

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Peschel 20G-202**

Surface Location: Peschel 4N65W20B Pad Sec.20-T4N-R65W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4801.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1350841.79	3225068.28	40.293650	-104.693140	

RKB - 15' WELL @ 4816.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 1100'FSL & 950'FWL	1.0	0.0	0.0	Point
BHL 2455'FSL & 500'FEL	6999.0	1370.1	3810.4	Point



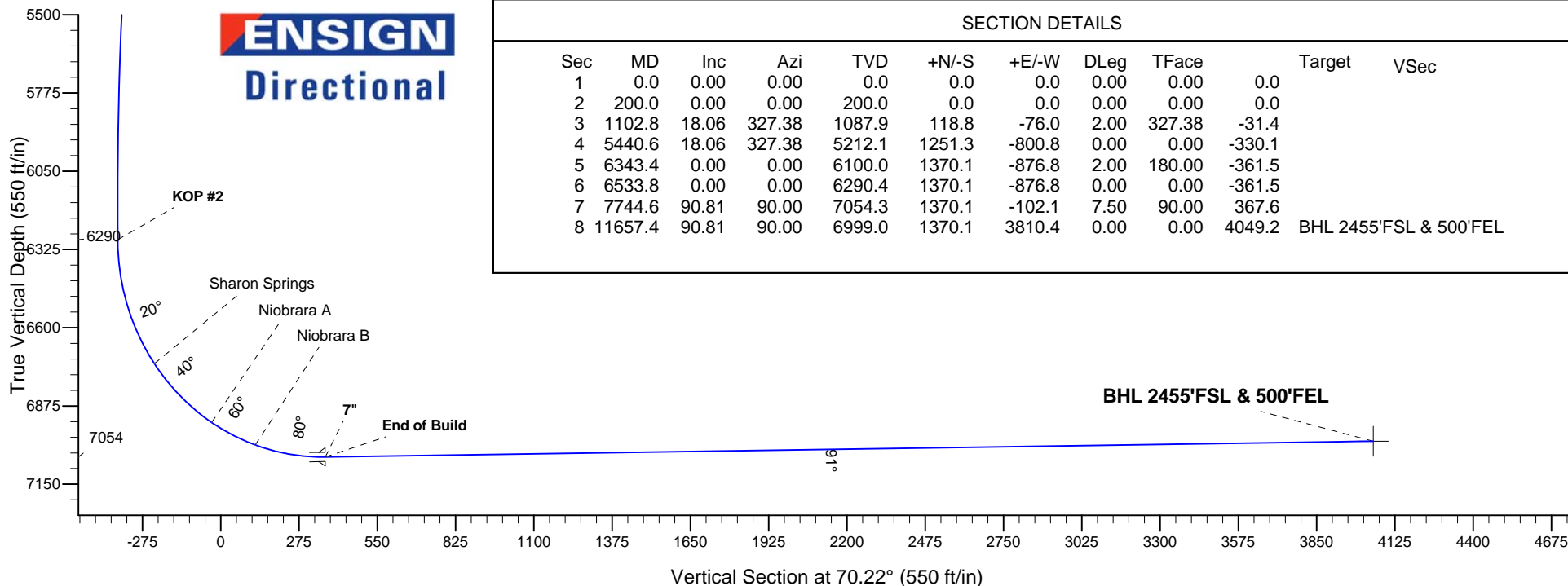
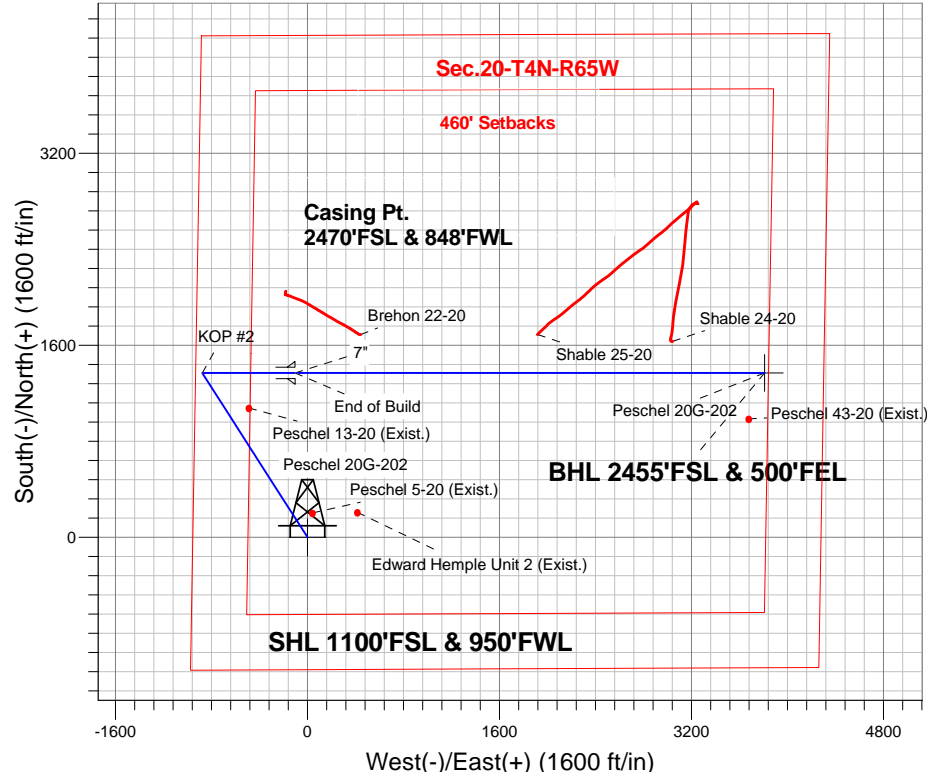
Azimuths to True North
Magnetic North: 8.39°

Magnetic Field
Strength: 52746.2snT
Dip Angle: 66.87°
Date: 8/27/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	KOP #1
6290.4	6533.8	KOP #2
7054.3	7744.6	End of Build

Peschel 4N65W20B Pad Sec.20-T4N-R65W
Peschel 20G-202
Plan #1 (8-22-14)
11:21, August 28 2014



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1102.8	18.06	327.38	1087.9	118.8	-76.0	2.00	327.38	-31.4	
4	5440.6	18.06	327.38	5212.1	1251.3	-800.8	0.00	0.00	-330.1	
5	6343.4	0.00	0.00	6100.0	1370.1	-876.8	2.00	180.00	-361.5	
6	6533.8	0.00	0.00	6290.4	1370.1	-876.8	0.00	0.00	-361.5	
7	7744.6	90.81	90.00	7054.3	1370.1	-102.1	7.50	90.00	367.6	
8	11657.4	90.81	90.00	6999.0	1370.1	3810.4	0.00	0.00	4049.2	BHL 2455'FSL & 500'FEL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.20-T4N-R65W

Peschel 4N65W20B Pad Sec.20-T4N-R65W

Peschel 20G-202

Wellbore #1

Plan: Plan #1 (8-22-14)

Standard Planning Report

28 August, 2014

Database:	Landmark	Local Co-ordinate Reference:	Well Peschel 20G-202
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Project:	SEC.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	North Reference:	True
Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-22-14)		

Project	SEC.20-T4N-R65W, Weld, Colorado		
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						Peschel 4N65W20B Pad Sec.20-T4N-R65W											
Site Position:						Northing:			1,350,841.81 ft			Latitude:			40.293650		
From:			Lat/Long			Easting:			3,225,068.28 ft			Longitude:			-104.693140		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.52 °		

Well	Peschel 20G-202					
Well Position	+N/-S	0.0 ft	Northing:	1,350,841.79 ft	Latitude:	40.293650
	+E/-W	0.0 ft	Easting:	3,225,068.28 ft	Longitude:	-104.693140
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,801.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/27/2014	8.39	66.87	52,746

Design	Plan #1 (8-22-14)			
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	70.22

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,102.8	18.06	327.38	1,087.9	118.8	-76.0	2.00	2.00	0.00	327.38	
5,440.6	18.06	327.38	5,212.1	1,251.3	-800.8	0.00	0.00	0.00	0.00	
6,343.4	0.00	0.00	6,100.0	1,370.1	-876.8	2.00	-2.00	0.00	180.00	
6,533.8	0.00	0.00	6,290.4	1,370.1	-876.8	0.00	0.00	0.00	0.00	
7,744.6	90.81	90.00	7,054.3	1,370.1	-102.1	7.50	7.50	0.00	90.00	
11,657.4	90.81	90.00	6,999.0	1,370.1	3,810.4	0.00	0.00	0.00	0.00	BHL 2455'FSL & 5C

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Project:	SEC.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	North Reference:	True
Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-22-14)		

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
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
KOP #1									
300.0	2.00	327.38	300.0	1.5	-0.9	-0.4	2.00	2.00	0.00
400.0	4.00	327.38	399.8	5.9	-3.8	-1.6	2.00	2.00	0.00
500.0	6.00	327.38	499.5	13.2	-8.5	-3.5	2.00	2.00	0.00
600.0	8.00	327.38	598.7	23.5	-15.0	-6.2	2.00	2.00	0.00
700.0	10.00	327.38	697.5	36.7	-23.5	-9.7	2.00	2.00	0.00
800.0	12.00	327.38	795.6	52.7	-33.7	-13.9	2.00	2.00	0.00
900.0	14.00	327.38	893.1	71.7	-45.9	-18.9	2.00	2.00	0.00
1,000.0	16.00	327.38	989.6	93.5	-59.8	-24.7	2.00	2.00	0.00
1,100.0	18.00	327.38	1,085.3	118.1	-75.6	-31.2	2.00	2.00	0.00
1,102.8	18.06	327.38	1,087.9	118.8	-76.0	-31.4	2.00	2.00	0.00
1,200.0	18.06	327.38	1,180.3	144.2	-92.3	-38.0	0.00	0.00	0.00
1,300.0	18.06	327.38	1,275.4	170.3	-109.0	-44.9	0.00	0.00	0.00
1,400.0	18.06	327.38	1,370.5	196.4	-125.7	-51.8	0.00	0.00	0.00
1,500.0	18.06	327.38	1,465.6	222.5	-142.4	-58.7	0.00	0.00	0.00
1,600.0	18.06	327.38	1,560.6	248.6	-159.1	-65.6	0.00	0.00	0.00
1,700.0	18.06	327.38	1,655.7	274.7	-175.8	-72.5	0.00	0.00	0.00
1,800.0	18.06	327.38	1,750.8	300.8	-192.5	-79.4	0.00	0.00	0.00
1,900.0	18.06	327.38	1,845.9	327.0	-209.2	-86.3	0.00	0.00	0.00
2,000.0	18.06	327.38	1,940.9	353.1	-225.9	-93.2	0.00	0.00	0.00
2,100.0	18.06	327.38	2,036.0	379.2	-242.6	-100.0	0.00	0.00	0.00
2,200.0	18.06	327.38	2,131.1	405.3	-259.4	-106.9	0.00	0.00	0.00
2,300.0	18.06	327.38	2,226.2	431.4	-276.1	-113.8	0.00	0.00	0.00
2,400.0	18.06	327.38	2,321.2	457.5	-292.8	-120.7	0.00	0.00	0.00
2,500.0	18.06	327.38	2,416.3	483.6	-309.5	-127.6	0.00	0.00	0.00
2,600.0	18.06	327.38	2,511.4	509.7	-326.2	-134.5	0.00	0.00	0.00
2,700.0	18.06	327.38	2,606.5	535.8	-342.9	-141.4	0.00	0.00	0.00
2,800.0	18.06	327.38	2,701.5	561.9	-359.6	-148.3	0.00	0.00	0.00
2,900.0	18.06	327.38	2,796.6	588.0	-376.3	-155.1	0.00	0.00	0.00
3,000.0	18.06	327.38	2,891.7	614.1	-393.0	-162.0	0.00	0.00	0.00
3,100.0	18.06	327.38	2,986.8	640.2	-409.7	-168.9	0.00	0.00	0.00
3,200.0	18.06	327.38	3,081.9	666.3	-426.4	-175.8	0.00	0.00	0.00
3,300.0	18.06	327.38	3,176.9	692.4	-443.1	-182.7	0.00	0.00	0.00
3,400.0	18.06	327.38	3,272.0	718.6	-459.8	-189.6	0.00	0.00	0.00
3,500.0	18.06	327.38	3,367.1	744.7	-476.5	-196.5	0.00	0.00	0.00
3,600.0	18.06	327.38	3,462.2	770.8	-493.3	-203.4	0.00	0.00	0.00
3,700.0	18.06	327.38	3,557.2	796.9	-510.0	-210.2	0.00	0.00	0.00
3,800.0	18.06	327.38	3,652.3	823.0	-526.7	-217.1	0.00	0.00	0.00
3,892.2	18.06	327.38	3,740.0	847.1	-542.1	-223.5	0.00	0.00	0.00
Parkman									
3,900.0	18.06	327.38	3,747.4	849.1	-543.4	-224.0	0.00	0.00	0.00
4,000.0	18.06	327.38	3,842.5	875.2	-560.1	-230.9	0.00	0.00	0.00
4,100.0	18.06	327.38	3,937.5	901.3	-576.8	-237.8	0.00	0.00	0.00
4,200.0	18.06	327.38	4,032.6	927.4	-593.5	-244.7	0.00	0.00	0.00
4,300.0	18.06	327.38	4,127.7	953.5	-610.2	-251.6	0.00	0.00	0.00
4,400.0	18.06	327.38	4,222.8	979.6	-626.9	-258.5	0.00	0.00	0.00
4,500.0	18.06	327.38	4,317.8	1,005.7	-643.6	-265.4	0.00	0.00	0.00
4,560.1	18.06	327.38	4,375.0	1,021.4	-653.7	-269.5	0.00	0.00	0.00
Sussex									
4,600.0	18.06	327.38	4,412.9	1,031.8	-660.3	-272.2	0.00	0.00	0.00

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Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	North Reference:	True
Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-22-14)		

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)
4,700.0	18.06	327.38	4,508.0	1,057.9	-677.0	-279.1	0.00	0.00	0.00
4,800.0	18.06	327.38	4,603.1	1,084.0	-693.7	-286.0	0.00	0.00	0.00
4,900.0	18.06	327.38	4,698.1	1,110.1	-710.4	-292.9	0.00	0.00	0.00
5,000.0	18.06	327.38	4,793.2	1,136.3	-727.2	-299.8	0.00	0.00	0.00
5,100.0	18.06	327.38	4,888.3	1,162.4	-743.9	-306.7	0.00	0.00	0.00
5,200.0	18.06	327.38	4,983.4	1,188.5	-760.6	-313.6	0.00	0.00	0.00
5,300.0	18.06	327.38	5,078.4	1,214.6	-777.3	-320.5	0.00	0.00	0.00
5,400.0	18.06	327.38	5,173.5	1,240.7	-794.0	-327.3	0.00	0.00	0.00
5,427.9	18.06	327.38	5,200.0	1,248.0	-798.6	-329.3	0.00	0.00	0.00
Shannon									
5,440.6	18.06	327.38	5,212.1	1,251.3	-800.8	-330.1	0.00	0.00	0.00
5,500.0	16.87	327.38	5,268.8	1,266.3	-810.4	-334.1	2.00	-2.00	0.00
5,600.0	14.87	327.38	5,365.0	1,289.3	-825.1	-340.2	2.00	-2.00	0.00
5,700.0	12.87	327.38	5,462.0	1,309.5	-838.0	-345.5	2.00	-2.00	0.00
5,800.0	10.87	327.38	5,559.9	1,326.8	-849.1	-350.1	2.00	-2.00	0.00
5,900.0	8.87	327.38	5,658.4	1,341.3	-858.3	-353.9	2.00	-2.00	0.00
6,000.0	6.87	327.38	5,757.5	1,352.8	-865.7	-356.9	2.00	-2.00	0.00
6,100.0	4.87	327.38	5,856.9	1,361.4	-871.2	-359.2	2.00	-2.00	0.00
6,200.0	2.87	327.38	5,956.7	1,367.1	-874.9	-360.7	2.00	-2.00	0.00
6,300.0	0.87	327.38	6,056.6	1,369.8	-876.6	-361.4	2.00	-2.00	0.00
6,343.4	0.00	0.00	6,100.0	1,370.1	-876.8	-361.5	2.00	-2.00	0.00
6,400.0	0.00	0.00	6,156.6	1,370.1	-876.8	-361.5	0.00	0.00	0.00
6,500.0	0.00	0.00	6,256.6	1,370.1	-876.8	-361.5	0.00	0.00	0.00
6,533.8	0.00	0.00	6,290.4	1,370.1	-876.8	-361.5	0.00	0.00	0.00
KOP #2									
6,600.0	4.96	90.00	6,356.6	1,370.1	-873.9	-358.8	7.50	7.50	0.00
6,700.0	12.46	90.00	6,455.3	1,370.1	-858.8	-344.5	7.50	7.50	0.00
6,800.0	19.96	90.00	6,551.3	1,370.1	-830.9	-318.3	7.50	7.50	0.00
6,900.0	27.46	90.00	6,642.8	1,370.1	-790.7	-280.5	7.50	7.50	0.00
6,997.3	34.76	90.00	6,726.0	1,370.1	-740.5	-233.2	7.50	7.50	0.00
Sharon Springs									
7,000.0	34.96	90.00	6,728.2	1,370.1	-738.9	-231.7	7.50	7.50	0.00
7,100.0	42.46	90.00	6,806.2	1,370.1	-676.4	-172.9	7.50	7.50	0.00
7,200.0	49.96	90.00	6,875.4	1,370.1	-604.3	-105.0	7.50	7.50	0.00
7,297.2	57.26	90.00	6,933.0	1,370.1	-526.1	-31.4	7.50	7.50	0.00
Niobrara A									
7,300.0	57.46	90.00	6,934.5	1,370.1	-523.7	-29.2	7.50	7.50	0.00
7,400.0	64.96	90.00	6,982.6	1,370.1	-436.1	53.2	7.50	7.50	0.00
7,478.1	70.82	90.00	7,012.0	1,370.1	-363.8	121.3	7.50	7.50	0.00
Niobrara B									
7,500.0	72.46	90.00	7,018.9	1,370.1	-343.0	140.8	7.50	7.50	0.00
7,600.0	79.96	90.00	7,042.7	1,370.1	-246.0	232.1	7.50	7.50	0.00
7,700.0	87.46	90.00	7,053.6	1,370.1	-146.6	325.6	7.50	7.50	0.00
7,744.6	90.81	90.00	7,054.3	1,370.1	-102.1	367.5	7.50	7.50	0.00
End of Build - 7"									
7,800.0	90.81	90.00	7,053.5	1,370.1	-46.7	419.7	0.00	0.00	0.00
7,900.0	90.81	90.00	7,052.1	1,370.1	53.3	513.8	0.00	0.00	0.00
8,000.0	90.81	90.00	7,050.7	1,370.1	153.3	607.9	0.00	0.00	0.00
8,100.0	90.81	90.00	7,049.3	1,370.1	253.3	702.0	0.00	0.00	0.00
8,200.0	90.81	90.00	7,047.9	1,370.1	353.3	796.0	0.00	0.00	0.00
8,300.0	90.81	90.00	7,046.5	1,370.1	453.3	890.1	0.00	0.00	0.00
8,400.0	90.81	90.00	7,045.0	1,370.1	553.3	984.2	0.00	0.00	0.00

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Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	North Reference:	True
Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-22-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,500.0	90.81	90.00	7,043.6	1,370.1	653.3	1,078.3	0.00	0.00	0.00
8,600.0	90.81	90.00	7,042.2	1,370.1	753.3	1,172.4	0.00	0.00	0.00
8,700.0	90.81	90.00	7,040.8	1,370.1	853.2	1,266.5	0.00	0.00	0.00
8,800.0	90.81	90.00	7,039.4	1,370.1	953.2	1,360.6	0.00	0.00	0.00
8,900.0	90.81	90.00	7,038.0	1,370.1	1,053.2	1,454.7	0.00	0.00	0.00
9,000.0	90.81	90.00	7,036.6	1,370.1	1,153.2	1,548.8	0.00	0.00	0.00
9,100.0	90.81	90.00	7,035.2	1,370.1	1,253.2	1,642.9	0.00	0.00	0.00
9,200.0	90.81	90.00	7,033.7	1,370.1	1,353.2	1,737.0	0.00	0.00	0.00
9,300.0	90.81	90.00	7,032.3	1,370.1	1,453.2	1,831.1	0.00	0.00	0.00
9,400.0	90.81	90.00	7,030.9	1,370.1	1,553.2	1,925.2	0.00	0.00	0.00
9,500.0	90.81	90.00	7,029.5	1,370.1	1,653.2	2,019.2	0.00	0.00	0.00
9,600.0	90.81	90.00	7,028.1	1,370.1	1,753.2	2,113.3	0.00	0.00	0.00
9,700.0	90.81	90.00	7,026.7	1,370.1	1,853.1	2,207.4	0.00	0.00	0.00
9,800.0	90.81	90.00	7,025.3	1,370.1	1,953.1	2,301.5	0.00	0.00	0.00
9,900.0	90.81	90.00	7,023.8	1,370.1	2,053.1	2,395.6	0.00	0.00	0.00
10,000.0	90.81	90.00	7,022.4	1,370.1	2,153.1	2,489.7	0.00	0.00	0.00
10,100.0	90.81	90.00	7,021.0	1,370.1	2,253.1	2,583.8	0.00	0.00	0.00
10,200.0	90.81	90.00	7,019.6	1,370.1	2,353.1	2,677.9	0.00	0.00	0.00
10,300.0	90.81	90.00	7,018.2	1,370.1	2,453.1	2,772.0	0.00	0.00	0.00
10,400.0	90.81	90.00	7,016.8	1,370.1	2,553.1	2,866.1	0.00	0.00	0.00
10,500.0	90.81	90.00	7,015.4	1,370.1	2,653.1	2,960.2	0.00	0.00	0.00
10,600.0	90.81	90.00	7,013.9	1,370.1	2,753.1	3,054.3	0.00	0.00	0.00
10,700.0	90.81	90.00	7,012.5	1,370.1	2,853.0	3,148.4	0.00	0.00	0.00
10,800.0	90.81	90.00	7,011.1	1,370.1	2,953.0	3,242.4	0.00	0.00	0.00
10,900.0	90.81	90.00	7,009.7	1,370.1	3,053.0	3,336.5	0.00	0.00	0.00
11,000.0	90.81	90.00	7,008.3	1,370.1	3,153.0	3,430.6	0.00	0.00	0.00
11,100.0	90.81	90.00	7,006.9	1,370.1	3,253.0	3,524.7	0.00	0.00	0.00
11,200.0	90.81	90.00	7,005.5	1,370.1	3,353.0	3,618.8	0.00	0.00	0.00
11,300.0	90.81	90.00	7,004.1	1,370.1	3,453.0	3,712.9	0.00	0.00	0.00
11,400.0	90.81	90.00	7,002.6	1,370.1	3,553.0	3,807.0	0.00	0.00	0.00
11,500.0	90.81	90.00	7,001.2	1,370.1	3,653.0	3,901.1	0.00	0.00	0.00
11,600.0	90.81	90.00	6,999.8	1,370.1	3,753.0	3,995.2	0.00	0.00	0.00
11,657.4	90.81	90.00	6,999.0	1,370.1	3,810.4	4,049.2	0.00	0.00	0.00

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL 1100'FSL & 950'I	0.00	0.00	1.0	0.0	0.0	1,350,841.81	3,225,068.28	40.293650	-104.693140
- plan hits target center									
- Point									
BHL 2455'FSL & 500'I	0.00	0.00	6,999.0	1,370.1	3,810.4	1,352,246.44	3,228,865.87	40.297410	-104.679480
- plan hits target center									
- Point									

Database:	Landmark	Local Co-ordinate Reference:	Well Peschel 20G-202
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Project:	SEC.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	North Reference:	True
Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (8-22-14)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,744.6	7,054.3	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,892.2	3,740.0	Parkman		0.00	
4,560.1	4,375.0	Sussex		0.00	
5,427.9	5,200.0	Shannon		0.00	
6,997.3	6,726.0	Sharon Springs		0.00	
7,297.2	6,933.0	Niobrara A		0.00	
7,478.1	7,012.0	Niobrara B		0.00	
	7,097.0	Niobrara C		0.00	
	7,212.0	Ft. Hays		0.00	
	7,229.0	Codell		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP #1
6,533.8	6,290.4	1,370.1	-876.8	KOP #2
7,744.6	7,054.3	1,370.1	-102.1	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.20-T4N-R65W

Peschel 4N65W20B Pad Sec.20-T4N-R65W

Peschel 20G-202

Wellbore #1

Plan #1 (8-22-14)

Anticollision Report

28 August, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (8-22-14)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	8/28/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,657.4	Plan #1 (8-22-14) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Brehon Pad Sec.20-T4N-R65W						
Brehon 22-20 - Brehon 22-20 - Brehon 22-20	8,296.5	6,596.9	576.8	539.6	15.498	CC
Brehon 22-20 - Brehon 22-20 - Brehon 22-20	8,300.0	6,596.9	576.9	539.6	15.480	ES
Brehon 22-20 - Brehon 22-20 - Brehon 22-20	8,400.0	6,596.9	586.0	547.5	15.196	SF
Existing wells Sec.20-T4N-R65W						
Edward Hemple Unit 2 (Exist.) - Wellbore #1 - Wellbore #	200.0	194.0	464.6	460.4	110.173	CC
Edward Hemple Unit 2 (Exist.) - Wellbore #1 - Wellbore #	600.0	592.7	468.4	455.2	35.555	ES
Edward Hemple Unit 2 (Exist.) - Wellbore #1 - Wellbore #	3,300.0	3,170.9	986.2	913.5	13.578	SF
Peschel 13-20 (Exist.) - Wellbore #1 - Wellbore #1	4,427.0	4,218.5	170.1	61.2	1.562	CC
Peschel 13-20 (Exist.) - Wellbore #1 - Wellbore #1	4,500.0	4,287.8	171.6	61.1	1.553	ES, SF
Peschel 43-20 (Exist.) - Wellbore #1 - Wellbore #1	11,523.6	7,014.9	382.6	121.7	1.467	Level 3, CC, ES, SF
Peschel 5-20 (Exist.) - Wellbore #1 - Wellbore #1	1,129.4	1,099.2	145.2	119.5	5.656	CC
Peschel 5-20 (Exist.) - Wellbore #1 - Wellbore #1	1,200.0	1,166.3	146.9	119.5	5.362	ES
Peschel 5-20 (Exist.) - Wellbore #1 - Wellbore #1	1,300.0	1,261.4	154.6	124.9	5.212	SF
Peschel 4N65W20B Pad Sec.20-T4N-R65W						
Peschel 20G-232 - Wellbore #1 - Plan #1 ((8-22-14)	200.0	200.0	58.3	57.6	86.438	CC, ES
Peschel 20G-232 - Wellbore #1 - Plan #1 ((8-22-14)	11,657.4	11,583.1	462.7	214.5	1.864	SF
Peschel 20G-332 - Wellbore #1 - Plan #1 (8-22-14)	200.0	200.0	29.1	28.5	43.216	CC
Peschel 20G-332 - Wellbore #1 - Plan #1 (8-22-14)	11,657.4	11,693.5	233.6	-4.8	0.980	Level 1, ES, SF
Peschel 20H-302 - Wellbore #1 - Plan #1 (8-22-14)	200.0	201.0	87.4	86.7	129.223	CC, ES
Peschel 20H-302 - Wellbore #1 - Plan #1 (8-22-14)	11,657.4	11,596.7	953.6	706.8	3.864	SF
Shable 17-20 Pad Sec.20-T4N-R65W						
Shable 24-20 - Wellbore #1 - Wellbore #1	10,879.9	7,165.8	262.0	142.8	2.198	CC, ES
Shable 24-20 - Wellbore #1 - Wellbore #1	10,900.0	7,165.5	262.8	143.0	2.195	SF
Shable 25-20 - Wellbore #1 - Wellbore #1	9,765.4	7,260.5	320.7	219.0	3.151	CC, ES
Shable 25-20 - Wellbore #1 - Wellbore #1	9,800.0	7,260.1	322.6	219.9	3.141	SF

Offset Design												Brehon Pad Sec.20-T4N-R65W - Brehon 22-20 - Brehon 22-20 - Brehon 22-20		Offset Site Error:		0.0 ft	
Survey Program: 580-														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				

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 Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design		Brehon Pad Sec.20-T4N-R65W - Brehon 22-20 - Brehon 22-20 - Brehon 22-20											Offset Site Error:		0.0 ft		
Survey Program: 580-Reference		Offset		Semi Major Axis		Highside Toolface (')	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	Offset Well Error:		0.0 ft	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)							
7,500.0	7,018.9	6,596.9	6,537.6	32.1	18.4	-25.58	1,690.0	443.0	961.7	931.4	30.24	31.801					
7,600.0	7,042.7	6,596.9	6,537.6	31.8	18.4	-28.51	1,690.0	443.0	896.5	866.9	29.64	30.253					
7,700.0	7,053.6	6,596.9	6,537.6	31.7	18.4	-31.96	1,690.0	443.0	829.1	798.7	30.34	27.327					
7,800.0	7,053.5	6,596.9	6,537.6	31.5	18.4	-33.68	1,690.0	443.0	761.1	729.5	31.58	24.099					
7,900.0	7,052.1	6,596.9	6,537.6	31.5	18.4	-33.68	1,690.0	443.0	700.0	667.4	32.58	21.486					
8,000.0	7,050.7	6,596.9	6,537.6	31.7	18.4	-33.68	1,690.0	443.0	648.6	614.9	33.66	19.271					
8,100.0	7,049.3	6,596.9	6,537.6	32.5	18.4	-33.68	1,690.0	443.0	609.4	574.6	34.80	17.511					
8,200.0	7,047.9	6,596.9	6,537.6	34.1	18.4	-33.68	1,690.0	443.0	584.9	548.9	36.01	16.243					
8,296.5	7,046.5	6,596.9	6,537.6	36.1	18.4	-33.68	1,690.0	443.0	576.8	539.6	37.22	15.498 CC					
8,300.0	7,046.5	6,596.9	6,537.6	36.2	18.4	-33.68	1,690.0	443.0	576.9	539.6	37.27	15.480 ES					
8,400.0	7,045.0	6,596.9	6,537.6	38.4	18.4	-33.68	1,690.0	443.0	586.0	547.5	38.57	15.196 SF					
8,500.0	7,043.6	6,596.9	6,537.6	40.7	18.4	-33.68	1,690.0	443.0	611.7	571.8	39.91	15.327					
8,600.0	7,042.2	6,596.9	6,537.6	43.1	18.4	-33.68	1,690.0	443.0	651.8	610.5	41.28	15.789					
8,700.0	7,040.8	6,596.9	6,537.6	45.5	18.4	-33.68	1,690.0	443.0	703.9	661.3	42.68	16.492					
8,800.0	7,039.4	6,596.9	6,537.6	48.0	18.4	-33.68	1,690.0	443.0	765.7	721.5	44.11	17.357					
8,900.0	7,038.0	6,596.9	6,537.6	50.5	18.4	-33.68	1,690.0	443.0	834.8	789.3	45.56	18.323					
9,000.0	7,036.6	6,596.9	6,537.6	53.0	18.4	-33.68	1,690.0	443.0	909.7	862.7	47.03	19.343					
9,100.0	7,035.2	6,596.9	6,537.6	55.6	18.4	-33.68	1,690.0	443.0	989.1	940.6	48.52	20.386					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing wells Sec.20-T4N-R65W - Edward Hemple Unit 2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 4560-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	63.45	63.45	207.7	415.6	464.7				
100.0	100.0	94.0	94.0	0.1	1.9	63.45	63.45	207.7	415.6	464.6	462.6	1.99	233.184	
200.0	200.0	194.0	194.0	0.3	3.9	63.45	63.45	207.7	415.6	464.6	460.4	4.22	110.173 CC	
300.0	300.0	294.0	294.0	0.6	5.9	96.28	96.28	207.7	415.6	464.8	458.4	6.44	72.176	
400.0	399.8	393.8	393.8	0.8	7.9	96.91	96.91	207.7	415.6	465.4	456.8	8.67	53.699	
500.0	499.5	493.5	493.5	1.0	9.9	97.94	97.94	207.7	415.6	466.6	455.6	10.91	42.767	
600.0	598.7	592.7	592.7	1.3	11.9	99.37	99.37	207.7	415.6	468.4	455.2	13.17	35.555 ES	
700.0	697.5	691.5	691.5	1.7	13.8	101.17	101.17	207.7	415.6	471.2	455.8	15.47	30.469	
800.0	795.6	789.6	789.6	2.0	15.8	103.31	103.31	207.7	415.6	475.3	457.6	17.79	26.727	
900.0	893.1	887.1	887.1	2.5	17.7	105.74	105.74	207.7	415.6	481.1	461.0	20.13	23.905	
1,000.0	989.6	983.6	983.6	3.0	19.7	108.42	108.42	207.7	415.6	489.0	466.5	22.48	21.751	
1,100.0	1,085.3	1,079.3	1,079.3	3.5	21.6	111.29	111.29	207.7	415.6	499.3	474.5	24.83	20.107	
1,200.0	1,180.3	1,174.3	1,174.3	4.1	23.5	114.39	114.39	207.7	415.6	511.9	484.7	27.19	18.824	
1,300.0	1,275.4	1,269.4	1,269.4	4.7	25.4	117.35	117.35	207.7	415.6	526.0	496.4	29.53	17.811	
1,400.0	1,370.5	1,364.5	1,364.5	5.3	27.3	120.15	120.15	207.7	415.6	541.5	509.6	31.84	17.004	
1,500.0	1,465.6	1,459.6	1,459.6	6.0	29.2	122.81	122.81	207.7	415.6	558.2	524.1	34.13	16.357	
1,600.0	1,560.6	1,554.6	1,554.6	6.6	31.1	125.32	125.32	207.7	415.6	576.2	539.8	36.39	15.834	
1,700.0	1,655.7	1,649.7	1,649.7	7.2	33.0	127.68	127.68	207.7	415.6	595.3	556.6	38.63	15.410	
1,800.0	1,750.8	1,744.8	1,744.8	7.8	34.9	129.90	129.90	207.7	415.6	615.3	574.4	40.84	15.065	
1,900.0	1,845.9	1,839.9	1,839.9	8.5	36.8	131.98	131.98	207.7	415.6	636.2	593.1	43.04	14.782	
2,000.0	1,940.9	1,934.9	1,934.9	9.1	38.7	133.94	133.94	207.7	415.6	657.9	612.6	45.21	14.551	
2,100.0	2,036.0	2,030.0	2,030.0	9.7	40.6	135.77	135.77	207.7	415.6	680.3	632.9	47.37	14.360	
2,200.0	2,131.1	2,125.1	2,125.1	10.4	42.5	137.50	137.50	207.7	415.6	703.3	653.8	49.52	14.204	
2,300.0	2,226.2	2,220.2	2,220.2	11.0	44.4	139.11	139.11	207.7	415.6	727.0	675.3	51.65	14.075	
2,400.0	2,321.2	2,315.2	2,315.2	11.6	46.3	140.63	140.63	207.7	415.6	751.2	697.4	53.78	13.969	
2,500.0	2,416.3	2,410.3	2,410.3	12.3	48.2	142.06	142.06	207.7	415.6	775.8	720.0	55.89	13.881	
2,600.0	2,511.4	2,505.4	2,505.4	12.9	50.1	143.40	143.40	207.7	415.6	801.0	743.0	58.00	13.810	
2,700.0	2,606.5	2,600.5	2,600.5	13.5	52.0	144.66	144.66	207.7	415.6	826.5	766.4	60.10	13.751	
2,800.0	2,701.5	2,695.5	2,695.5	14.2	53.9	145.84	145.84	207.7	415.6	852.3	790.1	62.20	13.704	
2,900.0	2,796.6	2,790.6	2,790.6	14.8	55.8	146.96	146.96	207.7	415.6	878.6	814.3	64.29	13.665	
3,000.0	2,891.7	2,885.7	2,885.7	15.4	57.7	148.02	148.02	207.7	415.6	905.1	838.7	66.38	13.635	
3,100.0	2,986.8	2,980.8	2,980.8	16.1	59.6	149.01	149.01	207.7	415.6	931.8	863.4	68.47	13.611	
3,200.0	3,081.9	3,075.9	3,075.9	16.7	61.5	149.96	149.96	207.7	415.6	958.9	888.3	70.55	13.592	
3,300.0	3,176.9	3,170.9	3,170.9	17.3	63.4	150.85	150.85	207.7	415.6	986.2	913.5	72.63	13.578 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing wells Sec.20-T4N-R65W - Peschel 13-20 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7312-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,300.0	1,275.4	1,245.4	1,245.4	4.7	24.9	10.46	10.46	1,078.4	-488.2	984.0	957.1	26.90	36.577	
1,400.0	1,370.5	1,340.5	1,340.5	5.3	26.8	10.80	10.80	1,078.4	-488.2	953.5	924.5	29.04	32.836	
1,500.0	1,465.6	1,435.6	1,435.6	6.0	28.7	11.16	11.16	1,078.4	-488.2	923.0	891.9	31.18	29.603	
1,600.0	1,560.6	1,530.6	1,530.6	6.6	30.6	11.54	11.54	1,078.4	-488.2	892.6	859.3	33.33	26.781	
1,700.0	1,655.7	1,625.7	1,625.7	7.2	32.5	11.95	11.95	1,078.4	-488.2	862.2	826.7	35.48	24.299	
1,800.0	1,750.8	1,720.8	1,720.8	7.8	34.4	12.39	12.39	1,078.4	-488.2	831.8	794.2	37.64	22.097	
1,900.0	1,845.9	1,815.9	1,815.9	8.5	36.3	12.87	12.87	1,078.4	-488.2	801.5	761.7	39.81	20.133	
2,000.0	1,940.9	1,910.9	1,910.9	9.1	38.2	13.38	13.38	1,078.4	-488.2	771.2	729.3	41.99	18.369	
2,100.0	2,036.0	2,006.0	2,006.0	9.7	40.1	13.93	13.93	1,078.4	-488.2	741.0	696.9	44.17	16.777	
2,200.0	2,131.1	2,101.1	2,101.1	10.4	42.0	14.53	14.53	1,078.4	-488.2	710.9	664.5	46.36	15.333	
2,300.0	2,226.2	2,196.2	2,196.2	11.0	43.9	15.18	15.18	1,078.4	-488.2	680.9	632.3	48.57	14.018	
2,400.0	2,321.2	2,291.2	2,291.2	11.6	45.8	15.89	15.89	1,078.4	-488.2	650.9	600.1	50.79	12.815	
2,500.0	2,416.3	2,386.3	2,386.3	12.3	47.7	16.67	16.67	1,078.4	-488.2	621.0	568.0	53.03	11.712	
2,600.0	2,511.4	2,481.4	2,481.4	12.9	49.6	17.53	17.53	1,078.4	-488.2	591.3	536.0	55.28	10.696	
2,700.0	2,606.5	2,576.5	2,576.5	13.5	51.5	18.48	18.48	1,078.4	-488.2	561.7	504.1	57.56	9.759	
2,800.0	2,701.5	2,671.5	2,671.5	14.2	53.4	19.53	19.53	1,078.4	-488.2	532.2	472.3	59.86	8.891	
2,900.0	2,796.6	2,766.6	2,766.6	14.8	55.3	20.71	20.71	1,078.4	-488.2	502.9	440.7	62.20	8.086	
3,000.0	2,891.7	2,861.7	2,861.7	15.4	57.2	22.02	22.02	1,078.4	-488.2	473.9	409.3	64.57	7.339	
3,100.0	2,986.8	2,956.8	2,956.8	16.1	59.1	23.51	23.51	1,078.4	-488.2	445.1	378.1	67.00	6.643	
3,200.0	3,081.9	3,051.9	3,051.9	16.7	61.0	25.19	25.19	1,078.4	-488.2	416.6	347.1	69.48	5.996	
3,300.0	3,176.9	3,146.9	3,146.9	17.3	62.9	27.12	27.12	1,078.4	-488.2	388.5	316.5	72.04	5.393	
3,400.0	3,272.0	3,242.0	3,242.0	18.0	64.8	29.34	29.34	1,078.4	-488.2	360.9	286.2	74.69	4.832	
3,500.0	3,367.1	3,337.1	3,337.1	18.6	66.7	31.91	31.91	1,078.4	-488.2	333.9	256.4	77.46	4.311	
3,600.0	3,462.2	3,432.2	3,432.2	19.2	68.6	34.91	34.91	1,078.4	-488.2	307.6	227.3	80.36	3.828	
3,700.0	3,557.2	3,527.2	3,527.2	19.9	70.5	38.45	38.45	1,078.4	-488.2	282.3	198.9	83.43	3.384	
3,800.0	3,652.3	3,622.3	3,622.3	20.5	72.4	42.63	42.63	1,078.4	-488.2	258.3	171.6	86.70	2.979	
3,900.0	3,747.4	3,717.4	3,717.4	21.1	74.3	47.60	47.60	1,078.4	-488.2	235.8	145.7	90.18	2.615	
4,000.0	3,842.5	3,812.5	3,812.5	21.8	76.2	53.50	53.50	1,078.4	-488.2	215.5	121.7	93.86	2.296	
4,100.0	3,937.5	3,907.5	3,907.5	22.4	78.2	60.46	60.46	1,078.4	-488.2	198.0	100.3	97.70	2.027	
4,200.0	4,032.6	4,002.6	4,002.6	23.1	80.1	68.53	68.53	1,078.4	-488.2	184.1	82.5	101.53	1.813	
4,300.0	4,127.7	4,097.7	4,097.7	23.7	82.0	77.59	77.59	1,078.4	-488.2	174.6	69.5	105.11	1.661	
4,400.0	4,222.8	4,192.8	4,192.8	24.3	83.9	87.32	87.32	1,078.4	-488.2	170.3	62.1	108.16	1.574	
4,427.0	4,248.5	4,218.5	4,218.5	24.5	84.4	90.00	90.00	1,078.4	-488.2	170.1	61.2	108.86	1.562 CC	
4,500.0	4,317.8	4,287.8	4,287.8	25.0	85.8	97.20	97.20	1,078.4	-488.2	171.6	61.1	110.47	1.553 ES, SF	
4,600.0	4,412.9	4,382.9	4,382.9	25.6	87.7	106.68	106.68	1,078.4	-488.2	178.3	66.3	112.05	1.592	
4,700.0	4,508.0	4,478.0	4,478.0	26.2	89.6	115.31	115.31	1,078.4	-488.2	190.0	76.9	113.08	1.680	
4,800.0	4,603.1	4,573.1	4,573.1	26.9	91.5	122.87	122.87	1,078.4	-488.2	205.7	91.8	113.82	1.807	
4,900.0	4,698.1	4,668.1	4,668.1	27.5	93.4	129.33	129.33	1,078.4	-488.2	224.5	110.1	114.50	1.961	
5,000.0	4,793.2	4,763.2	4,763.2	28.1	95.3	134.79	134.79	1,078.4	-488.2	245.9	130.7	115.25	2.134	
5,100.0	4,888.3	4,858.3	4,858.3	28.8	97.2	139.38	139.38	1,078.4	-488.2	269.1	153.0	116.13	2.318	
5,200.0	4,983.4	4,953.4	4,953.4	29.4	99.1	143.25	143.25	1,078.4	-488.2	293.8	176.6	117.18	2.507	
5,300.0	5,078.4	5,048.4	5,048.4	30.1	101.0	146.53	146.53	1,078.4	-488.2	319.6	201.2	118.37	2.700	
5,400.0	5,173.5	5,143.5	5,143.5	30.7	102.9	149.32	149.32	1,078.4	-488.2	346.2	226.5	119.71	2.892	
5,500.0	5,268.6	5,238.6	5,238.6	31.3	104.8	151.84	151.84	1,078.4	-488.2	373.0	251.4	121.60	3.067	
5,600.0	5,363.7	5,333.7	5,333.7	31.7	106.7	153.91	153.91	1,078.4	-488.2	397.5	273.6	123.93	3.208	
5,700.0	5,462.0	5,432.0	5,432.0	32.1	108.6	155.52	155.52	1,078.4	-488.2	419.3	293.0	126.36	3.318	
5,800.0	5,559.9	5,529.9	5,529.9	32.5	110.6	156.79	156.79	1,078.4	-488.2	438.2	309.4	128.82	3.402	
5,900.0	5,658.4	5,628.4	5,628.4	32.8	112.6	157.76	157.76	1,078.4	-488.2	454.0	322.8	131.27	3.459	
6,000.0	5,757.5	5,727.5	5,727.5	33.0	114.5	158.49	158.49	1,078.4	-488.2	466.8	333.1	133.67	3.492	
6,100.0	5,856.9	5,826.9	5,826.9	33.3	116.5	159.01	159.01	1,078.4	-488.2	476.3	340.3	135.99	3.502	
6,200.0	5,956.7	5,926.7	5,926.7	33.4	118.5	159.34	159.34	1,078.4	-488.2	482.6	344.4	138.22	3.492	

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 Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing wells Sec.20-T4N-R65W - Peschel 13-20 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7312-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
6,300.0	6,056.6	6,026.6	6,026.6	33.5	120.5	159.50	1,078.4	-488.2	485.7	345.3	140.33	3.461	
6,400.0	6,156.6	6,126.6	6,126.6	33.6	122.5	126.89	1,078.4	-488.2	486.0	331.3	154.68	3.142	
6,500.0	6,256.6	6,226.6	6,226.6	33.7	124.5	126.89	1,078.4	-488.2	486.0	329.2	156.77	3.100	
6,600.0	6,356.6	6,326.6	6,326.6	33.8	126.5	37.20	1,078.4	-488.2	483.7	337.7	146.02	3.312	
6,700.0	6,455.3	6,425.3	6,425.3	33.7	128.5	38.87	1,078.4	-488.2	471.7	326.1	145.56	3.241	
6,800.0	6,551.3	6,521.3	6,521.3	33.6	130.4	42.17	1,078.4	-488.2	450.1	306.4	143.73	3.132	
6,900.0	6,642.8	6,612.8	6,612.8	33.5	132.3	47.38	1,078.4	-488.2	420.3	278.4	141.86	2.963	
7,000.0	6,728.2	6,698.2	6,698.2	33.3	134.0	54.84	1,078.4	-488.2	384.7	242.5	142.20	2.705	
7,100.0	6,806.2	6,776.2	6,776.2	33.0	135.5	64.54	1,078.4	-488.2	347.2	200.5	146.67	2.367	
7,200.0	6,875.4	6,845.4	6,845.4	32.8	136.9	75.64	1,078.4	-488.2	314.0	160.0	154.00	2.039	
7,300.0	6,934.5	6,904.5	6,904.5	32.5	138.1	86.25	1,078.4	-488.2	293.9	133.9	159.99	1.837	
7,341.5	6,955.8	6,925.8	6,925.8	32.4	138.5	90.00	1,078.4	-488.2	291.7	130.3	161.44	1.807	
7,400.0	6,982.6	6,952.6	6,952.6	32.3	139.1	94.32	1,078.4	-488.2	296.3	133.9	162.42	1.825	
7,500.0	7,018.9	6,988.9	6,988.9	32.1	139.8	98.52	1,078.4	-488.2	325.8	163.0	162.88	2.001	
7,600.0	7,042.7	7,012.7	7,012.7	31.8	140.3	98.23	1,078.4	-488.2	379.2	215.2	163.99	2.312	
7,700.0	7,053.6	7,023.6	7,023.6	31.7	140.5	92.96	1,078.4	-488.2	449.2	283.0	166.13	2.704	
7,800.0	7,053.5	7,023.5	7,023.5	31.5	140.5	88.77	1,078.4	-488.2	529.2	361.9	167.29	3.163	
7,900.0	7,052.1	7,022.1	7,022.1	31.5	140.4	88.50	1,078.4	-488.2	615.1	446.3	168.75	3.645	
8,000.0	7,050.7	7,020.7	7,020.7	31.7	140.4	88.22	1,078.4	-488.2	704.7	534.3	170.40	4.136	
8,100.0	7,049.3	7,019.3	7,019.3	32.5	140.4	87.94	1,078.4	-488.2	796.8	624.6	172.19	4.627	
8,200.0	7,047.9	7,017.9	7,017.9	34.1	140.4	87.67	1,078.4	-488.2	890.6	716.5	174.11	5.115	
8,300.0	7,046.5	7,016.5	7,016.5	36.2	140.3	87.39	1,078.4	-488.2	985.6	809.5	176.13	5.596	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design												Existing wells Sec.20-T4N-R65W - Peschel 43-20 (Exist.) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft	
Survey Program: 7348-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)						
10,600.0	7,013.9	7,027.9	7,027.9	95.5	140.6	91.95	987.5	3,676.5	999.6	763.8	235.76	4.240					
10,700.0	7,012.5	7,026.5	7,026.5	98.2	140.5	91.74	987.5	3,676.5	908.0	669.6	238.46	3.808					
10,800.0	7,011.1	7,025.1	7,025.1	101.0	140.5	91.53	987.5	3,676.5	818.4	577.2	241.18	3.393					
10,900.0	7,009.7	7,023.7	7,023.7	103.7	140.5	91.32	987.5	3,676.5	731.5	487.6	243.89	2.999					
11,000.0	7,008.3	7,022.3	7,022.3	106.4	140.4	91.11	987.5	3,676.5	648.4	401.8	246.60	2.629					
11,100.0	7,006.9	7,020.9	7,020.9	109.2	140.4	90.90	987.5	3,676.5	570.7	321.4	249.32	2.289					
11,200.0	7,005.5	7,019.5	7,019.5	111.9	140.4	90.69	987.5	3,676.5	501.0	249.0	252.03	1.988					
11,300.0	7,004.1	7,018.1	7,018.1	114.7	140.4	90.47	987.5	3,676.5	443.1	188.3	254.75	1.739					
11,400.0	7,002.6	7,016.6	7,016.6	117.4	140.3	90.26	987.5	3,676.5	402.0	144.6	257.46	1.561					
11,500.0	7,001.2	7,015.2	7,015.2	120.2	140.3	90.05	987.5	3,676.5	383.3	123.1	260.17	1.473	Level 3				
11,523.6	7,000.9	7,014.9	7,014.9	120.8	140.3	90.00	987.5	3,676.5	382.6	121.7	260.81	1.467	Level 3, CC, ES, SF				
11,600.0	6,999.8	7,013.8	7,013.8	122.9	140.3	89.84	987.5	3,676.5	390.1	127.2	262.89	1.484	Level 3				
11,657.4	6,999.0	7,013.0	7,013.0	124.5	140.3	89.72	987.5	3,676.5	405.3	140.8	264.45	1.533					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing wells Sec.20-T4N-R65W - Peschel 5-20 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7456-UNKNOWN													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Warning								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	11.59	204.0	41.8	208.7					
100.0	100.0	86.0	86.0	0.1	1.7	11.59	204.0	41.8	208.3	206.4	1.83	113.649		
200.0	200.0	186.0	186.0	0.3	3.7	11.59	204.0	41.8	208.3	204.2	4.06	51.332		
300.0	300.0	286.0	286.0	0.6	5.7	44.56	204.0	41.8	207.0	200.7	6.28	32.964		
400.0	399.8	385.8	385.8	0.8	7.7	45.65	204.0	41.8	203.3	194.8	8.50	23.921		
500.0	499.5	485.5	485.5	1.0	9.7	47.54	204.0	41.8	197.3	186.6	10.72	18.407		
600.0	598.7	584.7	584.7	1.3	11.7	50.38	204.0	41.8	189.3	176.3	12.95	14.616		
700.0	697.5	683.5	683.5	1.7	13.7	54.35	204.0	41.8	179.7	164.4	15.21	11.813		
800.0	795.6	781.6	781.6	2.0	15.6	59.72	204.0	41.8	169.1	151.6	17.52	9.655		
900.0	893.1	879.1	879.1	2.5	17.6	66.78	204.0	41.8	158.8	138.9	19.91	7.974		
1,000.0	989.6	975.6	975.6	3.0	19.5	75.77	204.0	41.8	150.2	127.8	22.40	6.705		
1,100.0	1,085.3	1,071.3	1,071.3	3.5	21.4	86.60	204.0	41.8	145.5	120.6	24.94	5.834		
1,129.4	1,113.2	1,099.2	1,099.2	3.7	22.0	90.00	204.0	41.8	145.2	119.5	25.68	5.656 CC		
1,200.0	1,180.3	1,166.3	1,166.3	4.1	23.3	98.16	204.0	41.8	146.9	119.5	27.39	5.362 ES		
1,300.0	1,275.4	1,261.4	1,261.4	4.7	25.2	109.11	204.0	41.8	154.6	124.9	29.65	5.212 SF		
1,400.0	1,370.5	1,356.5	1,356.5	5.3	27.1	118.78	204.0	41.8	167.7	136.0	31.75	5.282		
1,500.0	1,465.6	1,451.6	1,451.6	6.0	29.0	126.95	204.0	41.8	185.2	151.4	33.73	5.489		
1,600.0	1,560.6	1,546.6	1,546.6	6.6	30.9	133.69	204.0	41.8	205.8	170.2	35.67	5.771		
1,700.0	1,655.7	1,641.7	1,641.7	7.2	32.8	139.19	204.0	41.8	228.9	191.3	37.59	6.089		
1,800.0	1,750.8	1,736.8	1,736.8	7.8	34.7	143.69	204.0	41.8	253.6	214.1	39.52	6.417		
1,900.0	1,845.9	1,831.9	1,831.9	8.5	36.6	147.40	204.0	41.8	279.6	238.1	41.46	6.742		
2,000.0	1,940.9	1,926.9	1,926.9	9.1	38.5	150.49	204.0	41.8	306.5	263.0	43.43	7.057		
2,100.0	2,036.0	2,022.0	2,022.0	9.7	40.4	153.08	204.0	41.8	334.1	288.7	45.41	7.357		
2,200.0	2,131.1	2,117.1	2,117.1	10.4	42.3	155.29	204.0	41.8	362.2	314.8	47.41	7.640		
2,300.0	2,226.2	2,212.2	2,212.2	11.0	44.2	157.17	204.0	41.8	390.8	341.4	49.43	7.907		
2,400.0	2,321.2	2,307.2	2,307.2	11.6	46.1	158.80	204.0	41.8	419.8	368.3	51.46	8.158		
2,500.0	2,416.3	2,402.3	2,402.3	12.3	48.0	160.23	204.0	41.8	449.0	395.5	53.49	8.393		
2,600.0	2,511.4	2,497.4	2,497.4	12.9	49.9	161.48	204.0	41.8	478.4	422.9	55.54	8.613		
2,700.0	2,606.5	2,592.5	2,592.5	13.5	51.8	162.58	204.0	41.8	508.0	450.4	57.60	8.820		
2,800.0	2,701.5	2,687.5	2,687.5	14.2	53.8	163.57	204.0	41.8	537.8	478.1	59.66	9.014		
2,900.0	2,796.6	2,782.6	2,782.6	14.8	55.7	164.45	204.0	41.8	567.7	506.0	61.73	9.196		
3,000.0	2,891.7	2,877.7	2,877.7	15.4	57.6	165.24	204.0	41.8	597.7	533.9	63.81	9.368		
3,100.0	2,986.8	2,972.8	2,972.8	16.1	59.5	165.96	204.0	41.8	627.8	562.0	65.89	9.529		
3,200.0	3,081.9	3,067.9	3,067.9	16.7	61.4	166.61	204.0	41.8	658.0	590.1	67.97	9.681		
3,300.0	3,176.9	3,162.9	3,162.9	17.3	63.3	167.21	204.0	41.8	688.3	618.2	70.06	9.825		
3,400.0	3,272.0	3,258.0	3,258.0	18.0	65.2	167.76	204.0	41.8	718.6	646.5	72.15	9.961		
3,500.0	3,367.1	3,353.1	3,353.1	18.6	67.1	168.26	204.0	41.8	749.0	674.8	74.24	10.089		
3,600.0	3,462.2	3,448.2	3,448.2	19.2	69.0	168.72	204.0	41.8	779.4	703.1	76.33	10.211		
3,700.0	3,557.2	3,543.2	3,543.2	19.9	70.9	169.15	204.0	41.8	809.9	731.5	78.43	10.327		
3,800.0	3,652.3	3,638.3	3,638.3	20.5	72.8	169.55	204.0	41.8	840.4	759.9	80.53	10.436		
3,900.0	3,747.4	3,733.4	3,733.4	21.1	74.7	169.91	204.0	41.8	871.0	788.3	82.63	10.541		
4,000.0	3,842.5	3,828.5	3,828.5	21.8	76.6	170.26	204.0	41.8	901.5	816.8	84.73	10.640		
4,100.0	3,937.5	3,923.5	3,923.5	22.4	78.5	170.58	204.0	41.8	932.1	845.3	86.83	10.735		
4,200.0	4,032.6	4,018.6	4,018.6	23.1	80.4	170.88	204.0	41.8	962.8	873.8	88.94	10.825		
4,300.0	4,127.7	4,113.7	4,113.7	23.7	82.3	171.17	204.0	41.8	993.4	902.4	91.04	10.912		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design Peschel 4N65W20B Pad Sec.20-T4N-R65W - Peschel 20G-232 - Wellbore #1 - Plan #1 ((8-22-14))													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+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	-58.3	0.0	58.3					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-58.3	0.0	58.3	58.1	0.22	259.313		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-58.3	0.0	58.3	57.6	0.67	86.438 CC, ES		
300.0	300.0	300.0	300.0	0.6	0.6	-148.27	-58.3	0.0	59.8	58.6	1.13	52.963		
400.0	399.8	399.8	399.8	0.8	0.8	-150.68	-58.3	0.0	64.3	62.7	1.59	40.462		
500.0	499.5	499.5	499.5	1.0	1.0	-154.01	-58.3	0.0	72.0	69.9	2.05	35.054		
600.0	598.7	598.7	598.7	1.3	1.2	-157.60	-58.3	0.0	83.1	80.6	2.52	32.943		
700.0	697.5	700.4	700.4	1.7	1.5	-160.59	-57.0	-1.2	96.3	93.3	2.99	32.187		
800.0	795.6	802.7	802.5	2.0	1.7	-162.54	-53.0	-4.8	109.8	106.4	3.46	31.739		
900.0	893.1	905.5	904.9	2.5	1.9	-163.77	-46.3	-11.0	123.6	119.6	3.94	31.333		
1,000.0	989.6	1,008.7	1,007.3	3.0	2.2	-164.48	-36.8	-19.7	137.5	133.0	4.45	30.908		
1,100.0	1,085.3	1,112.5	1,109.7	3.5	2.5	-164.82	-24.6	-30.9	151.5	146.5	4.98	30.423		
1,200.0	1,180.3	1,216.9	1,212.2	4.1	2.9	-164.79	-9.5	-44.7	164.0	158.5	5.57	29.474		
1,300.0	1,275.4	1,322.1	1,314.5	4.7	3.3	-164.22	8.4	-61.2	173.2	167.0	6.20	27.958		
1,400.0	1,370.5	1,424.8	1,413.6	5.3	3.8	-163.27	28.3	-79.4	179.6	172.7	6.87	26.127		
1,500.0	1,465.6	1,524.6	1,509.7	6.0	4.3	-162.34	48.0	-97.4	185.5	178.0	7.58	24.490		
1,600.0	1,560.6	1,624.4	1,605.9	6.6	4.8	-161.47	67.7	-115.5	191.5	183.3	8.29	23.094		
1,700.0	1,655.7	1,724.1	1,702.0	7.2	5.3	-160.65	87.4	-133.5	197.6	188.6	9.04	21.858		
1,800.0	1,750.8	1,823.9	1,798.1	7.8	5.8	-159.88	107.0	-151.5	203.7	193.9	9.80	20.777		
1,900.0	1,845.9	1,923.7	1,894.3	8.5	6.3	-159.15	126.7	-169.6	209.8	199.2	10.58	19.825		
2,000.0	1,940.9	2,023.5	1,990.4	9.1	6.9	-158.47	146.4	-187.6	216.0	204.6	11.38	18.982		
2,100.0	2,036.0	2,123.3	2,086.6	9.7	7.4	-157.82	166.0	-205.6	222.1	210.0	12.18	18.231		
2,200.0	2,131.1	2,223.0	2,182.7	10.4	8.0	-157.21	185.7	-223.7	228.3	215.3	13.00	17.560		
2,300.0	2,226.2	2,322.8	2,278.9	11.0	8.5	-156.63	205.4	-241.7	234.6	220.7	13.83	16.956		
2,400.0	2,321.2	2,422.6	2,375.0	11.6	9.0	-156.08	225.1	-259.7	240.8	226.2	14.67	16.412		
2,500.0	2,416.3	2,522.4	2,471.1	12.3	9.6	-155.56	244.7	-277.8	247.1	231.6	15.52	15.919		
2,600.0	2,511.4	2,622.1	2,567.3	12.9	10.1	-155.06	264.4	-295.8	253.4	237.0	16.38	15.470		
2,700.0	2,606.5	2,721.9	2,663.4	13.5	10.7	-154.59	284.1	-313.8	259.7	242.5	17.25	15.060		
2,800.0	2,701.5	2,821.7	2,759.6	14.2	11.2	-154.14	303.8	-331.9	266.0	247.9	18.12	14.685		
2,900.0	2,796.6	2,921.5	2,855.7	14.8	11.8	-153.72	323.4	-349.9	272.4	253.4	18.99	14.340		
3,000.0	2,891.7	3,021.3	2,951.9	15.4	12.3	-153.31	343.1	-367.9	278.8	258.9	19.88	14.023		
3,100.0	2,986.8	3,121.0	3,048.0	16.1	12.9	-152.92	362.8	-386.0	285.1	264.4	20.77	13.729		
3,200.0	3,081.9	3,220.8	3,144.1	16.7	13.5	-152.54	382.4	-404.0	291.5	269.9	21.66	13.458		
3,300.0	3,176.9	3,320.6	3,240.3	17.3	14.0	-152.19	402.1	-422.0	297.9	275.3	22.56	13.205		
3,400.0	3,272.0	3,420.4	3,336.4	18.0	14.6	-151.85	421.8	-440.1	304.3	280.9	23.46	12.970		
3,500.0	3,367.1	3,520.1	3,432.6	18.6	15.1	-151.52	441.5	-458.1	310.7	286.4	24.37	12.751		
3,600.0	3,462.2	3,619.9	3,528.7	19.2	15.7	-151.20	461.1	-476.1	317.2	291.9	25.28	12.546		
3,700.0	3,557.2	3,719.7	3,624.9	19.9	16.2	-150.90	480.8	-494.2	323.6	297.4	26.20	12.354		
3,800.0	3,652.3	3,819.5	3,721.0	20.5	16.8	-150.61	500.5	-512.2	330.1	302.9	27.11	12.173		
3,900.0	3,747.4	3,919.3	3,817.2	21.1	17.3	-150.33	520.2	-530.2	336.5	308.5	28.03	12.004		
4,000.0	3,842.5	4,019.0	3,913.3	21.8	17.9	-150.06	539.8	-548.3	343.0	314.0	28.96	11.844		
4,100.0	3,937.5	4,118.8	4,009.4	22.4	18.5	-149.80	559.5	-566.3	349.4	319.6	29.88	11.694		
4,200.0	4,032.6	4,218.6	4,105.6	23.1	19.0	-149.55	579.2	-584.3	355.9	325.1	30.81	11.552		
4,300.0	4,127.7	4,318.4	4,201.7	23.7	19.6	-149.31	598.8	-602.3	362.4	330.7	31.74	11.417		
4,400.0	4,222.8	4,418.2	4,297.9	24.3	20.1	-149.08	618.5	-620.4	368.9	336.2	32.67	11.290		
4,500.0	4,317.8	4,517.9	4,394.0	25.0	20.7	-148.86	638.2	-638.4	375.4	341.8	33.61	11.169		
4,600.0	4,412.9	4,617.7	4,490.2	25.6	21.3	-148.64	657.9	-656.4	381.9	347.3	34.55	11.054		
4,700.0	4,508.0	4,717.5	4,586.3	26.2	21.8	-148.43	677.5	-674.5	388.4	352.9	35.49	10.945		
4,800.0	4,603.1	4,817.3	4,682.4	26.9	22.4	-148.23	697.2	-692.5	394.9	358.5	36.43	10.841		
4,900.0	4,698.1	4,917.0	4,778.6	27.5	22.9	-148.03	716.9	-710.5	401.4	364.0	37.37	10.742		
5,000.0	4,793.2	5,016.8	4,874.7	28.1	23.5	-147.84	736.5	-728.6	407.9	369.6	38.31	10.648		

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 Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design Peschel 4N65W20B Pad Sec.20-T4N-R65W - Peschel 20G-232 - Wellbore #1 - Plan #1 ((8-22-14))													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	4,888.3	5,116.6	4,970.9	28.8	24.0	-147.66		756.2	-746.6	414.5	375.2	39.26	10.557	
5,200.0	4,983.4	5,216.4	5,067.0	29.4	24.6	-147.48		775.9	-764.6	421.0	380.8	40.20	10.471	
5,300.0	5,078.4	5,316.2	5,163.2	30.1	25.2	-147.31		795.6	-782.7	427.5	386.4	41.15	10.389	
5,400.0	5,173.5	5,415.9	5,259.3	30.7	25.7	-147.14		815.2	-800.7	434.1	392.0	42.10	10.310	
5,500.0	5,268.8	5,513.4	5,353.3	31.3	26.2	-146.99		834.4	-818.3	440.1	397.1	43.02	10.232	
5,600.0	5,365.0	5,600.0	5,437.2	31.7	26.6	-146.84		850.1	-832.7	445.2	401.5	43.71	10.184	
5,700.0	5,462.0	5,692.8	5,527.7	32.1	26.9	-146.71		864.9	-846.2	449.6	405.2	44.35	10.136	
5,800.0	5,559.9	5,782.4	5,615.8	32.5	27.2	-146.60		877.0	-857.3	453.3	408.4	44.90	10.097	
5,900.0	5,658.4	5,871.9	5,704.3	32.8	27.5	-146.51		887.2	-866.6	456.5	411.1	45.36	10.064	
6,000.0	5,757.5	5,961.5	5,793.2	33.0	27.7	-146.44		895.3	-874.1	459.0	413.2	45.74	10.035	
6,100.0	5,856.9	6,051.0	5,882.3	33.3	27.9	-146.39		901.3	-879.6	460.9	414.8	46.04	10.010	
6,200.0	5,956.7	6,140.6	5,971.7	33.4	28.0	-146.36		905.3	-883.3	462.1	415.8	46.26	9.990	
6,300.0	6,056.6	6,230.1	6,061.2	33.5	28.1	-146.34		907.2	-885.0	462.7	416.3	46.39	9.974	
6,400.0	6,156.6	6,325.5	6,156.6	33.6	28.2	-178.96		907.4	-885.2	462.8	410.2	52.55	8.806	
6,500.0	6,256.6	6,425.5	6,256.6	33.7	28.3	-178.96		907.4	-885.2	462.8	410.0	52.77	8.770	
6,600.0	6,356.6	6,526.3	6,357.3	33.8	28.4	91.04		907.4	-882.3	462.8	415.8	46.99	9.848	
6,700.0	6,455.3	6,627.4	6,457.1	33.7	28.4	91.02		907.4	-866.8	462.8	415.8	46.91	9.865	
6,800.0	6,551.3	6,728.4	6,554.0	33.6	28.3	90.98		907.4	-838.3	462.8	416.1	46.60	9.929	
6,900.0	6,642.8	6,829.4	6,646.2	33.5	28.1	90.92		907.4	-797.3	462.7	416.6	46.15	10.028	
7,000.0	6,728.2	6,930.4	6,732.2	33.3	27.9	90.85		907.4	-744.5	462.7	417.1	45.63	10.141	
7,100.0	6,806.2	7,031.3	6,810.4	33.0	27.6	90.76		907.4	-680.9	462.7	417.6	45.17	10.244	
7,200.0	6,875.4	7,132.0	6,879.5	32.8	27.3	90.67		907.4	-607.7	462.7	417.8	44.92	10.301	
7,300.0	6,934.5	7,232.7	6,938.3	32.5	27.1	90.56		907.4	-526.1	462.7	417.7	45.02	10.278	
7,400.0	6,982.6	7,333.2	6,985.8	32.3	26.9	90.44		907.4	-437.6	462.7	417.1	45.61	10.146	
7,500.0	7,018.9	7,433.6	7,021.3	32.1	26.8	90.31		907.4	-343.8	462.7	415.9	46.75	9.896	
7,600.0	7,042.7	7,533.8	7,044.1	31.8	26.9	90.18		907.4	-246.2	462.7	414.2	48.48	9.544	
7,700.0	7,053.6	7,633.9	7,054.0	31.7	27.1	90.04		907.4	-146.7	462.7	412.0	50.72	9.121	
7,800.0	7,053.5	7,733.9	7,053.4	31.5	27.7	89.99		907.4	-46.7	462.7	409.3	53.43	8.660	
7,900.0	7,052.1	7,833.9	7,052.0	31.5	28.6	89.99		907.4	53.3	462.7	406.1	56.54	8.183	
8,000.0	7,050.7	7,933.9	7,050.6	31.7	30.1	89.99		907.4	153.3	462.7	402.7	60.02	7.708	
8,100.0	7,049.3	8,033.9	7,049.2	32.5	31.8	89.99		907.4	253.3	462.7	398.9	63.81	7.251	
8,200.0	7,047.9	8,133.9	7,047.8	34.1	33.8	89.99		907.4	353.3	462.7	394.8	67.85	6.820	
8,300.0	7,046.5	8,233.9	7,046.3	36.2	35.9	89.99		907.4	453.3	462.7	390.6	72.10	6.418	
8,400.0	7,045.0	8,333.9	7,044.9	38.4	38.1	89.99		907.4	553.3	462.7	386.2	76.52	6.046	
8,500.0	7,043.6	8,433.9	7,043.5	40.7	40.5	89.99		907.4	653.3	462.7	381.6	81.10	5.705	
8,600.0	7,042.2	8,533.9	7,042.1	43.1	42.8	89.99		907.4	753.3	462.7	376.9	85.79	5.393	
8,700.0	7,040.8	8,633.9	7,040.7	45.5	45.3	89.99		907.4	853.2	462.7	372.1	90.59	5.107	
8,800.0	7,039.4	8,733.9	7,039.3	48.0	47.7	89.99		907.4	953.2	462.7	367.2	95.49	4.846	
8,900.0	7,038.0	8,833.9	7,037.9	50.5	50.2	89.99		907.4	1,053.2	462.7	362.2	100.45	4.606	
9,000.0	7,036.6	8,933.9	7,036.4	53.0	52.8	89.99		907.4	1,153.2	462.7	357.2	105.48	4.386	
9,100.0	7,035.2	9,033.9	7,035.0	55.6	55.3	89.99		907.4	1,253.2	462.7	352.1	110.57	4.184	
9,200.0	7,033.7	9,133.9	7,033.6	58.1	57.9	89.99		907.4	1,353.2	462.7	347.0	115.71	3.999	
9,300.0	7,032.3	9,233.9	7,032.2	60.7	60.5	89.99		907.4	1,453.2	462.7	341.8	120.89	3.827	
9,400.0	7,030.9	9,333.9	7,030.8	63.3	63.2	89.99		907.4	1,553.2	462.7	336.6	126.10	3.669	
9,500.0	7,029.5	9,433.9	7,029.4	66.0	65.8	89.99		907.4	1,653.2	462.7	331.3	131.35	3.522	
9,600.0	7,028.1	9,533.9	7,028.0	68.6	68.4	89.99		907.4	1,753.2	462.7	326.0	136.63	3.386	
9,700.0	7,026.7	9,633.9	7,026.6	71.3	71.1	89.99		907.4	1,853.1	462.7	320.7	141.93	3.260	
9,800.0	7,025.3	9,733.9	7,025.1	73.9	73.8	89.99		907.4	1,953.1	462.7	315.4	147.26	3.142	
9,900.0	7,023.8	9,833.9	7,023.7	76.6	76.4	89.99		907.4	2,053.1	462.7	310.1	152.61	3.032	
10,000.0	7,022.4	9,933.9	7,022.3	79.3	79.1	89.99		907.4	2,153.1	462.7	304.7	157.98	2.929	
10,100.0	7,021.0	10,033.9	7,020.9	82.0	81.8	89.99		907.4	2,253.1	462.7	299.3	163.36	2.832	

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 Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design Peschel 4N65W20B Pad Sec.20-T4N-R65W - Peschel 20G-232 - Wellbore #1 - Plan #1 ((8-22-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (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
10,200.0	7,019.6	10,133.9	7,019.5	84.7	84.5	89.99	907.4	2,353.1	462.7	293.9	168.76	2.742	
10,300.0	7,018.2	10,233.9	7,018.1	87.4	87.2	89.99	907.4	2,453.1	462.7	288.5	174.17	2.656	
10,400.0	7,016.8	10,333.9	7,016.7	90.1	90.0	89.99	907.4	2,553.1	462.7	283.1	179.59	2.576	
10,500.0	7,015.4	10,433.9	7,015.2	92.8	92.7	89.99	907.4	2,653.1	462.7	277.6	185.03	2.501	
10,600.0	7,013.9	10,533.9	7,013.8	95.5	95.4	89.99	907.4	2,753.1	462.7	272.2	190.47	2.429	
10,700.0	7,012.5	10,633.9	7,012.4	98.2	98.1	89.99	907.4	2,853.0	462.7	266.7	195.93	2.361	
10,800.0	7,011.1	10,733.9	7,011.0	101.0	100.9	89.99	907.4	2,953.0	462.7	261.3	201.39	2.297	
10,900.0	7,009.7	10,833.9	7,009.6	103.7	103.6	89.99	907.4	3,053.0	462.7	255.8	206.87	2.237	
11,000.0	7,008.3	10,933.9	7,008.2	106.4	106.4	89.99	907.4	3,153.0	462.7	250.3	212.35	2.179	
11,100.0	7,006.9	11,033.9	7,006.8	109.2	109.1	89.99	907.4	3,253.0	462.7	244.8	217.83	2.124	
11,200.0	7,005.5	11,133.9	7,005.3	111.9	111.8	89.99	907.4	3,353.0	462.7	239.3	223.33	2.072	
11,300.0	7,004.1	11,233.9	7,003.9	114.7	114.6	89.99	907.4	3,453.0	462.7	233.8	228.83	2.022	
11,400.0	7,002.6	11,333.9	7,002.5	117.4	117.3	89.99	907.4	3,553.0	462.7	228.3	234.33	1.974	
11,500.0	7,001.2	11,433.9	7,001.1	120.2	120.1	89.99	907.4	3,653.0	462.7	222.8	239.84	1.929	
11,600.0	6,999.8	11,533.9	6,999.7	122.9	122.9	89.99	907.4	3,753.0	462.7	217.3	245.35	1.886	
11,640.1	6,999.2	11,574.0	6,999.1	124.0	124.0	89.99	907.4	3,793.0	462.7	215.1	247.56	1.869	
11,657.4	6,999.0	11,583.1	6,999.0	124.5	124.2	89.99	907.4	3,802.1	462.7	214.5	248.29	1.864 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design												Peschel 4N65W20B Pad Sec.20-T4N-R65W - Peschel 20G-332 - Wellbore #1 - Plan #1 (8-22-14)		Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft		
Reference		Offset		Semi Major Axis		Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
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	129.647				
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-29.1	0.0	29.1	28.5	0.67	43.216	CC			
300.0	300.0	300.0	300.0	0.6	0.6	-149.13	-29.1	0.0	30.6	29.5	1.13	27.139				
400.0	399.8	399.8	399.8	0.8	0.8	-153.46	-29.1	0.0	35.2	33.6	1.59	22.167				
500.0	499.5	500.8	500.8	1.0	1.0	-157.59	-27.7	-1.1	41.6	39.6	2.05	20.322				
600.0	598.7	602.0	601.8	1.3	1.2	-160.30	-23.4	-4.3	48.2	45.7	2.51	19.235				
700.0	697.5	703.4	702.9	1.7	1.5	-162.09	-16.3	-9.6	55.0	52.0	2.98	18.453				
800.0	795.6	805.1	803.8	2.0	1.8	-163.24	-6.2	-17.1	61.8	58.3	3.47	17.823				
900.0	893.1	907.0	904.4	2.5	2.1	-163.94	6.7	-26.8	68.7	64.7	3.98	17.266				
1,000.0	989.6	1,009.2	1,004.6	3.0	2.4	-164.30	22.6	-38.6	75.5	71.0	4.51	16.741				
1,100.0	1,085.3	1,111.7	1,104.4	3.5	2.9	-164.42	41.3	-52.6	82.4	77.3	5.08	16.223				
1,200.0	1,180.3	1,214.4	1,203.5	4.1	3.4	-164.08	63.0	-68.8	87.7	82.0	5.71	15.360				
1,300.0	1,275.4	1,314.6	1,299.6	4.7	3.9	-163.33	85.7	-85.8	91.0	84.6	6.38	14.265				
1,400.0	1,370.5	1,414.5	1,395.4	5.3	4.4	-162.63	108.4	-102.8	94.3	87.2	7.06	13.349				
1,500.0	1,465.6	1,514.5	1,491.2	6.0	5.0	-161.97	131.1	-119.7	97.6	89.9	7.77	12.561				
1,600.0	1,560.6	1,614.4	1,587.1	6.6	5.5	-161.37	153.8	-136.7	101.0	92.5	8.50	11.884				
1,700.0	1,655.7	1,714.3	1,682.9	7.2	6.1	-160.80	176.5	-153.7	104.3	95.1	9.24	11.298				
1,800.0	1,750.8	1,814.3	1,778.7	7.8	6.7	-160.26	199.2	-170.6	107.7	97.7	9.99	10.787				
1,900.0	1,845.9	1,914.2	1,874.6	8.5	7.3	-159.76	221.9	-187.6	111.1	100.3	10.75	10.337				
2,000.0	1,940.9	2,014.2	1,970.4	9.1	7.8	-159.29	244.5	-204.5	114.5	102.9	11.52	9.939				
2,100.0	2,036.0	2,114.1	2,066.3	9.7	8.4	-158.84	267.2	-221.5	117.9	105.6	12.30	9.585				
2,200.0	2,131.1	2,214.0	2,162.1	10.4	9.0	-158.42	289.9	-238.5	121.2	108.2	13.08	9.268				
2,300.0	2,226.2	2,314.0	2,257.9	11.0	9.6	-158.03	312.6	-255.4	124.7	110.8	13.88	8.983				
2,400.0	2,321.2	2,413.9	2,353.8	11.6	10.1	-157.65	335.3	-272.4	128.1	113.4	14.68	8.725				
2,500.0	2,416.3	2,513.8	2,449.6	12.3	10.7	-157.29	358.0	-289.3	131.5	116.0	15.48	8.492				
2,600.0	2,511.4	2,613.8	2,545.5	12.9	11.3	-156.96	380.7	-306.3	134.9	118.6	16.29	8.278				
2,700.0	2,606.5	2,713.7	2,641.3	13.5	11.9	-156.63	403.4	-323.2	138.3	121.2	17.11	8.083				
2,800.0	2,701.5	2,813.7	2,737.1	14.2	12.5	-156.33	426.1	-340.2	141.7	123.8	17.93	7.904				
2,900.0	2,796.6	2,913.6	2,833.0	14.8	13.1	-156.04	448.8	-357.2	145.2	126.4	18.76	7.739				
3,000.0	2,891.7	3,013.5	2,928.8	15.4	13.6	-155.76	471.5	-374.1	148.6	129.0	19.59	7.587				
3,100.0	2,986.8	3,113.5	3,024.7	16.1	14.2	-155.49	494.2	-391.1	152.0	131.6	20.42	7.446				
3,200.0	3,081.9	3,213.4	3,120.5	16.7	14.8	-155.24	516.9	-408.0	155.5	134.2	21.26	7.315				
3,300.0	3,176.9	3,313.4	3,216.3	17.3	15.4	-155.00	539.6	-425.0	158.9	136.8	22.10	7.193				
3,400.0	3,272.0	3,413.3	3,312.2	18.0	16.0	-154.76	562.2	-442.0	162.4	139.4	22.94	7.079				
3,500.0	3,367.1	3,513.2	3,408.0	18.6	16.6	-154.54	584.9	-458.9	165.8	142.0	23.78	6.972				
3,600.0	3,462.2	3,613.2	3,503.9	19.2	17.2	-154.33	607.6	-475.9	169.3	144.6	24.63	6.872				
3,700.0	3,557.2	3,713.1	3,599.7	19.9	17.7	-154.12	630.3	-492.8	172.7	147.2	25.48	6.779				
3,800.0	3,652.3	3,813.0	3,695.5	20.5	18.3	-153.92	653.0	-509.8	176.2	149.9	26.33	6.691				
3,900.0	3,747.4	3,913.0	3,791.4	21.1	18.9	-153.73	675.7	-526.7	179.6	152.5	27.19	6.608				
4,000.0	3,842.5	4,012.9	3,887.2	21.8	19.5	-153.55	698.4	-543.7	183.1	155.1	28.04	6.529				
4,100.0	3,937.5	4,112.9	3,983.1	22.4	20.1	-153.38	721.1	-560.7	186.6	157.7	28.90	6.455				
4,200.0	4,032.6	4,212.8	4,078.9	23.1	20.7	-153.21	743.8	-577.6	190.0	160.3	29.76	6.385				
4,300.0	4,127.7	4,312.7	4,174.7	23.7	21.3	-153.04	766.5	-594.6	193.5	162.9	30.62	6.318				
4,400.0	4,222.8	4,412.7	4,270.6	24.3	21.9	-152.89	789.2	-611.5	197.0	165.5	31.49	6.255				
4,500.0	4,317.8	4,512.6	4,366.4	25.0	22.4	-152.73	811.9	-628.5	200.4	168.1	32.35	6.195				
4,600.0	4,412.9	4,612.6	4,462.2	25.6	23.0	-152.59	834.6	-645.5	203.9	170.7	33.22	6.138				
4,700.0	4,508.0	4,712.5	4,558.1	26.2	23.6	-152.45	857.2	-662.4	207.4	173.3	34.08	6.084				
4,800.0	4,603.1	4,812.4	4,653.9	26.9	24.2	-152.31	879.9	-679.4	210.8	175.9	34.95	6.032				
4,900.0	4,698.1	4,912.4	4,749.8	27.5	24.8	-152.18	902.6	-696.3	214.3	178.5	35.82	5.983				
5,000.0	4,793.2	5,012.3	4,845.6	28.1	25.4	-152.05	925.3	-713.3	217.8	181.1	36.69	5.935				

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 Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design Peschel 4N65W20B Pad Sec.20-T4N-R65W - Peschel 20G-332 - Wellbore #1 - Plan #1 (8-22-14)													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	4,888.3	5,112.2	4,941.4	28.8	26.0	-151.92		948.0	-730.3	221.3	183.7	37.56	5.890	
5,200.0	4,983.4	5,212.2	5,037.3	29.4	26.6	-151.80		970.7	-747.2	224.7	186.3	38.44	5.847	
5,300.0	5,078.4	5,312.1	5,133.1	30.1	27.1	-151.68		993.4	-764.2	228.2	188.9	39.31	5.805	
5,400.0	5,173.5	5,412.1	5,229.0	30.7	27.7	-151.57		1,016.1	-781.1	231.7	191.5	40.19	5.765	
5,500.0	5,268.8	5,512.0	5,324.8	31.3	28.3	-151.40		1,038.8	-798.1	234.6	193.5	41.08	5.712	
5,600.0	5,365.0	5,609.8	5,418.6	31.7	28.9	-150.89		1,060.9	-814.6	234.9	192.9	42.03	5.590	
5,700.0	5,462.0	5,703.4	5,509.0	32.1	29.3	-150.32		1,080.1	-829.0	234.3	191.5	42.86	5.467	
5,800.0	5,559.9	5,800.0	5,603.2	32.5	29.6	-149.75		1,097.5	-842.0	233.5	189.8	43.65	5.349	
5,900.0	5,658.4	5,890.7	5,692.2	32.8	29.9	-149.22		1,111.5	-852.4	232.3	188.0	44.33	5.240	
6,000.0	5,757.5	5,984.4	5,784.7	33.0	30.2	-148.68		1,123.6	-861.5	230.8	185.9	44.96	5.134	
6,100.0	5,856.9	6,078.3	5,877.8	33.3	30.4	-148.16		1,133.3	-868.7	229.1	183.6	45.51	5.033	
6,200.0	5,956.7	6,172.2	5,971.3	33.4	30.6	-147.64		1,140.5	-874.1	227.0	181.0	45.99	4.936	
6,300.0	6,056.6	6,266.2	6,065.1	33.5	30.8	-147.12		1,145.3	-877.7	224.7	178.3	46.40	4.842	
6,400.0	6,156.6	6,360.3	6,159.2	33.6	30.9	-179.32		1,147.6	-879.4	222.5	166.6	55.93	3.978	
6,458.8	6,215.5	6,416.7	6,215.5	33.7	31.0	-179.28		1,147.9	-879.6	222.3	166.2	56.03	3.967	
6,500.0	6,256.6	6,457.8	6,256.6	33.7	31.0	-179.28		1,147.9	-879.6	222.3	166.1	56.11	3.961	
6,528.5	6,285.1	6,486.3	6,285.1	33.7	31.0	90.81		1,147.9	-879.6	222.3	175.1	47.15	4.714	
6,600.0	6,356.6	6,557.7	6,356.6	33.8	31.1	91.46		1,147.9	-879.6	222.3	174.7	47.65	4.666	
6,700.0	6,455.3	6,658.6	6,457.2	33.7	31.1	94.04		1,147.9	-874.4	222.8	173.8	49.03	4.544	
6,800.0	6,551.3	6,760.8	6,557.7	33.6	31.1	96.58		1,147.9	-855.8	223.7	173.7	50.04	4.471	
6,900.0	6,642.8	6,864.5	6,656.1	33.5	31.0	99.00		1,147.9	-823.4	225.0	174.4	50.59	4.448	
7,000.0	6,728.2	6,969.6	6,750.4	33.3	30.8	101.25		1,147.9	-777.3	226.6	175.9	50.69	4.471	
7,100.0	6,806.2	7,076.0	6,838.6	33.0	30.5	103.29		1,147.9	-717.9	228.4	178.0	50.40	4.532	
7,200.0	6,875.4	7,183.7	6,918.5	32.8	30.2	105.07		1,147.9	-645.9	230.2	180.3	49.85	4.618	
7,300.0	6,934.5	7,292.5	6,988.2	32.5	30.0	106.58		1,147.9	-562.5	231.9	182.6	49.26	4.707	
7,400.0	6,982.6	7,402.3	7,045.8	32.3	29.7	107.78		1,147.9	-469.1	233.4	184.5	48.90	4.773	
7,500.0	7,018.9	7,512.8	7,089.7	32.1	29.5	108.65		1,147.9	-367.8	234.6	185.5	49.03	4.784	
7,600.0	7,042.7	7,623.9	7,118.6	31.8	29.3	109.19		1,147.9	-260.7	235.3	185.5	49.83	4.722	
7,700.0	7,053.6	7,735.2	7,131.8	31.7	29.2	109.38		1,147.9	-150.2	235.6	184.2	51.39	4.584	
7,800.0	7,053.5	7,840.0	7,131.5	31.5	29.3	109.34		1,147.9	-45.4	235.5	181.7	53.83	4.376	
7,900.0	7,052.1	7,940.0	7,130.0	31.5	29.6	109.31		1,147.9	54.5	235.5	178.7	56.78	4.147	
8,000.0	7,050.7	8,040.0	7,128.4	31.7	30.6	109.27		1,147.9	154.5	235.4	175.4	60.07	3.919	
8,100.0	7,049.3	8,140.0	7,126.8	32.5	32.1	109.23		1,147.9	254.5	235.4	171.7	63.64	3.699	
8,200.0	7,047.9	8,240.0	7,125.2	34.1	34.0	109.20		1,147.9	354.5	235.3	167.9	67.44	3.489	
8,300.0	7,046.5	8,340.0	7,123.7	36.2	36.1	109.16		1,147.9	454.5	235.3	163.8	71.44	3.293	
8,400.0	7,045.0	8,440.0	7,122.1	38.4	38.3	109.12		1,147.9	554.5	235.2	159.6	75.60	3.111	
8,500.0	7,043.6	8,540.0	7,120.5	40.7	40.6	109.09		1,147.9	654.5	235.2	155.3	79.91	2.943	
8,600.0	7,042.2	8,640.0	7,119.0	43.1	42.9	109.05		1,147.9	754.5	235.1	150.8	84.34	2.788	
8,700.0	7,040.8	8,740.0	7,117.4	45.5	45.4	109.02		1,147.9	854.4	235.1	146.2	88.87	2.645	
8,800.0	7,039.4	8,840.0	7,115.8	48.0	47.8	108.98		1,147.9	954.4	235.0	141.5	93.48	2.514	
8,900.0	7,038.0	8,940.0	7,114.3	50.5	50.3	108.94		1,147.9	1,054.4	235.0	136.8	98.18	2.393	
9,000.0	7,036.6	9,040.0	7,112.7	53.0	52.9	108.91		1,147.9	1,154.4	234.9	132.0	102.93	2.282	
9,100.0	7,035.2	9,140.0	7,111.1	55.6	55.4	108.87		1,147.9	1,254.4	234.9	127.1	107.75	2.180	
9,200.0	7,033.7	9,240.0	7,109.5	58.1	58.0	108.84		1,147.9	1,354.4	234.8	122.2	112.62	2.085	
9,300.0	7,032.3	9,340.0	7,108.0	60.7	60.6	108.80		1,147.9	1,454.4	234.8	117.2	117.53	1.997	
9,400.0	7,030.9	9,440.0	7,106.4	63.3	63.2	108.76		1,147.9	1,554.4	234.7	112.2	122.48	1.916	
9,500.0	7,029.5	9,540.0	7,104.8	66.0	65.8	108.73		1,147.9	1,654.3	234.7	107.2	127.46	1.841	
9,600.0	7,028.1	9,640.0	7,103.3	68.6	68.5	108.69		1,147.9	1,754.3	234.6	102.1	132.48	1.771	
9,700.0	7,026.7	9,740.0	7,101.7	71.3	71.1	108.65		1,147.9	1,854.3	234.6	97.0	137.52	1.706	
9,800.0	7,025.3	9,840.0	7,100.1	73.9	73.8	108.62		1,147.9	1,954.3	234.5	91.9	142.59	1.645	
9,900.0	7,023.8	9,940.0	7,098.5	76.6	76.5	108.58		1,147.9	2,054.3	234.5	86.8	147.68	1.588	

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 Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design Peschel 4N65W20B Pad Sec.20-T4N-R65W - Peschel 20G-332 - Wellbore #1 - Plan #1 (8-22-14)													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	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,000.0	7,022.4	10,040.0	7,097.0	79.3	79.2	108.54	1,147.9	2,154.3	234.4	81.6	152.80	1.534		
10,100.0	7,021.0	10,140.0	7,095.4	82.0	81.9	108.51	1,147.9	2,254.3	234.4	76.4	157.93	1.484	Level 3	
10,200.0	7,019.6	10,240.0	7,093.8	84.7	84.6	108.47	1,147.9	2,354.3	234.3	71.2	163.08	1.437	Level 3	
10,300.0	7,018.2	10,340.0	7,092.3	87.4	87.3	108.44	1,147.9	2,454.2	234.3	66.0	168.24	1.392	Level 3	
10,400.0	7,016.8	10,440.0	7,090.7	90.1	90.0	108.40	1,147.9	2,554.2	234.2	60.8	173.42	1.350	Level 3	
10,500.0	7,015.4	10,540.0	7,089.1	92.8	92.7	108.36	1,147.9	2,654.2	234.2	55.5	178.62	1.311	Level 3	
10,600.0	7,013.9	10,640.0	7,087.5	95.5	95.4	108.33	1,147.9	2,754.2	234.1	50.3	183.82	1.274	Level 3	
10,700.0	7,012.5	10,740.0	7,086.0	98.2	98.1	108.29	1,147.9	2,854.2	234.1	45.0	189.04	1.238	Level 2	
10,800.0	7,011.1	10,840.0	7,084.4	101.0	100.9	108.25	1,147.9	2,954.2	234.0	39.7	194.27	1.205	Level 2	
10,900.0	7,009.7	10,940.0	7,082.8	103.7	103.6	108.22	1,147.9	3,054.2	234.0	34.4	199.51	1.173	Level 2	
11,000.0	7,008.3	11,040.0	7,081.3	106.4	106.3	108.18	1,147.9	3,154.2	233.9	29.1	204.76	1.142	Level 2	
11,100.0	7,006.9	11,140.0	7,079.7	109.2	109.1	108.14	1,147.9	3,254.1	233.9	23.8	210.02	1.113	Level 2	
11,200.0	7,005.5	11,240.0	7,078.1	111.9	111.8	108.11	1,147.9	3,354.1	233.8	18.5	215.29	1.086	Level 2	
11,300.0	7,004.1	11,340.0	7,076.6	114.7	114.6	108.07	1,147.9	3,454.1	233.8	13.2	220.56	1.060	Level 2	
11,400.0	7,002.6	11,440.0	7,075.0	117.4	117.3	108.03	1,147.9	3,554.1	233.7	7.9	225.85	1.035	Level 2	
11,500.0	7,001.2	11,540.0	7,073.4	120.2	120.1	108.00	1,147.9	3,654.1	233.7	2.5	231.14	1.011	Level 2	
11,600.0	6,999.8	11,640.0	7,071.8	122.9	122.4	107.96	1,147.9	3,754.1	233.6	-2.4	236.04	0.990	Level 1	
11,642.8	6,999.2	11,682.8	7,071.2	124.1	123.2	107.95	1,147.9	3,796.9	233.6	-4.3	237.89	0.982	Level 1	
11,657.4	6,999.0	11,693.5	7,071.0	124.5	123.4	107.94	1,147.9	3,807.6	233.6	-4.8	238.46	0.980	Level 1, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design		Peschel 4N65W20B Pad Sec.20-T4N-R65W - Peschel 20H-302 - Wellbore #1 - Plan #1 (8-22-14)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
0.0	0.0	1.0	1.0	0.0	0.0	180.00	-87.4	0.0	87.4	87.4	0.00	N/A			
100.0	100.0	101.0	101.0	0.1	0.1	180.00	-87.4	0.0	87.4	87.2	0.23	385.109			
200.0	200.0	201.0	201.0	0.3	0.3	180.00	-87.4	0.0	87.4	86.7	0.68	129.223	CC, ES		
300.0	300.0	301.0	301.0	0.6	0.6	-147.97	-87.4	0.0	88.9	87.8	1.13	78.633			
400.0	399.8	400.8	400.8	0.8	0.8	-149.63	-87.4	0.0	93.4	91.8	1.59	58.709			
500.0	499.5	500.5	500.5	1.0	1.0	-152.06	-87.4	0.0	101.0	98.9	2.06	49.112			
600.0	598.7	599.7	599.7	1.3	1.2	-154.88	-87.4	0.0	111.9	109.4	2.53	44.271			
700.0	697.5	698.5	698.5	1.7	1.5	-157.78	-87.4	0.0	126.3	123.3	3.00	42.043			
800.0	795.6	796.6	796.6	2.0	1.7	-160.53	-87.4	0.0	144.2	140.7	3.48	41.412			
900.0	893.1	898.1	898.1	2.5	1.9	-162.67	-86.6	-1.5	164.4	160.5	3.96	41.550			
1,000.0	989.6	1,000.2	1,000.0	3.0	2.1	-163.86	-84.0	-6.1	185.6	181.2	4.44	41.850			
1,100.0	1,085.3	1,102.9	1,102.3	3.5	2.4	-164.35	-79.5	-13.9	207.7	202.7	4.94	42.043			
1,200.0	1,180.3	1,206.4	1,205.0	4.1	2.6	-164.33	-73.2	-25.0	228.8	223.3	5.49	41.686			
1,300.0	1,275.4	1,310.9	1,308.2	4.7	2.9	-163.71	-65.0	-39.5	247.4	241.3	6.09	40.638			
1,400.0	1,370.5	1,415.5	1,410.8	5.3	3.3	-162.60	-54.9	-57.3	263.5	256.7	6.74	39.068			
1,500.0	1,465.6	1,514.3	1,507.3	6.0	3.6	-161.47	-44.7	-75.3	278.6	271.1	7.43	37.497			
1,600.0	1,560.6	1,613.0	1,603.9	6.6	4.0	-160.45	-34.5	-93.3	293.8	285.6	8.14	36.073			
1,700.0	1,655.7	1,711.7	1,700.4	7.2	4.4	-159.52	-24.3	-111.3	309.1	300.2	8.88	34.811			
1,800.0	1,750.8	1,810.4	1,796.9	7.8	4.8	-158.69	-14.1	-129.3	324.4	314.8	9.63	33.678			
1,900.0	1,845.9	1,909.1	1,893.4	8.5	5.2	-157.93	-3.9	-147.2	339.8	329.4	10.40	32.668			
2,000.0	1,940.9	2,007.8	1,989.9	9.1	5.7	-157.24	6.3	-165.2	355.3	344.1	11.19	31.765			
2,100.0	2,036.0	2,106.5	2,086.4	9.7	6.1	-156.61	16.5	-183.2	370.8	358.8	11.98	30.955			
2,200.0	2,131.1	2,205.2	2,183.0	10.4	6.5	-156.02	26.7	-201.2	386.4	373.6	12.78	30.226			
2,300.0	2,226.2	2,303.9	2,279.5	11.0	6.9	-155.48	36.9	-219.2	402.0	388.4	13.59	29.568			
2,400.0	2,321.2	2,402.6	2,376.0	11.6	7.4	-154.98	47.1	-237.2	417.6	403.2	14.41	28.972			
2,500.0	2,416.3	2,501.3	2,472.5	12.3	7.8	-154.52	57.3	-255.2	433.3	418.0	15.24	28.430			
2,600.0	2,511.4	2,600.0	2,569.0	12.9	8.3	-154.09	67.5	-273.2	448.9	432.9	16.07	27.936			
2,700.0	2,606.5	2,698.8	2,665.5	13.5	8.7	-153.69	77.7	-291.2	464.6	447.7	16.91	27.484			
2,800.0	2,701.5	2,797.5	2,762.1	14.2	9.1	-153.32	87.9	-309.2	480.4	462.6	17.75	27.070			
2,900.0	2,796.6	2,896.2	2,858.6	14.8	9.6	-152.96	98.1	-327.2	496.1	477.5	18.59	26.688			
3,000.0	2,891.7	2,994.9	2,955.1	15.4	10.0	-152.64	108.3	-345.2	511.9	492.4	19.44	26.336			
3,100.0	2,986.8	3,093.6	3,051.6	16.1	10.5	-152.33	118.5	-363.2	527.7	507.4	20.29	26.010			
3,200.0	3,081.9	3,192.3	3,148.1	16.7	10.9	-152.03	128.7	-381.2	543.4	522.3	21.14	25.707			
3,300.0	3,176.9	3,291.0	3,244.6	17.3	11.4	-151.76	138.9	-399.1	559.3	537.3	22.00	25.426			
3,400.0	3,272.0	3,389.7	3,341.2	18.0	11.8	-151.50	149.1	-417.1	575.1	552.2	22.85	25.163			
3,500.0	3,367.1	3,488.4	3,437.7	18.6	12.3	-151.25	159.3	-435.1	590.9	567.2	23.71	24.918			
3,600.0	3,462.2	3,587.1	3,534.2	19.2	12.7	-151.02	169.5	-453.1	606.7	582.2	24.57	24.689			
3,700.0	3,557.2	3,685.8	3,630.7	19.9	13.2	-150.80	179.7	-471.1	622.6	597.1	25.44	24.474			
3,800.0	3,652.3	3,784.5	3,727.2	20.5	13.6	-150.59	189.9	-489.1	638.4	612.1	26.30	24.272			
3,900.0	3,747.4	3,883.3	3,823.7	21.1	14.1	-150.38	200.2	-507.1	654.3	627.1	27.17	24.082			
4,000.0	3,842.5	3,982.0	3,920.3	21.8	14.5	-150.19	210.4	-525.1	670.2	642.1	28.04	23.903			
4,100.0	3,937.5	4,080.7	4,016.8	22.4	15.0	-150.01	220.6	-543.1	686.0	657.1	28.91	23.733			
4,200.0	4,032.6	4,179.4	4,113.3	23.1	15.4	-149.84	230.8	-561.1	701.9	672.2	29.78	23.573			
4,300.0	4,127.7	4,278.1	4,209.8	23.7	15.9	-149.67	241.0	-579.1	717.8	687.2	30.65	23.422			
4,400.0	4,222.8	4,376.8	4,306.3	24.3	16.3	-149.51	251.2	-597.1	733.7	702.2	31.52	23.278			
4,500.0	4,317.8	4,475.5	4,402.8	25.0	16.8	-149.36	261.4	-615.1	749.6	717.2	32.39	23.142			
4,600.0	4,412.9	4,574.2	4,499.4	25.6	17.2	-149.21	271.6	-633.1	765.5	732.3	33.27	23.012			
4,700.0	4,508.0	4,672.9	4,595.9	26.2	17.7	-149.07	281.8	-651.0	781.4	747.3	34.14	22.888			
4,800.0	4,603.1	4,771.6	4,692.4	26.9	18.1	-148.94	292.0	-669.0	797.4	762.3	35.02	22.771			
4,900.0	4,698.1	4,870.3	4,788.9	27.5	18.6	-148.81	302.2	-687.0	813.3	777.4	35.89	22.658			
5,000.0	4,793.2	4,969.0	4,885.4	28.1	19.0	-148.69	312.4	-705.0	829.2	792.4	36.77	22.551			

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 Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design Peschel 4N65W20B Pad Sec.20-T4N-R65W - Peschel 20H-302 - Wellbore #1 - Plan #1 (8-22-14)													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	4,888.3	5,067.8	4,981.9	28.8	19.5	-148.57		322.6	-723.0	845.1	807.5	37.65	22.449	
5,200.0	4,983.4	5,166.5	5,078.5	29.4	19.9	-148.45		332.8	-741.0	861.1	822.5	38.52	22.351	
5,300.0	5,078.4	5,265.2	5,175.0	30.1	20.4	-148.34		343.0	-759.0	877.0	837.6	39.40	22.257	
5,400.0	5,173.5	5,363.9	5,271.5	30.7	20.8	-148.23		353.2	-777.0	892.9	852.6	40.28	22.167	
5,500.0	5,268.8	5,462.7	5,368.1	31.3	21.3	-148.21		363.4	-795.0	908.3	867.2	41.16	22.069	
5,600.0	5,365.0	5,561.8	5,465.0	31.7	21.8	-148.12		373.7	-813.1	921.1	879.1	42.00	21.933	
5,700.0	5,462.0	5,661.1	5,562.2	32.1	22.2	-147.89		383.9	-831.2	930.9	888.1	42.84	21.730	
5,800.0	5,559.9	5,752.0	5,651.1	32.5	22.6	-147.59		393.1	-847.3	938.1	894.5	43.59	21.521	
5,900.0	5,658.4	5,837.6	5,735.4	32.8	22.9	-147.33		400.6	-860.5	943.8	899.6	44.20	21.352	
6,000.0	5,757.5	5,923.4	5,820.2	33.0	23.1	-147.09		406.8	-871.5	948.0	903.3	44.70	21.208	
6,100.0	5,856.9	6,009.3	5,905.5	33.3	23.3	-146.87		411.8	-880.3	950.8	905.7	45.12	21.074	
6,200.0	5,956.7	6,100.0	5,995.9	33.4	23.5	-146.67		415.7	-887.2	952.2	906.8	45.47	20.944	
6,300.0	6,056.6	6,181.5	6,077.2	33.5	23.6	-146.51		418.0	-891.2	952.2	906.5	45.70	20.836	
6,400.0	6,156.6	6,267.8	6,163.4	33.6	23.8	-179.01		419.2	-893.3	951.1	904.3	46.79	20.328	
6,457.8	6,214.5	6,319.8	6,215.5	33.7	23.8	-178.99		419.3	-893.5	951.0	904.1	46.92	20.269	
6,500.0	6,256.6	6,362.0	6,257.6	33.7	23.9	-178.99		419.3	-893.5	951.0	904.0	47.02	20.224	
6,508.1	6,264.8	6,370.1	6,265.8	33.7	23.9	91.01		419.3	-893.5	951.0	904.8	46.19	20.590	
6,600.0	6,356.6	6,461.9	6,357.6	33.8	24.0	91.17		419.3	-893.5	951.0	904.6	46.46	20.472	
6,700.0	6,455.3	6,564.4	6,459.9	33.7	24.0	91.77		419.3	-888.0	951.3	904.6	46.71	20.366	
6,800.0	6,551.3	6,668.6	6,562.2	33.6	24.0	92.34		419.3	-868.6	951.6	904.9	46.70	20.376	
6,900.0	6,642.8	6,774.2	6,662.2	33.5	23.8	92.87		419.3	-834.8	952.0	905.6	46.47	20.485	
7,000.0	6,728.2	6,881.2	6,757.7	33.3	23.6	93.35		419.3	-787.0	952.5	906.4	46.09	20.664	
7,100.0	6,806.2	6,989.3	6,846.6	33.0	23.3	93.78		419.3	-725.5	952.9	907.2	45.67	20.864	
7,200.0	6,875.4	7,098.6	6,926.6	32.8	23.1	94.13		419.3	-651.3	953.3	908.0	45.36	21.017	
7,300.0	6,934.5	7,208.8	6,995.8	32.5	22.9	94.42		419.3	-565.7	953.7	908.3	45.34	21.035	
7,400.0	6,982.6	7,319.6	7,052.3	32.3	23.0	94.61		419.3	-470.4	953.9	908.1	45.78	20.836	
7,500.0	7,018.9	7,430.9	7,094.5	32.1	23.3	94.72		419.3	-367.5	954.1	907.2	46.82	20.379	
7,600.0	7,042.7	7,542.5	7,121.4	31.8	24.0	94.74		419.3	-259.4	954.1	905.6	48.49	19.675	
7,700.0	7,053.6	7,653.9	7,132.3	31.7	25.1	94.67		419.3	-148.6	954.0	903.2	50.76	18.793	
7,800.0	7,053.5	7,757.0	7,131.3	31.5	26.4	94.62		419.3	-45.5	953.9	900.4	53.50	17.831	
7,900.0	7,052.1	7,857.0	7,129.7	31.5	27.9	94.61		419.3	54.5	953.9	897.3	56.63	16.844	
8,000.0	7,050.7	7,957.0	7,128.2	31.7	29.6	94.60		419.3	154.5	953.9	893.8	60.12	15.866	
8,100.0	7,049.3	8,057.0	7,126.6	32.5	31.5	94.59		419.3	254.5	953.9	890.0	63.91	14.924	
8,200.0	7,047.9	8,157.0	7,125.0	34.1	33.6	94.58		419.3	354.5	953.9	885.9	67.96	14.037	
8,300.0	7,046.5	8,257.0	7,123.5	36.2	35.8	94.57		419.3	454.5	953.9	881.7	72.21	13.210	
8,400.0	7,045.0	8,357.0	7,121.9	38.4	38.0	94.56		419.3	554.5	953.9	877.2	76.63	12.447	
8,500.0	7,043.6	8,457.0	7,120.3	40.7	40.3	94.55		419.3	654.5	953.8	872.6	81.20	11.747	
8,600.0	7,042.2	8,557.0	7,118.7	43.1	42.7	94.54		419.3	754.4	953.8	867.9	85.89	11.105	
8,700.0	7,040.8	8,657.0	7,117.2	45.5	45.1	94.53		419.3	854.4	953.8	863.1	90.69	10.518	
8,800.0	7,039.4	8,757.0	7,115.6	48.0	47.6	94.52		419.3	954.4	953.8	858.2	95.57	9.980	
8,900.0	7,038.0	8,857.0	7,114.0	50.5	50.1	94.51		419.3	1,054.4	953.8	853.3	100.53	9.488	
9,000.0	7,036.6	8,957.0	7,112.5	53.0	52.6	94.50		419.3	1,154.4	953.8	848.2	105.55	9.036	
9,100.0	7,035.2	9,057.0	7,110.9	55.6	55.2	94.49		419.3	1,254.4	953.8	843.1	110.63	8.621	
9,200.0	7,033.7	9,157.0	7,109.3	58.1	57.8	94.49		419.3	1,354.4	953.8	838.0	115.75	8.240	
9,300.0	7,032.3	9,257.0	7,107.8	60.7	60.4	94.48		419.3	1,454.4	953.7	832.8	120.92	7.887	
9,400.0	7,030.9	9,357.0	7,106.2	63.3	63.0	94.47		419.3	1,554.3	953.7	827.6	126.13	7.562	
9,500.0	7,029.5	9,457.0	7,104.6	66.0	65.6	94.46		419.3	1,654.3	953.7	822.4	131.36	7.260	
9,600.0	7,028.1	9,557.0	7,103.0	68.6	68.3	94.45		419.3	1,754.3	953.7	817.1	136.63	6.980	
9,700.0	7,026.7	9,657.0	7,101.5	71.3	71.0	94.44		419.3	1,854.3	953.7	811.8	141.92	6.720	
9,800.0	7,025.3	9,757.0	7,099.9	73.9	73.6	94.43		419.3	1,954.3	953.7	806.4	147.24	6.477	
9,900.0	7,023.8	9,857.0	7,098.3	76.6	76.3	94.42		419.3	2,054.3	953.7	801.1	152.57	6.251	

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 Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design Peschel 4N65W20B Pad Sec.20-T4N-R65W - Peschel 20H-302 - Wellbore #1 - Plan #1 (8-22-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
10,000.0	7,022.4	9,957.0	7,096.8	79.3	79.0	94.41	419.3	2,154.3	953.7	795.7	157.93	6.039	
10,100.0	7,021.0	10,057.0	7,095.2	82.0	81.7	94.40	419.3	2,254.3	953.6	790.3	163.30	5.840	
10,200.0	7,019.6	10,157.0	7,093.6	84.7	84.4	94.39	419.3	2,354.2	953.6	785.0	168.68	5.653	
10,300.0	7,018.2	10,257.0	7,092.0	87.4	87.1	94.38	419.3	2,454.2	953.6	779.5	174.08	5.478	
10,400.0	7,016.8	10,357.0	7,090.5	90.1	89.8	94.37	419.3	2,554.2	953.6	774.1	179.50	5.313	
10,500.0	7,015.4	10,457.0	7,088.9	92.8	92.6	94.36	419.3	2,654.2	953.6	768.7	184.92	5.157	
10,600.0	7,013.9	10,557.0	7,087.3	95.5	95.3	94.35	419.3	2,754.2	953.6	763.2	190.35	5.010	
10,700.0	7,012.5	10,657.0	7,085.8	98.2	98.0	94.34	419.3	2,854.2	953.6	757.8	195.80	4.870	
10,800.0	7,011.1	10,757.0	7,084.2	101.0	100.8	94.33	419.3	2,954.2	953.6	752.3	201.25	4.738	
10,900.0	7,009.7	10,857.0	7,082.6	103.7	103.5	94.33	419.3	3,054.2	953.6	746.8	206.71	4.613	
11,000.0	7,008.3	10,957.0	7,081.0	106.4	106.3	94.32	419.3	3,154.1	953.5	741.4	212.18	4.494	
11,100.0	7,006.9	11,057.0	7,079.5	109.2	109.0	94.31	419.3	3,254.1	953.5	735.9	217.65	4.381	
11,200.0	7,005.5	11,157.0	7,077.9	111.9	111.7	94.30	419.3	3,354.1	953.5	730.4	223.13	4.273	
11,300.0	7,004.1	11,257.0	7,076.3	114.7	114.5	94.29	419.3	3,454.1	953.5	724.9	228.62	4.171	
11,400.0	7,002.6	11,357.0	7,074.8	117.4	117.3	94.28	419.3	3,554.1	953.5	719.4	234.11	4.073	
11,500.0	7,001.2	11,457.0	7,073.2	120.2	120.0	94.27	419.3	3,654.1	953.5	713.9	239.61	3.979	
11,600.0	6,999.8	11,557.0	7,071.6	122.9	122.2	94.26	419.3	3,754.1	953.5	708.9	244.53	3.899	
11,635.1	6,999.3	11,592.1	7,071.1	123.9	122.8	94.26	419.3	3,789.1	953.5	707.4	246.11	3.874	
11,657.4	6,999.0	11,596.7	7,071.0	124.5	122.9	94.26	419.3	3,793.8	953.6	706.8	246.80	3.864 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 764-Reference												Offset Well Error:	0.0 ft
Shable 17-20 Pad Sec.20-T4N-R65W - Shable 24-20 - Wellbore #1 - Wellbore #1													
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
10,000.0	7,022.4	7,178.1	7,009.7	79.3	24.8	-92.79	1,632.1	3,033.0	918.0	822.8	95.19	9.644	
10,100.0	7,021.0	7,176.7	7,008.4	82.0	24.8	-92.48	1,632.1	3,033.0	822.7	724.8	97.90	8.403	
10,200.0	7,019.6	7,175.3	7,007.0	84.7	24.8	-92.18	1,632.1	3,033.0	728.6	628.0	100.62	7.241	
10,300.0	7,018.2	7,173.9	7,005.6	87.4	24.8	-91.87	1,632.1	3,033.0	636.3	533.0	103.34	6.158	
10,400.0	7,016.8	7,172.5	7,004.2	90.1	24.8	-91.57	1,632.1	3,033.0	546.8	440.7	106.07	5.155	
10,500.0	7,015.4	7,171.1	7,002.8	92.8	24.8	-91.26	1,632.1	3,033.0	461.5	352.7	108.80	4.242	
10,600.0	7,013.9	7,169.7	7,001.4	95.5	24.8	-90.96	1,632.1	3,033.0	383.4	271.9	111.53	3.438	
10,700.0	7,012.5	7,168.3	7,000.0	98.2	24.8	-90.65	1,632.1	3,033.0	317.8	203.6	114.27	2.782	
10,800.0	7,011.1	7,166.9	6,998.6	101.0	24.8	-90.35	1,632.1	3,033.0	273.9	156.9	117.00	2.341	
10,879.9	7,010.0	7,165.8	6,997.5	103.1	24.8	-90.10	1,632.1	3,033.0	262.0	142.8	119.19	2.198 CC, ES	
10,900.0	7,009.7	7,165.5	6,997.2	103.7	24.8	-90.04	1,632.1	3,033.0	262.8	143.0	119.74	2.195 SF	
11,000.0	7,008.3	7,164.1	6,995.8	106.4	24.8	-89.74	1,632.1	3,033.0	288.2	165.7	122.48	2.353	
11,100.0	7,006.9	7,162.7	6,994.4	109.2	24.8	-89.43	1,632.1	3,033.0	342.2	216.9	125.22	2.732	
11,200.0	7,005.5	7,161.3	6,993.0	111.9	24.8	-89.13	1,632.1	3,033.0	413.6	285.6	127.96	3.232	
11,300.0	7,004.1	7,160.0	6,991.6	114.7	24.8	-88.83	1,632.1	3,033.0	495.1	364.3	130.70	3.788	
11,400.0	7,002.6	7,158.6	6,990.2	117.4	24.8	-88.52	1,632.1	3,033.0	582.3	448.9	133.44	4.364	
11,500.0	7,001.2	7,157.2	6,988.8	120.2	24.8	-88.22	1,632.1	3,033.0	673.1	536.9	136.18	4.943	
11,600.0	6,999.8	7,155.8	6,987.4	122.9	24.8	-87.91	1,632.1	3,033.0	766.2	627.3	138.91	5.516	
11,657.4	6,999.0	7,155.0	6,986.6	124.5	24.8	-87.74	1,632.1	3,033.0	820.4	679.9	140.48	5.840	

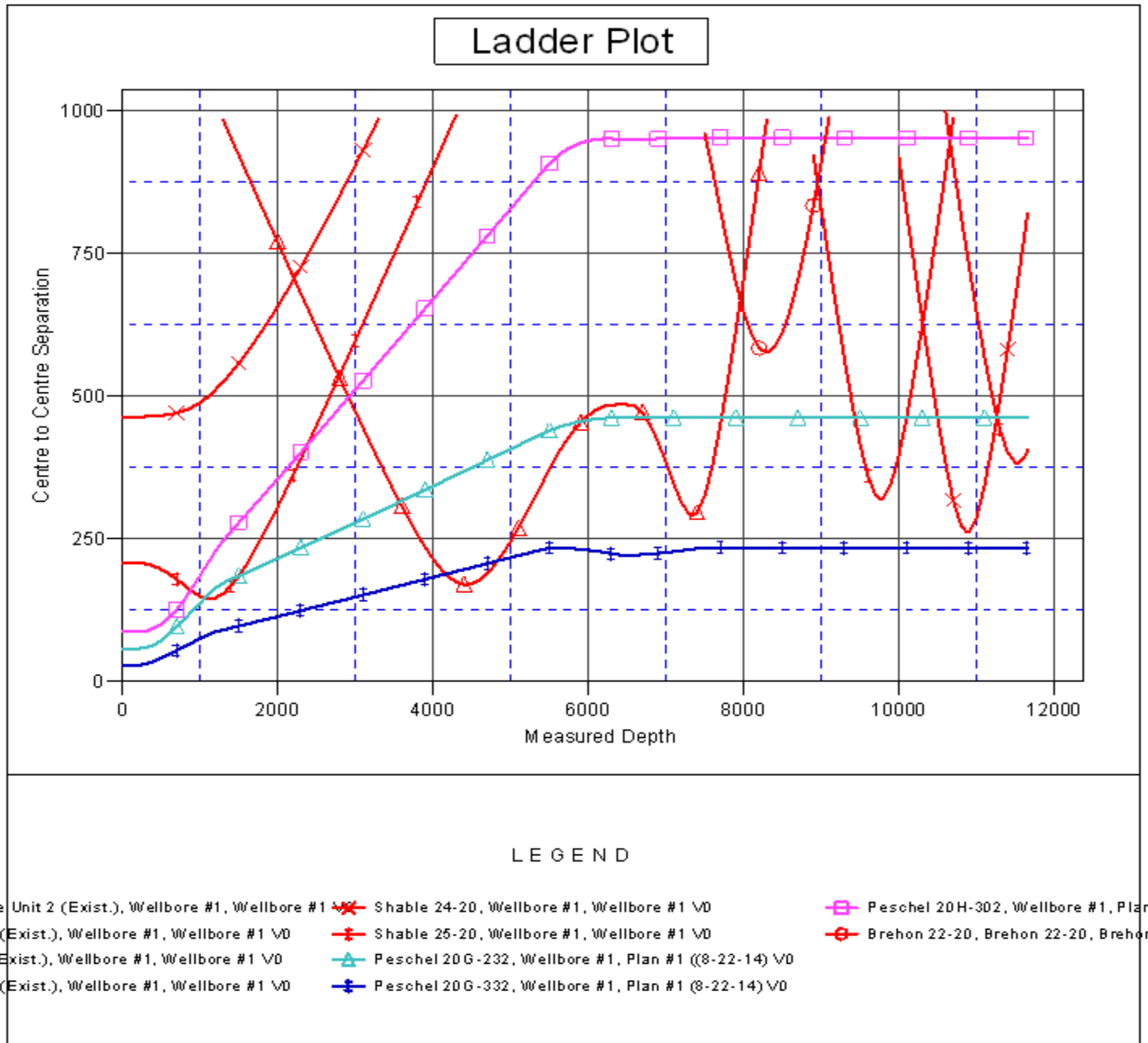
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 215-Reference												Offset Well Error:	0.0 ft
Shable 17-20 Pad Sec.20-T4N-R65W - Shable 25-20 - Wellbore #1 - Wellbore #1													
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
8,900.0	7,038.0	7,270.1	7,021.0	50.5	34.5	-91.48	1,690.9	1,918.6	922.9	843.7	79.26	11.644	
9,000.0	7,036.6	7,268.9	7,019.9	53.0	34.5	-91.28	1,690.9	1,918.6	829.9	748.1	81.78	10.147	
9,100.0	7,035.2	7,267.8	7,018.8	55.6	34.5	-91.08	1,690.9	1,918.6	738.7	654.3	84.33	8.759	
9,200.0	7,033.7	7,266.7	7,017.7	58.1	34.5	-90.88	1,690.9	1,918.6	650.0	563.1	86.91	7.480	
9,300.0	7,032.3	7,265.6	7,016.6	60.7	34.5	-90.68	1,690.9	1,918.6	565.2	475.7	89.50	6.315	
9,400.0	7,030.9	7,264.5	7,015.4	63.3	34.5	-90.48	1,690.8	1,918.6	486.2	394.1	92.11	5.278	
9,500.0	7,029.5	7,263.4	7,014.4	66.0	34.5	-90.29	1,690.8	1,918.6	416.3	321.6	94.74	4.394	
9,600.0	7,028.1	7,262.3	7,013.3	68.6	34.5	-90.09	1,690.8	1,918.6	360.9	263.5	97.38	3.706	
9,700.0	7,026.7	7,261.2	7,012.2	71.3	34.5	-89.90	1,690.8	1,918.6	327.3	227.3	100.04	3.272	
9,765.4	7,025.7	7,260.5	7,011.5	73.0	34.5	-89.77	1,690.8	1,918.6	320.7	219.0	101.78	3.151 CC, ES	
9,800.0	7,025.3	7,260.1	7,011.1	73.9	34.5	-89.71	1,690.8	1,918.6	322.6	219.9	102.70	3.141 SF	
9,900.0	7,023.8	7,259.1	7,010.0	76.6	34.5	-89.51	1,690.8	1,918.6	347.8	242.4	105.37	3.301	
10,000.0	7,022.4	7,258.0	7,009.0	79.3	34.5	-89.32	1,690.8	1,918.6	397.3	289.3	108.06	3.677	
10,100.0	7,021.0	7,256.9	7,007.9	82.0	34.5	-89.13	1,690.8	1,918.6	463.4	352.7	110.74	4.185	
10,200.0	7,019.6	7,255.9	7,006.8	84.7	34.5	-88.94	1,690.8	1,918.5	540.1	426.6	113.44	4.761	
10,300.0	7,018.2	7,254.8	7,005.8	87.4	34.5	-88.76	1,690.8	1,918.5	623.4	507.2	116.14	5.367	
10,400.0	7,016.8	7,253.8	7,004.7	90.1	34.5	-88.57	1,690.8	1,918.5	711.0	592.1	118.85	5.982	
10,500.0	7,015.4	7,252.0	7,003.0	92.8	34.5	-88.25	1,690.8	1,918.5	801.5	679.9	121.55	6.594	
10,600.0	7,013.9	7,251.7	7,002.6	95.5	34.5	-88.19	1,690.8	1,918.5	894.0	769.8	124.27	7.194	
10,700.0	7,012.5	7,250.5	7,001.4	98.2	34.5	-87.98	1,690.8	1,918.5	988.0	861.0	126.99	7.780	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4816.0ft (RKB - 15')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Peschel 20G-202
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.52°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Peschel 20G-202
Project:	SEC.20-T4N-R65W	TVD Reference:	WELL @ 4816.0ft (RKB - 15')
Reference Site:	Peschel 4N65W20B Pad Sec.20-T4N-R65W	MD Reference:	WELL @ 4816.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Peschel 20G-202	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (8-22-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4816.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Peschel 20G-202

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