13,402.8	6,853.5	173.7	178.9	139.02	-584.4	5,590.2	237.1	-5.1	242.20	0.979 Level 1		
13,100.0	6,673.5	13,502.8	6,853.0	176.5	181.7	139.10	-584.4	5,690.2	237.6	-8.1	245.67	0.967 Level 1		
13,200.0	6,672.4	13,602.7	6,852.5	179.3	184.5	139.19	-584.4	5,790.2	238.0	-11.2	249.13	0.955 Level 1		
13,300.0	6,671.4	13,702.7	6,852.0	182.1	187.3	139.27	-584.4	5,890.2	238.4	-14.2	252.58	0.944 Level 1		
13,400.0	6,670.3	13,802.7	6,851.5	184.9	190.1	139.36	-584.4	5,990.2	238.8	-17.2	256.02	0.933 Level 1		
13,500.0	6,669.3	13,902.7	6,851.0	187.7	192.9	139.44	-584.4	6,090.2	239.2	-20.3	259.45	0.922 Level 1		
13,600.0	6,668.2	14,002.7	6,850.5	190.5	195.6	139.53	-584.4	6,190.2	239.6	-23.3	262.87	0.912 Level 1		
13,700.0	6,667.2	14,102.7	6,850.0	193.2	198.4	139.61	-584.4	6,290.2	240.0	-26.3	266.28	0.901 Level 1		
13,800.0	6,666.2	14,202.7	6,849.5	196.0	201.2	139.69	-584.4	6,390.2	240.4	-29.3	269.68	0.892 Level 1		
13,900.0	6,665.1	14,302.7	6,849.0	198.8	204.0	139.78	-584.4	6,490.2	240.8	-32.2	273.08	0.882 Level 1		
14,000.0	6,664.1	14,402.7	6,848.5	201.6	206.8	139.86	-584.4	6,590.2	241.3	-35.2	276.46	0.873 Level 1		
14,100.0	6,663.0	14,502.7	6,848.0	204.4	209.6	139.94	-584.4	6,690.2	241.7	-38.2	279.84	0.864 Level 1		
14,200.0	6,662.0	14,602.7	6,847.5	207.2	212.4	140.02	-584.4	6,790.1	242.1	-41.1	283.20	0.855 Level 1		
14,291.9	6,661.0	14,694.6	6,847.0	209.8	214.9	140.10	-584.4	6,882.1	242.5	-43.8	286.29	0.847 Level 1, ES, SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-312 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	-90.00	0.0	-150.4	150.4				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	-90.00	0.0	-150.4	150.4	150.2	0.22	669.295	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	-90.00	0.0	-150.4	150.4	149.8	0.67	223.098	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	-90.00	0.0	-150.4	150.4	149.3	1.12	133.859	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	-90.00	0.0	-150.4	150.4	148.9	1.57	95.614 CC, ES	
500.0	500.0	496.6	496.6	1.0	1.0	-90.47	-90.47	-1.2	-151.5	151.5	149.6	1.99	75.984	
600.0	600.0	593.1	592.9	1.2	1.2	-91.82	-91.82	-4.9	-154.7	154.9	152.5	2.41	64.261	
700.0	700.0	689.0	688.5	1.5	1.4	-93.93	-93.93	-11.0	-160.0	160.8	157.9	2.84	56.582	
800.0	800.0	784.4	783.2	1.7	1.6	-96.63	-96.63	-19.4	-167.3	169.3	166.0	3.28	51.550	
900.0	900.0	878.9	876.6	1.9	1.9	-99.69	-99.69	-30.2	-176.6	180.7	176.9	3.74	48.294	
1,000.0	1,000.0	972.3	968.5	2.1	2.2	-102.91	-102.91	-43.0	-187.8	195.2	191.0	4.22	46.264	
1,100.0	1,100.0	1,064.5	1,058.6	2.4	2.6	-106.10	-106.10	-57.9	-200.7	213.0	208.3	4.72	45.078	
1,200.0	1,200.0	1,155.4	1,146.7	2.6	3.0	-109.15	-109.15	-74.8	-215.3	234.1	228.8	5.26	44.470	
1,300.0	1,300.0	1,244.7	1,232.5	2.8	3.5	-111.97	-111.97	-93.4	-231.5	258.6	252.7	5.84	44.257	
1,400.0	1,400.0	1,332.5	1,316.1	3.0	4.0	-114.52	-114.52	-113.6	-249.0	286.3	279.8	6.46	44.317	
1,500.0	1,500.0	1,427.3	1,405.9	3.3	4.6	-116.91	-116.91	-136.5	-268.9	315.8	308.7	7.15	44.203	
1,600.0	1,600.0	1,522.5	1,496.2	3.5	5.2	-2.90	-2.90	-159.4	-288.8	344.2	337.0	7.20	47.802	
1,700.0	1,699.8	1,618.7	1,587.3	3.7	5.8	-4.60	-4.60	-182.6	-308.9	369.4	361.8	7.66	48.217	
1,800.0	1,799.5	1,715.7	1,679.2	3.9	6.4	-6.13	-6.13	-206.0	-329.2	391.6	383.5	8.13	48.186	
1,900.0	1,898.7	1,813.3	1,771.8	4.1	7.0	-7.55	-7.55	-229.5	-349.6	410.7	402.1	8.59	47.788	
2,000.0	1,997.5	1,911.5	1,864.8	4.3	7.7	-8.91	-8.91	-253.2	-370.2	426.6	417.6	9.06	47.082	
2,100.0	2,095.6	2,010.1	1,958.3	4.6	8.3	-10.26	-10.26	-277.0	-390.8	439.4	429.9	9.53	46.114	
2,200.0	2,193.1	2,109.0	2,052.0	4.9	9.0	-11.62	-11.62	-300.8	-411.5	449.0	439.0	10.00	44.916	
2,300.0	2,289.7	2,208.2	2,146.0	5.3	9.6	-13.03	-13.03	-324.7	-432.3	455.5	445.1	10.48	43.475	
2,400.0	2,386.0	2,307.4	2,240.0	5.7	10.3	-14.45	-14.45	-348.6	-453.0	461.3	450.3	11.01	41.914	
2,500.0	2,482.3	2,406.5	2,334.0	6.2	10.9	-15.84	-15.84	-372.5	-473.8	467.4	455.9	11.55	40.469	
2,600.0	2,578.7	2,505.7	2,427.9	6.7	11.6	-17.19	-17.19	-396.5	-494.5	473.8	461.7	12.11	39.124	
2,700.0	2,675.0	2,604.9	2,521.9	7.1	12.2	-18.50	-18.50	-420.4	-515.3	480.4	467.7	12.69	37.866	
2,800.0	2,771.4	2,704.0	2,615.9	7.6	12.9	-19.78	-19.78	-444.3	-536.0	487.3	474.0	13.28	36.685	
2,900.0	2,867.7	2,803.2	2,709.9	8.1	13.5	-21.03	-21.03	-468.2	-556.8	494.4	480.5	13.90	35.572	
3,000.0	2,964.0	2,902.4	2,803.9	8.7	14.2	-22.23	-22.23	-492.1	-577.5	501.7	487.2	14.53	34.521	
3,100.0	3,060.4	3,001.6	2,897.9	9.2	14.8	-23.41	-23.41	-516.0	-598.3	509.3	494.1	15.19	33.528	
3,200.0	3,156.7	3,100.7	2,991.8	9.7	15.5	-24.55	-24.55	-539.9	-619.0	517.0	501.2	15.87	32.586	
3,300.0	3,253.1	3,199.9	3,085.8	10.2	16.1	-25.65	-25.65	-563.8	-639.8	525.0	508.4	16.56	31.694	
3,400.0	3,349.4	3,299.1	3,179.8	10.8	16.8	-26.72	-26.72	-587.7	-660.5	533.2	515.9	17.28	30.848	
3,500.0	3,445.7	3,398.3	3,273.8	11.3	17.5	-27.76	-27.76	-611.6	-681.3	541.5	523.5	18.02	30.045	
3,600.0	3,542.1	3,497.4	3,367.8	11.9	18.1	-28.77	-28.77	-635.6	-702.0	550.0	531.2	18.78	29.283	
3,700.0	3,638.4	3,596.6	3,461.8	12.4	18.8	-29.75	-29.75	-659.5	-722.8	558.7	539.1	19.56	28.561	
3,800.0	3,734.7	3,695.8	3,555.8	13.0	19.4	-30.69	-30.69	-683.4	-743.5	567.5	547.1	20.36	27.875	
3,900.0	3,831.1	3,795.0	3,649.7	13.5	20.1	-31.61	-31.61	-707.3	-764.3	576.5	555.3	21.17	27.225	
4,000.0	3,927.4	3,894.1	3,743.7	14.1	20.7	-32.50	-32.50	-731.2	-785.0	585.6	563.6	22.01	26.608	
4,100.0	4,023.8	3,993.3	3,837.7	14.6	21.4	-33.37	-33.37	-755.1	-805.8	594.8	572.0	22.86	26.024	
4,200.0	4,120.1	4,092.5	3,931.7	15.2	22.1	-34.20	-34.20	-779.0	-826.5	604.2	580.5	23.72	25.469	
4,300.0	4,216.4	4,191.6	4,025.7	15.8	22.7	-35.01	-35.01	-802.9	-847.3	613.7	589.1	24.61	24.943	
4,400.0	4,312.8	4,290.8	4,119.7	16.3	23.4	-35.80	-35.80	-826.8	-868.0	623.4	597.9	25.50	24.444	
4,500.0	4,409.1	4,390.0	4,213.6	16.9	24.0	-36.56	-36.56	-850.7	-888.8	633.1	606.7	26.41	23.971	
4,600.0	4,505.5	4,489.2	4,307.6	17.5	24.7	-37.30	-37.30	-874.6	-909.5	643.0	615.6	27.34	23.522	
4,700.0	4,601.8	4,588.3	4,401.6	18.0	25.4	-38.02	-38.02	-898.6	-930.3	652.9	624.7	28.27	23.096	
4,800.0	4,698.1	4,687.5	4,495.6	18.6	26.0	-38.71	-38.71	-922.5	-951.0	663.0	633.8	29.22	22.691	
4,900.0	4,794.5	4,786.7	4,589.6	19.2	26.7	-39.39	-39.39	-946.4	-971.8	673.1	643.0	30.18	22.307	
5,000.0	4,890.8	4,885.9	4,683.6	19.7	27.3	-40.04	-40.04	-970.3	-992.5	683.4	652.2	31.15	21.942	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-312 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,987.1	4,985.0	4,777.5	20.3	28.0	-40.68		-994.2	-1,013.3	693.7	661.6	32.12	21.596	
5,200.0	5,083.6	5,084.2	4,871.5	20.8	28.6	-41.35		-1,018.1	-1,034.0	704.5	671.4	33.08	21.297	
5,300.0	5,180.9	5,183.2	4,965.3	21.2	29.3	-41.93		-1,042.0	-1,054.7	717.7	683.8	33.91	21.166	
5,400.0	5,278.9	5,306.4	5,082.6	21.5	30.0	-42.43		-1,070.4	-1,079.4	732.1	697.4	34.72	21.086	
5,500.0	5,377.5	5,437.2	5,208.8	21.8	30.5	-42.82		-1,096.4	-1,102.0	745.0	709.6	35.42	21.036	
5,600.0	5,476.6	5,568.9	5,337.4	22.1	31.0	-43.11		-1,118.2	-1,120.9	756.2	720.2	36.01	21.000	
5,700.0	5,576.2	5,701.5	5,467.9	22.3	31.4	-43.29		-1,135.5	-1,136.0	765.6	729.1	36.49	20.979	
5,800.0	5,676.0	5,834.8	5,600.1	22.5	31.7	-43.37		-1,148.4	-1,147.1	773.2	736.3	36.86	20.975	
5,900.0	5,775.9	5,968.6	5,733.5	22.6	31.9	-43.34		-1,156.6	-1,154.3	778.9	741.8	37.12	20.984	
6,000.0	5,875.9	6,102.9	5,867.6	22.7	32.1	-159.23		-1,160.2	-1,157.3	782.1	732.2	49.89	15.677	
6,100.0	5,975.9	6,211.2	5,975.9	22.8	32.2	110.77		-1,160.3	-1,157.4	782.2	744.6	37.65	20.775	
6,200.0	6,075.6	6,331.0	6,095.7	22.9	32.2	111.15		-1,160.3	-1,155.5	784.4	746.9	37.52	20.907	
6,300.0	6,173.5	6,490.6	6,252.6	22.8	32.1	111.38		-1,160.3	-1,127.7	785.4	748.2	37.21	21.108	
6,400.0	6,267.8	6,649.7	6,399.8	22.6	31.8	110.97		-1,160.3	-1,068.2	783.6	746.7	36.92	21.224	
6,500.0	6,357.1	6,805.0	6,528.6	22.4	31.4	109.95		-1,160.3	-982.0	779.3	742.4	36.84	21.151	
6,600.0	6,439.8	6,953.7	6,633.3	22.2	30.9	108.42		-1,160.3	-876.6	772.8	735.6	37.20	20.774	
6,700.0	6,514.5	7,094.3	6,711.7	22.0	30.5	106.47		-1,160.3	-760.2	765.2	727.0	38.19	20.036	
6,800.0	6,579.8	7,226.2	6,764.8	21.9	30.2	104.23		-1,160.3	-639.6	757.0	717.2	39.86	18.993	
6,900.0	6,634.7	7,349.6	6,794.9	21.9	29.9	101.79		-1,160.3	-520.0	749.2	707.1	42.10	17.796	
7,000.0	6,678.2	7,465.2	6,805.4	22.2	29.8	99.21		-1,160.3	-405.1	742.4	697.6	44.79	16.574	
7,100.0	6,709.6	7,563.0	6,804.6	22.7	29.9	97.14		-1,160.3	-307.3	737.5	690.0	47.52	15.519	
7,200.0	6,728.4	7,660.9	6,803.6	23.6	30.2	95.81		-1,160.3	-209.4	735.2	684.8	50.44	14.577	
7,300.0	6,734.2	7,760.6	6,802.5	24.8	30.9	95.33		-1,160.3	-109.7	734.6	681.0	53.58	13.709	
7,342.1	6,733.9	7,802.7	6,802.0	25.3	31.3	95.33		-1,160.3	-67.6	734.5	679.6	54.95	13.367	
7,400.0	6,733.2	7,860.6	6,801.4	26.2	32.1	95.33		-1,160.3	-9.7	734.6	677.6	56.92	12.906	
7,500.0	6,732.1	7,960.6	6,800.4	27.8	33.7	95.33		-1,160.3	90.3	734.6	674.0	60.59	12.124	
7,600.0	6,731.1	8,060.6	6,799.3	29.7	35.6	95.33		-1,160.3	190.3	734.6	670.0	64.54	11.381	
7,700.0	6,730.0	8,160.6	6,798.2	31.7	37.7	95.33		-1,160.3	290.3	734.6	665.8	68.73	10.688	
7,800.0	6,729.0	8,260.6	6,797.2	33.8	40.0	95.33		-1,160.3	390.3	734.6	661.4	73.10	10.048	
7,900.0	6,727.9	8,360.6	6,796.1	36.0	42.3	95.33		-1,160.3	490.3	734.6	656.9	77.64	9.461	
8,000.0	6,726.9	8,460.6	6,795.0	38.3	44.7	95.32		-1,160.3	590.3	734.5	652.2	82.30	8.925	
8,100.0	6,725.8	8,560.6	6,794.0	40.7	47.1	95.32		-1,160.3	690.3	734.5	647.5	87.08	8.435	
8,200.0	6,724.8	8,660.6	6,792.9	43.1	49.6	95.32		-1,160.3	790.3	734.5	642.6	91.95	7.988	
8,300.0	6,723.7	8,760.6	6,791.8	45.6	52.1	95.32		-1,160.3	890.3	734.5	637.6	96.90	7.580	
8,400.0	6,722.7	8,860.6	6,790.8	48.1	54.7	95.32		-1,160.3	990.3	734.5	632.6	101.92	7.207	
8,500.0	6,721.7	8,960.6	6,789.7	50.7	57.2	95.32		-1,160.3	1,090.2	734.5	627.5	107.00	6.865	
8,600.0	6,720.6	9,060.6	6,788.7	53.2	59.8	95.32		-1,160.3	1,190.2	734.5	622.4	112.12	6.551	
8,700.0	6,719.6	9,160.6	6,787.6	55.8	62.4	95.31		-1,160.3	1,290.2	734.5	617.2	117.29	6.263	
8,800.0	6,718.5	9,260.6	6,786.5	58.4	65.1	95.31		-1,160.3	1,390.2	734.5	612.0	122.49	5.997	
8,900.0	6,717.5	9,360.6	6,785.5	61.0	67.7	95.31		-1,160.3	1,490.2	734.5	606.8	127.73	5.751	
9,000.0	6,716.4	9,460.6	6,784.4	63.7	70.3	95.31		-1,160.3	1,590.2	734.5	601.5	133.00	5.523	
9,100.0	6,715.4	9,560.6	6,783.3	66.4	73.0	95.31		-1,160.3	1,690.2	734.5	596.2	138.29	5.311	
9,200.0	6,714.3	9,660.6	6,782.3	69.0	75.7	95.31		-1,160.3	1,790.2	734.5	590.9	143.61	5.115	
9,300.0	6,713.3	9,760.6	6,781.2	71.7	78.4	95.31		-1,160.3	1,890.2	734.5	585.6	148.95	4.931	
9,400.0	6,712.2	9,860.6	6,780.1	74.4	81.0	95.30		-1,160.3	1,990.2	734.5	580.2	154.30	4.760	
9,500.0	6,711.2	9,960.6	6,779.1	77.1	83.7	95.30		-1,160.3	2,090.2	734.5	574.8	159.68	4.600	
9,600.0	6,710.1	10,060.6	6,778.0	79.8	86.4	95.30		-1,160.3	2,190.2	734.5	569.5	165.06	4.450	
9,700.0	6,709.1	10,160.6	6,776.9	82.5	89.2	95.30		-1,160.3	2,290.2	734.5	564.1	170.47	4.309	
9,800.0	6,708.0	10,260.6	6,775.9	85.2	91.9	95.30		-1,160.3	2,390.2	734.5	558.6	175.88	4.176	
9,900.0	6,707.0	10,360.6	6,774.8	87.9	94.6	95.30		-1,160.3	2,490.2	734.5	553.2	181.30	4.051	
10,000.0	6,705.9	10,460.6	6,773.7	90.7	97.3	95.30		-1,160.3	2,590.2	734.5	547.8	186.74	3.933	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-312 - Wellbore #1 - Plan #1 (3-05-14)												Offset Site Error:	0.0 ft	
Survey Program: 0-MWD												Offset Well Error:	0.0 ft	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,704.9	10,560.6	6,772.7	93.4	100.0	95.30		-1,160.3	2,690.2	734.5	542.3	192.18	3.822	
10,200.0	6,703.8	10,660.6	6,771.6	96.1	102.8	95.29		-1,160.3	2,790.1	734.5	536.9	197.63	3.717	
10,300.0	6,702.8	10,760.6	6,770.6	98.9	105.5	95.29		-1,160.3	2,890.1	734.5	531.4	203.09	3.617	
10,400.0	6,701.8	10,860.6	6,769.5	101.6	108.2	95.29		-1,160.3	2,990.1	734.5	526.0	208.56	3.522	
10,500.0	6,700.7	10,960.6	6,768.4	104.4	111.0	95.29		-1,160.3	3,090.1	734.5	520.5	214.03	3.432	
10,600.0	6,699.7	11,060.6	6,767.4	107.1	113.7	95.29		-1,160.3	3,190.1	734.5	515.0	219.51	3.346	
10,700.0	6,698.6	11,160.6	6,766.3	109.9	116.5	95.29		-1,160.3	3,290.1	734.5	509.5	225.00	3.264	
10,800.0	6,697.6	11,260.6	6,765.2	112.6	119.2	95.29		-1,160.3	3,390.1	734.5	504.0	230.49	3.187	
10,900.0	6,696.5	11,360.6	6,764.2	115.4	122.0	95.28		-1,160.3	3,490.1	734.5	498.5	235.99	3.112	
11,000.0	6,695.5	11,460.6	6,763.1	118.2	124.8	95.28		-1,160.3	3,590.1	734.5	493.0	241.49	3.042	
11,100.0	6,694.4	11,560.6	6,762.0	120.9	127.5	95.28		-1,160.3	3,690.1	734.5	487.5	246.99	2.974	
11,200.0	6,693.4	11,660.6	6,761.0	123.7	130.3	95.28		-1,160.3	3,790.1	734.5	482.0	252.50	2.909	
11,300.0	6,692.3	11,760.6	6,759.9	126.5	133.0	95.28		-1,160.3	3,890.1	734.5	476.5	258.01	2.847	
11,400.0	6,691.3	11,860.6	6,758.8	129.2	135.8	95.28		-1,160.3	3,990.1	734.5	471.0	263.53	2.787	
11,500.0	6,690.2	11,960.6	6,757.8	132.0	138.6	95.28		-1,160.3	4,090.1	734.5	465.4	269.05	2.730	
11,600.0	6,689.2	12,060.6	6,756.7	134.8	141.3	95.28		-1,160.3	4,190.1	734.5	459.9	274.57	2.675	
11,700.0	6,688.1	12,160.6	6,755.6	137.6	144.1	95.27		-1,160.3	4,290.1	734.5	454.4	280.10	2.622	
11,800.0	6,687.1	12,260.6	6,754.6	140.3	146.9	95.27		-1,160.3	4,390.1	734.5	448.9	285.63	2.571	
11,900.0	6,686.0	12,360.6	6,753.5	143.1	149.6	95.27		-1,160.3	4,490.1	734.5	443.3	291.16	2.523	
12,000.0	6,685.0	12,460.6	6,752.5	145.9	152.4	95.27		-1,160.3	4,590.0	734.5	437.8	296.69	2.476	
12,100.0	6,684.0	12,560.6	6,751.4	148.7	155.2	95.27		-1,160.3	4,690.0	734.5	432.3	302.23	2.430	
12,200.0	6,682.9	12,660.6	6,750.3	151.4	158.0	95.27		-1,160.3	4,790.0	734.5	426.7	307.77	2.386	
12,300.0	6,681.9	12,760.6	6,749.3	154.2	160.7	95.27		-1,160.3	4,890.0	734.5	421.2	313.31	2.344	
12,400.0	6,680.8	12,860.6	6,748.2	157.0	163.5	95.26		-1,160.3	4,990.0	734.5	415.6	318.85	2.304	
12,500.0	6,679.8	12,960.6	6,747.1	159.8	166.3	95.26		-1,160.3	5,090.0	734.5	410.1	324.39	2.264	
12,600.0	6,678.7	13,060.6	6,746.1	162.6	169.1	95.26		-1,160.3	5,190.0	734.5	404.5	329.94	2.226	
12,700.0	6,677.7	13,160.6	6,745.0	165.4	171.9	95.26		-1,160.3	5,290.0	734.5	399.0	335.49	2.189	
12,800.0	6,676.6	13,260.6	6,743.9	168.1	174.6	95.26		-1,160.3	5,390.0	734.5	393.4	341.04	2.154	
12,900.0	6,675.6	13,360.6	6,742.9	170.9	177.4	95.26		-1,160.3	5,490.0	734.5	387.9	346.59	2.119	
13,000.0	6,674.5	13,460.6	6,741.8	173.7	180.2	95.26		-1,160.3	5,590.0	734.5	382.3	352.14	2.086	
13,100.0	6,673.5	13,560.6	6,740.7	176.5	183.0	95.25		-1,160.3	5,690.0	734.5	376.8	357.69	2.053	
13,200.0	6,672.4	13,660.6	6,739.7	179.3	185.8	95.25		-1,160.3	5,790.0	734.5	371.2	363.25	2.022	
13,300.0	6,671.4	13,760.6	6,738.6	182.1	188.6	95.25		-1,160.3	5,890.0	734.5	365.7	368.81	1.991	
13,400.0	6,670.3	13,860.6	6,737.5	184.9	191.4	95.25		-1,160.3	5,990.0	734.5	360.1	374.36	1.962	
13,500.0	6,669.3	13,960.6	6,736.5	187.7	194.1	95.25		-1,160.3	6,090.0	734.5	354.5	379.92	1.933	
13,600.0	6,668.2	14,060.6	6,735.4	190.5	196.9	95.25		-1,160.3	6,190.0	734.5	349.0	385.48	1.905	
13,700.0	6,667.2	14,160.6	6,734.4	193.2	199.7	95.25		-1,160.3	6,290.0	734.5	343.4	391.04	1.878	
13,800.0	6,666.2	14,260.6	6,733.3	196.0	202.5	95.25		-1,160.3	6,389.9	734.5	337.9	396.61	1.852	
13,900.0	6,665.1	14,360.6	6,732.2	198.8	205.3	95.24		-1,160.3	6,489.9	734.5	332.3	402.17	1.826	
14,000.0	6,664.1	14,460.6	6,731.2	201.6	208.1	95.24		-1,160.3	6,589.9	734.5	326.7	407.73	1.801	
14,100.0	6,663.0	14,560.6	6,730.1	204.4	210.9	95.24		-1,160.3	6,689.9	734.5	321.2	413.30	1.777	
14,200.0	6,662.0	14,660.6	6,729.0	207.2	213.7	95.24		-1,160.3	6,789.9	734.5	315.6	418.86	1.753	
14,291.9	6,661.0	14,752.5	6,728.1	209.8	216.2	95.24		-1,160.3	6,881.8	734.5	310.5	423.98	1.732 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-402 - Wellbore #1 - Plan #1 (3-05-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	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	-100.97	-100.97	-29.1	-150.4	153.2				
100.0	100.0	100.0	100.0	0.1	0.1	-100.97	-100.97	-29.1	-150.4	153.2	153.0	0.22	681.744	
200.0	200.0	200.0	200.0	0.3	0.3	-100.97	-100.97	-29.1	-150.4	153.2	152.6	0.67	227.248 CC, ES	
300.0	300.0	296.1	296.1	0.6	0.5	-101.36	-101.36	-30.4	-151.4	154.5	153.4	1.10	140.819	
400.0	400.0	392.0	391.9	0.8	0.7	-102.51	-102.51	-34.2	-154.4	158.3	156.8	1.53	103.782	
500.0	500.0	487.5	487.0	1.0	1.0	-104.29	-104.29	-40.6	-159.2	164.8	162.9	1.97	83.670	
600.0	600.0	582.3	581.2	1.2	1.2	-106.55	-106.55	-49.3	-166.0	174.2	171.7	2.43	71.720	
700.0	700.0	676.3	674.1	1.5	1.5	-109.10	-109.10	-60.4	-174.5	186.5	183.6	2.91	64.194	
800.0	800.0	769.3	765.5	1.7	1.9	-111.77	-111.77	-73.8	-184.8	202.0	198.6	3.41	59.293	
900.0	900.0	861.0	855.2	1.9	2.3	-114.41	-114.41	-89.3	-196.8	220.7	216.7	3.94	56.036	
1,000.0	1,000.0	951.4	942.8	2.1	2.7	-116.93	-116.93	-106.8	-210.2	242.6	238.1	4.50	53.856	
1,100.0	1,100.0	1,040.3	1,028.3	2.4	3.2	-119.26	-119.26	-126.1	-225.1	267.8	262.7	5.11	52.407	
1,200.0	1,200.0	1,127.6	1,111.5	2.6	3.7	-121.37	-121.37	-147.1	-241.3	296.1	290.4	5.75	51.472	
1,300.0	1,300.0	1,213.7	1,192.7	2.8	4.3	-123.27	-123.27	-169.8	-258.7	327.5	321.1	6.43	50.917	
1,400.0	1,400.0	1,307.6	1,280.8	3.0	4.9	-125.06	-125.06	-195.4	-278.5	360.5	353.3	7.19	50.134	
1,500.0	1,500.0	1,401.4	1,368.9	3.3	5.6	-126.54	-126.54	-221.0	-298.2	393.6	385.7	7.96	49.444	
1,600.0	1,600.0	1,495.8	1,457.5	3.5	6.2	-11.74	-11.74	-246.8	-318.1	425.4	418.0	7.37	57.728	
1,700.0	1,699.8	1,591.2	1,547.1	3.7	6.9	-12.84	-12.84	-272.8	-338.1	454.1	446.3	7.85	57.884	
1,800.0	1,799.5	1,687.4	1,637.4	3.9	7.5	-13.90	-13.90	-299.1	-358.3	479.7	471.4	8.33	57.622	
1,900.0	1,898.7	1,784.3	1,728.4	4.1	8.2	-14.95	-14.95	-325.6	-378.7	502.3	493.5	8.81	57.020	
2,000.0	1,997.5	1,881.9	1,819.9	4.3	8.9	-16.02	-16.02	-352.2	-399.2	521.7	512.4	9.29	56.133	
2,100.0	2,095.6	1,979.9	1,912.0	4.6	9.6	-17.13	-17.13	-379.0	-419.8	538.0	528.2	9.78	54.998	
2,200.0	2,193.1	2,078.3	2,004.3	4.9	10.3	-18.29	-18.29	-405.8	-440.5	551.3	541.0	10.28	53.640	
2,300.0	2,289.7	2,177.0	2,096.9	5.3	11.0	-19.53	-19.53	-432.8	-461.3	561.7	550.9	10.79	52.043	
2,400.0	2,386.0	2,275.7	2,189.6	5.7	11.7	-20.81	-20.81	-459.7	-482.0	571.3	560.0	11.35	50.328	
2,500.0	2,482.3	2,374.4	2,282.3	6.2	12.4	-22.06	-22.06	-486.7	-502.8	581.2	569.3	11.93	48.718	
2,600.0	2,578.7	2,473.1	2,374.9	6.7	13.1	-23.26	-23.26	-513.6	-523.5	591.4	578.9	12.53	47.202	
2,700.0	2,675.0	2,571.8	2,467.6	7.1	13.8	-24.42	-24.42	-540.6	-544.3	601.9	588.7	13.15	45.771	
2,800.0	2,771.4	2,670.5	2,560.3	7.6	14.5	-25.54	-25.54	-567.5	-565.0	612.6	598.8	13.79	44.418	
2,900.0	2,867.7	2,769.2	2,652.9	8.1	15.2	-26.62	-26.62	-594.5	-585.8	623.5	609.0	14.45	43.139	
3,000.0	2,964.0	2,868.0	2,745.6	8.7	15.9	-27.67	-27.67	-621.4	-606.6	634.6	619.5	15.14	41.928	
3,100.0	3,060.4	2,966.7	2,838.3	9.2	16.6	-28.68	-28.68	-648.4	-627.3	646.0	630.1	15.84	40.782	
3,200.0	3,156.7	3,065.4	2,930.9	9.7	17.3	-29.65	-29.65	-675.3	-648.1	657.5	640.9	16.56	39.697	
3,300.0	3,253.1	3,164.1	3,023.6	10.2	18.0	-30.60	-30.60	-702.3	-668.8	669.2	651.9	17.31	38.670	
3,400.0	3,349.4	3,262.8	3,116.3	10.8	18.7	-31.51	-31.51	-729.2	-689.6	681.1	663.0	18.07	37.697	
3,500.0	3,445.7	3,361.5	3,208.9	11.3	19.4	-32.38	-32.38	-756.2	-710.3	693.1	674.3	18.85	36.777	
3,600.0	3,542.1	3,460.2	3,301.6	11.9	20.1	-33.23	-33.23	-783.1	-731.1	705.3	685.7	19.64	35.905	
3,700.0	3,638.4	3,558.9	3,394.3	12.4	20.8	-34.05	-34.05	-810.1	-751.8	717.7	697.2	20.46	35.080	
3,800.0	3,734.7	3,657.7	3,486.9	13.0	21.5	-34.84	-34.84	-837.0	-772.6	730.2	708.9	21.29	34.299	
3,900.0	3,831.1	3,756.4	3,579.6	13.5	22.2	-35.61	-35.61	-864.0	-793.4	742.8	720.7	22.13	33.560	
4,000.0	3,927.4	3,855.1	3,672.3	14.1	22.9	-36.35	-36.35	-890.9	-814.1	755.6	732.6	22.99	32.860	
4,100.0	4,023.8	3,953.8	3,764.9	14.6	23.6	-37.07	-37.07	-917.9	-834.9	768.5	744.6	23.87	32.197	
4,200.0	4,120.1	4,052.5	3,857.6	15.2	24.3	-37.76	-37.76	-944.8	-855.6	781.5	756.7	24.75	31.568	
4,300.0	4,216.4	4,151.2	3,950.3	15.8	25.0	-38.43	-38.43	-971.8	-876.4	794.6	768.9	25.65	30.973	
4,400.0	4,312.8	4,249.9	4,042.9	16.3	25.7	-39.08	-39.08	-998.7	-897.1	807.8	781.2	26.56	30.409	
4,500.0	4,409.1	4,348.6	4,135.6	16.9	26.4	-39.70	-39.70	-1,025.7	-917.9	821.1	793.6	27.49	29.873	
4,600.0	4,505.5	4,447.4	4,228.3	17.5	27.1	-40.31	-40.31	-1,052.6	-938.6	834.5	806.1	28.42	29.365	
4,700.0	4,601.8	4,546.1	4,320.9	18.0	27.8	-40.90	-40.90	-1,079.6	-959.4	848.0	818.6	29.36	28.883	
4,800.0	4,698.1	4,644.8	4,413.6	18.6	28.5	-41.47	-41.47	-1,106.5	-980.2	861.6	831.3	30.31	28.425	
4,900.0	4,794.5	4,743.5	4,506.3	19.2	29.2	-42.02	-42.02	-1,133.5	-1,000.9	875.2	844.0	31.27	27.990	
5,000.0	4,890.8	4,842.2	4,598.9	19.7	29.9	-42.56	-42.56	-1,160.4	-1,021.7	889.0	856.7	32.24	27.576	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Klein 19O-HZ Pad Sec.19-T5N-R64W - Klein 19P-402 - Wellbore #1 - Plan #1 (3-05-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		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 (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
5,100.0	4,987.1	4,940.9	4,691.6	20.3	30.6	-43.07	-1,187.4	-1,042.4	902.8	869.6	33.21	27.181	
5,200.0	5,083.6	5,039.6	4,784.2	20.8	31.3	-43.67	-1,214.3	-1,063.2	917.0	882.8	34.17	26.840	
5,300.0	5,180.9	5,138.1	4,876.7	21.2	32.0	-44.23	-1,241.2	-1,083.9	933.5	898.5	35.00	26.676	
5,400.0	5,278.9	5,236.2	4,968.8	21.5	32.7	-44.68	-1,268.0	-1,104.5	952.5	916.8	35.75	26.645 SF	
5,500.0	5,377.5	5,357.9	5,083.4	21.8	33.4	-45.01	-1,300.5	-1,129.5	973.3	936.9	36.47	26.688	
5,600.0	5,476.6	5,503.1	5,222.1	22.1	34.0	-45.24	-1,334.5	-1,155.8	992.4	955.3	37.13	26.729	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Maxey 24O-HZ Pad Sec.24-T5N-R65W - Maxey 24O-232 - Wellbore #1 - Plan #2 (8-9-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,000.0	5,875.9	11,137.6	6,726.0	22.7	128.7	-162.28	-815.0	-1,003.4	932.7	875.2	57.49	16.224	
6,100.0	5,975.9	11,137.6	6,726.0	22.8	128.7	108.46	-815.0	-1,003.4	843.8	701.5	142.27	5.931	
6,200.0	6,075.6	11,137.6	6,726.0	22.9	128.7	119.42	-815.0	-1,003.4	759.1	627.7	131.41	5.777	
6,300.0	6,173.5	11,137.6	6,726.0	22.8	128.7	126.89	-815.0	-1,003.4	682.8	561.2	121.54	5.618	
6,400.0	6,267.8	11,137.6	6,726.0	22.6	128.7	131.68	-815.0	-1,003.4	619.4	505.2	114.20	5.424	
6,500.0	6,357.1	11,137.6	6,726.0	22.4	128.7	134.46	-815.0	-1,003.4	574.5	465.0	109.54	5.245	
6,600.0	6,439.8	11,137.6	6,726.0	22.2	128.7	135.61	-815.0	-1,003.4	553.5	446.1	107.42	5.153	
6,628.3	6,461.8	11,137.6	6,726.0	22.1	128.7	135.66	-815.0	-1,003.4	552.4	445.1	107.27	5.150	CC, ES, SF
6,700.0	6,514.5	11,137.6	6,726.0	22.0	128.7	135.29	-815.0	-1,003.4	559.4	451.7	107.78	5.191	
6,800.0	6,579.8	11,137.6	6,726.0	21.9	128.7	133.47	-815.0	-1,003.4	591.4	480.6	110.75	5.339	
6,900.0	6,634.7	11,137.6	6,726.0	21.9	128.7	129.88	-815.0	-1,003.4	645.0	528.4	116.62	5.530	
7,000.0	6,678.2	11,137.6	6,726.0	22.2	128.7	124.02	-815.0	-1,003.4	714.6	589.1	125.56	5.691	
7,100.0	6,709.6	11,137.6	6,726.0	22.7	128.7	115.13	-815.0	-1,003.4	795.1	658.1	137.01	5.803	
7,200.0	6,728.4	11,137.6	6,726.0	23.6	128.7	102.47	-815.0	-1,003.4	882.3	734.1	148.18	5.954	
7,300.0	6,734.2	11,137.6	6,726.0	24.8	128.7	86.32	-815.0	-1,003.4	973.0	820.1	152.87	6.365	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Maxey 24O-HZ Pad Sec.24-T5N-R65W - Maxey 24O-402 - Wellbore #1 - Plan #2 (8-9-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,100.0	5,975.9	11,295.6	6,912.0	22.8	128.8	162.93	-468.9	-1,003.4	935.1	879.8	55.27	16.919	
6,200.0	6,075.6	11,295.6	6,912.0	22.9	128.8	170.67	-468.9	-1,003.4	837.6	796.2	41.41	20.228	
6,300.0	6,173.5	11,295.6	6,912.0	22.8	128.8	173.28	-468.9	-1,003.4	745.1	707.0	38.10	19.557	
6,400.0	6,267.8	11,295.6	6,912.0	22.6	128.8	174.51	-468.9	-1,003.4	661.4	623.9	37.58	17.599	
6,500.0	6,357.1	11,295.6	6,912.0	22.4	128.8	175.17	-468.9	-1,003.4	592.2	554.1	38.08	15.550	
6,600.0	6,439.8	11,295.6	6,912.0	22.2	128.8	175.50	-468.9	-1,003.4	544.3	505.4	38.93	13.982	
6,700.0	6,514.5	11,295.6	6,912.0	22.0	128.8	175.62	-468.9	-1,003.4	524.5	484.7	39.83	13.167	
6,713.0	6,523.5	11,295.6	6,912.0	21.9	128.8	175.63	-468.9	-1,003.4	524.2	484.3	39.95	13.122	CC, ES, SF
6,800.0	6,579.8	11,295.6	6,912.0	21.9	128.8	175.55	-468.9	-1,003.4	536.2	495.5	40.70	13.174	
6,900.0	6,634.7	11,295.6	6,912.0	21.9	128.8	175.28	-468.9	-1,003.4	577.4	535.8	41.59	13.884	
7,000.0	6,678.2	11,295.6	6,912.0	22.2	128.8	174.72	-468.9	-1,003.4	641.8	599.1	42.68	15.036	
7,100.0	6,709.6	11,295.6	6,912.0	22.7	128.8	173.68	-468.9	-1,003.4	722.3	677.9	44.35	16.284	
7,200.0	6,728.4	11,295.6	6,912.0	23.6	128.8	171.58	-468.9	-1,003.4	813.0	765.5	47.46	17.129	
7,300.0	6,734.2	11,295.6	6,912.0	24.8	128.8	166.07	-468.9	-1,003.4	909.5	853.4	56.05	16.227	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Austin 1 (Exist) - Wellbore #1 - Wellbore #1												Offset Well Error:	0.0 ft
Survey Program: 6997-UNKNOWN													
Reference				Offset			Semi Major Axis		Distance				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	171.95	-867.1	122.6	875.8				
100.0	100.0	85.0	85.0	0.1	1.7	171.95	-867.1	122.6	875.7	873.9	1.81	483.109	
200.0	200.0	185.0	185.0	0.3	3.7	171.95	-867.1	122.6	875.7	871.6	4.04	216.894	
300.0	300.0	285.0	285.0	0.6	5.7	171.95	-867.1	122.6	875.7	869.4	6.26	139.837	
400.0	400.0	385.0	385.0	0.8	7.7	171.95	-867.1	122.6	875.7	867.2	8.49	103.180	
500.0	500.0	485.0	485.0	1.0	9.7	171.95	-867.1	122.6	875.7	865.0	10.71	81.750	
600.0	600.0	585.0	585.0	1.2	11.7	171.95	-867.1	122.6	875.7	862.7	12.94	67.691	
700.0	700.0	685.0	685.0	1.5	13.7	171.95	-867.1	122.6	875.7	860.5	15.16	57.758	
800.0	800.0	785.0	785.0	1.7	15.7	171.95	-867.1	122.6	875.7	858.3	17.39	50.367	
900.0	900.0	885.0	885.0	1.9	17.7	171.95	-867.1	122.6	875.7	856.1	19.61	44.653	
1,000.0	1,000.0	985.0	985.0	2.1	19.7	171.95	-867.1	122.6	875.7	853.8	21.84	40.103	
1,100.0	1,100.0	1,085.0	1,085.0	2.4	21.7	171.95	-867.1	122.6	875.7	851.6	24.06	36.395	
1,200.0	1,200.0	1,185.0	1,185.0	2.6	23.7	171.95	-867.1	122.6	875.7	849.4	26.28	33.315	
1,300.0	1,300.0	1,285.0	1,285.0	2.8	25.7	171.95	-867.1	122.6	875.7	847.2	28.51	30.715	
1,400.0	1,400.0	1,385.0	1,385.0	3.0	27.7	171.95	-867.1	122.6	875.7	844.9	30.73	28.492	
1,500.0	1,500.0	1,485.0	1,485.0	3.3	29.7	171.95	-867.1	122.6	875.7	842.7	32.96	26.568	
1,600.0	1,600.0	1,585.0	1,585.0	3.5	31.7	-72.18	-867.1	122.6	875.1	840.0	35.16	24.889	
1,700.0	1,699.8	1,684.8	1,684.8	3.7	33.7	-72.54	-867.1	122.6	873.5	836.2	37.34	23.392	
1,800.0	1,799.5	1,784.5	1,784.5	3.9	35.7	-73.13	-867.1	122.6	871.0	831.4	39.53	22.033	
1,900.0	1,898.7	1,883.7	1,883.7	4.1	37.7	-73.96	-867.1	122.6	867.5	825.8	41.72	20.792	
2,000.0	1,997.5	1,982.5	1,982.5	4.3	39.6	-75.03	-867.1	122.6	863.3	819.3	43.93	19.651	
2,100.0	2,095.6	2,080.6	2,080.6	4.6	41.6	-76.33	-867.1	122.6	858.5	812.3	46.16	18.597	
2,200.0	2,193.1	2,178.1	2,178.1	4.9	43.6	-77.87	-867.1	122.6	853.3	804.9	48.43	17.620	
2,300.0	2,289.7	2,274.7	2,274.7	5.3	45.5	-79.59	-867.1	122.6	848.1	797.4	50.74	16.714	
2,400.0	2,386.0	2,371.0	2,371.0	5.7	47.4	-81.32	-867.1	122.6	843.5	790.4	53.11	15.883	
2,500.0	2,482.3	2,467.3	2,467.3	6.2	49.3	-83.07	-867.1	122.6	839.7	784.2	55.49	15.132	
2,600.0	2,578.7	2,563.7	2,563.7	6.7	51.3	-84.82	-867.1	122.6	836.8	778.9	57.90	14.452	
2,700.0	2,675.0	2,660.0	2,660.0	7.1	53.2	-86.59	-867.1	122.6	834.7	774.4	60.32	13.837	
2,800.0	2,771.4	2,756.4	2,756.4	7.6	55.1	-88.36	-867.1	122.6	833.5	770.7	62.75	13.282	
2,892.3	2,860.3	2,845.3	2,845.3	8.1	56.9	-90.00	-867.1	122.6	833.1	768.1	65.00	12.816	
2,900.0	2,867.7	2,852.7	2,852.7	8.1	57.1	-90.14	-867.1	122.6	833.1	767.9	65.19	12.780	
3,000.0	2,964.0	2,949.0	2,949.0	8.7	59.0	-91.91	-867.1	122.6	833.6	766.0	67.63	12.326	
3,100.0	3,060.4	3,045.4	3,045.4	9.2	60.9	-93.68	-867.1	122.6	835.0	764.9	70.07	11.917	
3,200.0	3,156.7	3,141.7	3,141.7	9.7	62.8	-95.45	-867.1	122.6	837.2	764.7	72.50	11.547	
3,300.0	3,253.1	3,238.1	3,238.1	10.2	64.8	-97.20	-867.1	122.6	840.2	765.3	74.93	11.214	
3,400.0	3,349.4	3,334.4	3,334.4	10.8	66.7	-98.95	-867.1	122.6	844.2	766.8	77.35	10.913	
3,500.0	3,445.7	3,430.7	3,430.7	11.3	68.6	-100.67	-867.1	122.6	848.9	769.1	79.76	10.643	
3,600.0	3,542.1	3,527.1	3,527.1	11.9	70.5	-102.38	-867.1	122.6	854.4	772.3	82.16	10.400	
3,700.0	3,638.4	3,623.4	3,623.4	12.4	72.5	-104.06	-867.1	122.6	860.8	776.2	84.55	10.181	
3,800.0	3,734.7	3,719.7	3,719.7	13.0	74.4	-105.72	-867.1	122.6	867.9	781.0	86.92	9.985	
3,900.0	3,831.1	3,816.1	3,816.1	13.5	76.3	-107.35	-867.1	122.6	875.8	786.5	89.28	9.810	
4,000.0	3,927.4	3,912.4	3,912.4	14.1	78.2	-108.95	-867.1	122.6	884.5	792.8	91.63	9.653	
4,100.0	4,023.8	4,008.8	4,008.8	14.6	80.2	-110.53	-867.1	122.6	893.8	799.9	93.96	9.513	
4,200.0	4,120.1	4,105.1	4,105.1	15.2	82.1	-112.07	-867.1	122.6	903.9	807.6	96.28	9.388	
4,300.0	4,216.4	4,201.4	4,201.4	15.8	84.0	-113.58	-867.1	122.6	914.6	816.0	98.58	9.278	
4,400.0	4,312.8	4,297.8	4,297.8	16.3	86.0	-115.05	-867.1	122.6	926.0	825.1	100.87	9.180	
4,500.0	4,409.1	4,394.1	4,394.1	16.9	87.9	-116.49	-867.1	122.6	938.0	834.9	103.14	9.095	
4,600.0	4,505.5	4,490.5	4,490.5	17.5	89.8	-117.90	-867.1	122.6	950.6	845.2	105.40	9.019	
4,700.0	4,601.8	4,586.8	4,586.8	18.0	91.7	-119.27	-867.1	122.6	963.8	856.2	107.65	8.954	
4,800.0	4,698.1	4,683.1	4,683.1	18.6	93.7	-120.60	-867.1	122.6	977.6	867.7	109.88	8.897	
4,900.0	4,794.5	4,779.5	4,779.5	19.2	95.6	-121.90	-867.1	122.6	991.9	879.8	112.10	8.848	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Austin 1 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 6997-UNKNOWN												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,500.0	6,357.1	6,342.1	6,342.1	22.4	126.8	29.52	-867.1	122.6	998.6	866.2	132.43	7.541	
6,600.0	6,439.8	6,424.8	6,424.8	22.2	128.5	33.43	-867.1	122.6	948.5	819.9	128.58	7.377	
6,700.0	6,514.5	6,499.5	6,499.5	22.0	130.0	38.86	-867.1	122.6	890.1	763.7	126.40	7.042	
6,800.0	6,579.8	6,564.8	6,564.8	21.9	131.3	46.11	-867.1	122.6	825.1	697.1	128.00	6.446	
6,900.0	6,634.7	6,619.7	6,619.7	21.9	132.4	55.25	-867.1	122.6	755.7	621.2	134.46	5.620	
7,000.0	6,678.2	6,663.2	6,663.2	22.2	133.3	65.72	-867.1	122.6	684.4	540.5	143.89	4.756	
7,100.0	6,709.6	6,694.6	6,694.6	22.7	133.9	76.10	-867.1	122.6	614.5	462.3	152.18	4.038	
7,200.0	6,728.4	6,713.4	6,713.4	23.6	134.3	84.65	-867.1	122.6	550.2	393.3	156.88	3.507	
7,300.0	6,734.2	6,719.2	6,719.2	24.8	134.4	90.23	-867.1	122.6	496.2	337.4	158.84	3.124	
7,400.0	6,733.2	6,718.2	6,718.2	26.2	134.4	90.18	-867.1	122.6	457.9	297.5	160.35	2.855	
7,500.0	6,732.1	6,717.1	6,717.1	27.8	134.3	90.05	-867.1	122.6	439.4	277.3	162.06	2.711	
7,533.0	6,731.8	6,716.8	6,716.8	28.4	134.3	90.00	-867.1	122.6	438.1	275.5	162.68	2.693	CC, ES, SF
7,600.0	6,731.1	6,716.1	6,716.1	29.7	134.3	89.91	-867.1	122.6	443.2	279.3	163.94	2.704	
7,700.0	6,730.0	6,715.0	6,715.0	31.7	134.3	89.77	-867.1	122.6	468.9	302.9	165.95	2.825	
7,800.0	6,729.0	6,714.0	6,714.0	33.8	134.3	89.63	-867.1	122.6	513.1	345.0	168.07	3.053	
7,900.0	6,727.9	6,712.9	6,712.9	36.0	134.3	89.50	-867.1	122.6	571.5	401.2	170.29	3.356	
8,000.0	6,726.9	6,711.9	6,711.9	38.3	134.2	89.36	-867.1	122.6	640.3	467.8	172.57	3.710	
8,100.0	6,725.8	6,710.8	6,710.8	40.7	134.2	89.22	-867.1	122.6	716.5	541.6	174.92	4.096	
8,200.0	6,724.8	6,709.8	6,709.8	43.1	134.2	89.09	-867.1	122.6	798.0	620.7	177.32	4.500	
8,300.0	6,723.7	6,708.7	6,708.7	45.6	134.2	88.95	-867.1	122.6	883.3	703.5	179.77	4.913	
8,400.0	6,722.7	6,707.7	6,707.7	48.1	134.2	88.81	-867.1	122.6	971.4	789.1	182.24	5.330	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Danley 33-20 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft
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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,900.0	6,686.0	6,854.6	6,704.0	143.1	20.4	91.56	-779.2	5,401.2	976.8	814.9	161.97	6.031	
12,000.0	6,685.0	6,853.6	6,703.0	145.9	20.4	91.39	-779.2	5,401.2	884.2	719.5	164.75	5.367	
12,100.0	6,684.0	6,852.5	6,702.0	148.7	20.4	91.22	-779.2	5,401.2	793.4	625.9	167.53	4.736	
12,200.0	6,682.9	6,851.5	6,700.9	151.4	20.4	91.05	-779.2	5,401.2	705.1	534.7	170.32	4.140	
12,300.0	6,681.9	6,850.4	6,699.9	154.2	20.4	90.88	-779.2	5,401.2	620.3	447.2	173.10	3.583	
12,400.0	6,680.8	6,849.4	6,698.8	157.0	20.4	90.71	-779.2	5,401.2	540.7	364.8	175.88	3.074	
12,500.0	6,679.8	6,848.3	6,697.8	159.8	20.4	90.53	-779.2	5,401.2	469.0	290.3	178.66	2.625	
12,600.0	6,678.7	6,847.3	6,696.7	162.6	20.4	90.36	-779.2	5,401.2	409.4	227.9	181.44	2.256	
12,700.0	6,677.7	6,846.3	6,695.7	165.4	20.4	90.19	-779.2	5,401.2	367.7	183.5	184.22	1.996	
12,800.0	6,676.6	6,845.2	6,694.6	168.1	20.4	90.02	-779.2	5,401.2	350.4	163.4	187.00	1.874	
12,812.0	6,676.5	6,845.1	6,694.5	168.5	20.4	90.00	-779.2	5,401.2	350.2	162.9	187.33	1.870 CC, ES, SF	
12,900.0	6,675.6	6,844.2	6,693.6	170.9	20.4	89.85	-779.2	5,401.2	361.1	171.4	189.78	1.903	
13,000.0	6,674.5	6,843.1	6,692.5	173.7	20.4	89.68	-779.2	5,401.2	397.5	205.0	192.55	2.064	
13,100.0	6,673.5	6,842.1	6,691.5	176.5	20.4	89.51	-779.2	5,401.2	453.5	258.1	195.33	2.322	
13,200.0	6,672.4	6,841.0	6,690.4	179.3	20.4	89.34	-779.2	5,401.2	522.7	324.6	198.10	2.639	
13,300.0	6,671.4	6,840.0	6,689.4	182.1	20.4	89.16	-779.2	5,401.2	600.7	399.8	200.88	2.990	
13,400.0	6,670.3	6,838.9	6,688.3	184.9	20.4	88.99	-779.2	5,401.2	684.4	480.8	203.65	3.361	
13,500.0	6,669.3	6,837.9	6,687.3	187.7	20.4	88.82	-779.2	5,401.2	772.0	565.6	206.42	3.740	
13,600.0	6,668.2	6,836.8	6,686.2	190.5	20.4	88.65	-779.2	5,401.2	862.3	653.1	209.19	4.122	
13,700.0	6,667.2	6,835.8	6,685.2	193.2	20.4	88.48	-779.2	5,401.2	954.6	742.6	211.96	4.504	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Danley 43-20 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 453-NS-GYRO-MS												Offset Well Error:	0.0 ft
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
13,300.0	6,671.4	6,881.9	6,700.4	182.1	18.5	94.79	-680.4	6,848.3	991.6	793.5	198.05	5.007	
13,400.0	6,670.3	6,879.1	6,697.7	184.9	18.5	94.17	-680.3	6,848.4	895.2	694.2	200.96	4.455	
13,500.0	6,669.3	6,876.4	6,695.0	187.7	18.5	93.56	-680.3	6,848.4	799.7	595.9	203.86	3.923	
13,600.0	6,668.2	6,873.7	6,692.3	190.5	18.5	92.94	-680.2	6,848.5	705.5	498.8	206.74	3.413	
13,700.0	6,667.2	6,871.0	6,689.6	193.2	18.5	92.33	-680.2	6,848.5	613.1	403.5	209.61	2.925	
13,800.0	6,666.2	6,868.4	6,686.9	196.0	18.5	91.73	-680.1	6,848.6	523.5	311.1	212.45	2.464	
13,900.0	6,665.1	6,865.7	6,684.3	198.8	18.5	91.12	-680.1	6,848.6	438.4	223.2	215.27	2.037	
14,000.0	6,664.1	6,863.1	6,681.6	201.6	18.5	90.52	-680.0	6,848.6	361.1	143.0	218.07	1.656	
14,100.0	6,663.0	6,860.4	6,679.0	204.4	18.5	89.92	-680.0	6,848.7	297.4	76.6	220.85	1.347 Level 3	
14,200.0	6,662.0	6,857.8	6,676.4	207.2	18.5	89.32	-680.0	6,848.7	258.0	34.4	223.61	1.154 Level 2	
14,259.6	6,661.3	6,856.3	6,674.8	208.9	18.5	88.97	-679.9	6,848.7	251.0	25.8	225.24	1.115 Level 2, CC, ES, SF	
14,291.9	6,661.0	6,855.4	6,674.0	209.8	18.5	88.78	-679.9	6,848.8	253.1	27.0	226.13	1.119 Level 2	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Evert 20-1 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7000-UNKNOWN												Offset Well Error:	0.0 ft
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
10,600.0	6,699.7	6,692.7	6,692.7	107.1	133.9	91.29	-848.5	4,089.7	993.3	752.4	240.89	4.123	
10,700.0	6,698.6	6,691.6	6,691.6	109.9	133.8	91.14	-848.5	4,089.7	903.7	660.0	243.64	3.709	
10,800.0	6,697.6	6,690.6	6,690.6	112.6	133.8	91.00	-848.5	4,089.7	816.4	570.0	246.39	3.314	
10,900.0	6,696.5	6,689.5	6,689.5	115.4	133.8	90.86	-848.5	4,089.7	732.4	483.3	249.14	2.940	
11,000.0	6,695.5	6,688.5	6,688.5	118.2	133.8	90.72	-848.5	4,089.7	653.0	401.1	251.89	2.592	
11,100.0	6,694.4	6,687.4	6,687.4	120.9	133.7	90.57	-848.5	4,089.7	579.9	325.3	254.64	2.277	
11,200.0	6,693.4	6,686.4	6,686.4	123.7	133.7	90.43	-848.5	4,089.7	516.0	258.6	257.39	2.005	
11,300.0	6,692.3	6,685.3	6,685.3	126.5	133.7	90.29	-848.5	4,089.7	465.0	204.8	260.15	1.787	
11,400.0	6,691.3	6,684.3	6,684.3	129.2	133.7	90.14	-848.5	4,089.7	431.4	168.5	262.90	1.641	
11,500.0	6,690.2	6,683.2	6,683.2	132.0	133.7	90.00	-848.5	4,089.7	419.6	153.9	265.65	1.579	
11,500.4	6,690.2	6,683.2	6,683.2	132.0	133.7	90.00	-848.5	4,089.7	419.6	153.9	265.66	1.579	CC, ES, SF
11,600.0	6,689.2	6,682.2	6,682.2	134.8	133.6	89.86	-848.5	4,089.7	431.2	162.8	268.41	1.607	
11,700.0	6,688.1	6,681.1	6,681.1	137.6	133.6	89.71	-848.5	4,089.7	464.6	193.5	271.16	1.714	
11,800.0	6,687.1	6,680.1	6,680.1	140.3	133.6	89.57	-848.5	4,089.7	515.6	241.7	273.91	1.882	
11,900.0	6,686.0	6,679.0	6,679.0	143.1	133.6	89.43	-848.5	4,089.7	579.4	302.8	276.66	2.094	
12,000.0	6,685.0	6,678.0	6,678.0	145.9	133.6	89.29	-848.5	4,089.7	652.4	373.0	279.41	2.335	
12,100.0	6,684.0	6,677.0	6,677.0	148.7	133.5	89.14	-848.5	4,089.7	731.8	449.7	282.16	2.594	
12,200.0	6,682.9	6,675.9	6,675.9	151.4	133.5	89.00	-848.5	4,089.7	815.8	530.8	284.91	2.863	
12,300.0	6,681.9	6,674.9	6,674.9	154.2	133.5	88.86	-848.5	4,089.7	903.0	615.3	287.66	3.139	
12,400.0	6,680.8	6,673.8	6,673.8	157.0	133.5	88.71	-848.5	4,089.7	992.6	702.2	290.41	3.418	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Mowery 19-1 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 6975-UNKNOWN												Offset Well Error:	0.0 ft
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
8,000.0	6,726.9	6,709.9	6,709.9	38.3	134.2	91.13	-856.1	1,395.7	912.4	739.9	172.48	5.290	
8,100.0	6,725.8	6,708.8	6,708.8	40.7	134.2	90.99	-856.1	1,395.7	825.3	650.5	174.84	4.721	
8,200.0	6,724.8	6,707.8	6,707.8	43.1	134.2	90.85	-856.1	1,395.7	741.6	564.3	177.26	4.184	
8,300.0	6,723.7	6,706.7	6,706.7	45.6	134.1	90.71	-856.1	1,395.7	662.4	482.7	179.71	3.686	
8,400.0	6,722.7	6,705.7	6,705.7	48.1	134.1	90.57	-856.1	1,395.7	589.5	407.3	182.21	3.235	
8,500.0	6,721.7	6,704.7	6,704.7	50.7	134.1	90.43	-856.1	1,395.7	525.6	340.9	184.73	2.845	
8,600.0	6,720.6	6,703.6	6,703.6	53.2	134.1	90.29	-856.1	1,395.7	474.3	287.1	187.28	2.533	
8,700.0	6,719.6	6,702.6	6,702.6	55.8	134.1	90.15	-856.1	1,395.7	440.2	250.3	189.85	2.319	
8,800.0	6,718.5	6,701.5	6,701.5	58.4	134.0	90.01	-856.1	1,395.7	427.2	234.8	192.44	2.220	
8,806.2	6,718.4	6,701.4	6,701.4	58.6	134.0	90.00	-856.1	1,395.7	427.2	234.6	192.60	2.218	CC, ES, SF
8,900.0	6,717.5	6,700.5	6,700.5	61.0	134.0	89.87	-856.1	1,395.7	437.3	242.3	195.05	2.242	
9,000.0	6,716.4	6,699.4	6,699.4	63.7	134.0	89.73	-856.1	1,395.7	469.1	271.4	197.67	2.373	
9,100.0	6,715.4	6,698.4	6,698.4	66.4	134.0	89.59	-856.1	1,395.7	518.4	318.1	200.30	2.588	
9,200.0	6,714.3	6,697.3	6,697.3	69.0	133.9	89.45	-856.1	1,395.7	580.9	378.0	202.95	2.863	
9,300.0	6,713.3	6,696.3	6,696.3	71.7	133.9	89.31	-856.1	1,395.7	652.9	447.3	205.60	3.175	
9,400.0	6,712.2	6,695.2	6,695.2	74.4	133.9	89.17	-856.1	1,395.7	731.4	523.2	208.27	3.512	
9,500.0	6,711.2	6,694.2	6,694.2	77.1	133.9	89.03	-856.1	1,395.7	814.7	603.8	210.94	3.862	
9,600.0	6,710.1	6,693.1	6,693.1	79.8	133.9	88.89	-856.1	1,395.7	901.4	687.7	213.61	4.220	
9,700.0	6,709.1	6,692.1	6,692.1	82.5	133.8	88.74	-856.1	1,395.7	990.5	774.3	216.29	4.580	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 19O-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 19O-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 19O-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (3-05-14)	Offset TVD Reference:	Offset Datum

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

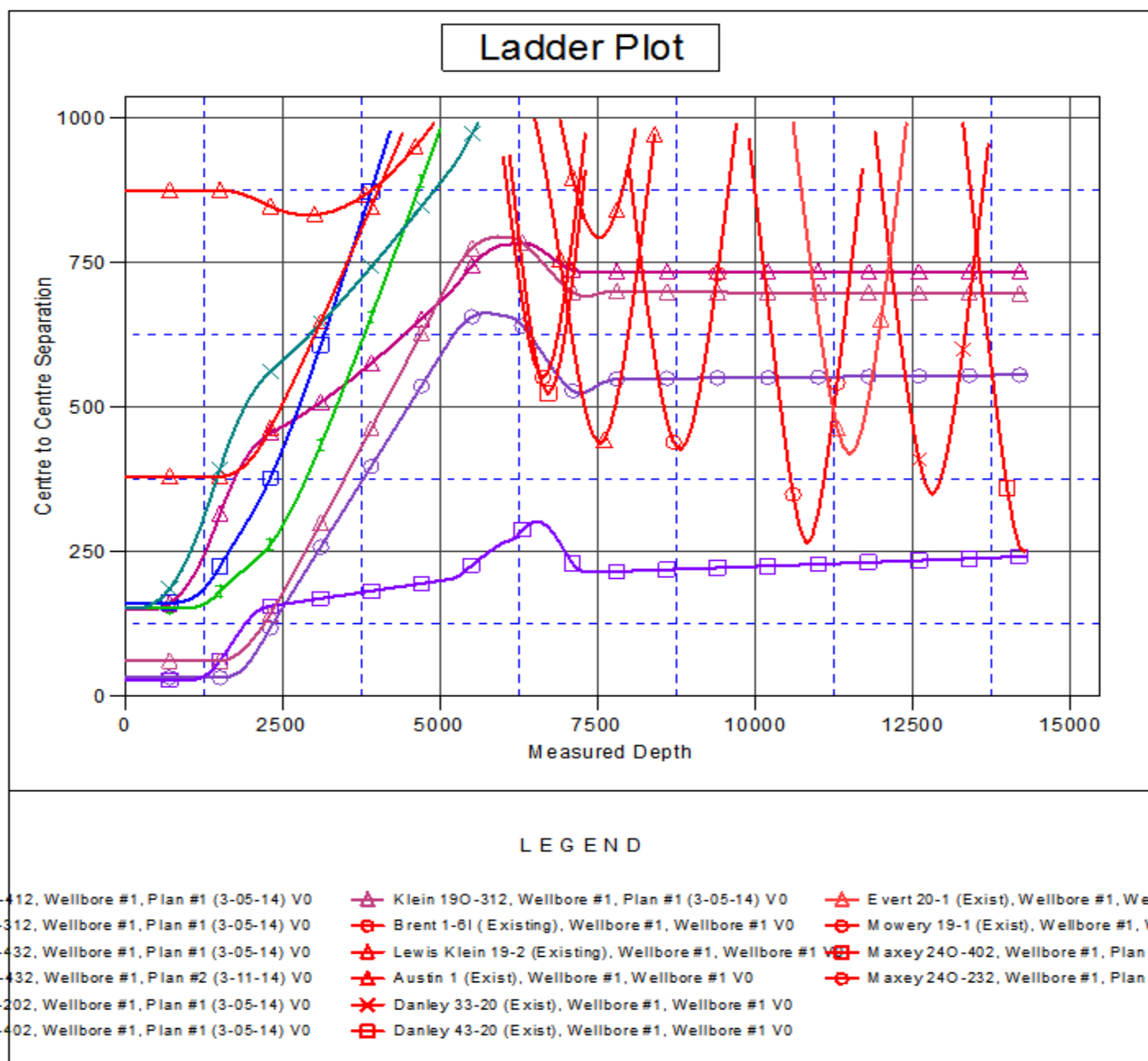
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Klein 19O-232

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.59°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Klein 190-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4641.0ft (RKB - 15')
Reference Site:	Klein 190-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4641.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Klein 190-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
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Reference Depths are relative to WELL @ 4641.0ft (RKB - 15')

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Central Meridian is -105.500000 °

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