

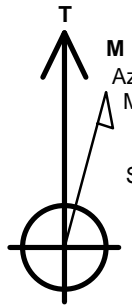
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Schneider 19P-232**

Surface Location: Schneider 19Q-HZ Pad Sec.19-T5N-R64W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 4652.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1382009.87 3253799.16 40.378440 -104.589000
 RKB - 15' WELL @ 4667.0ft (RKB - 15')

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' N/S Hardline (19P-232)	1.0	439.1	5089.7	Rectangle (Sides: L9378.8 W100.0)
SHL 409'FSL, 1607'FEL, SEC.19	1.0	0.0	0.0	Point
BHL 730'FSL, 2396'FEL, SEC.21	6657.0	439.1	9779.1	Point



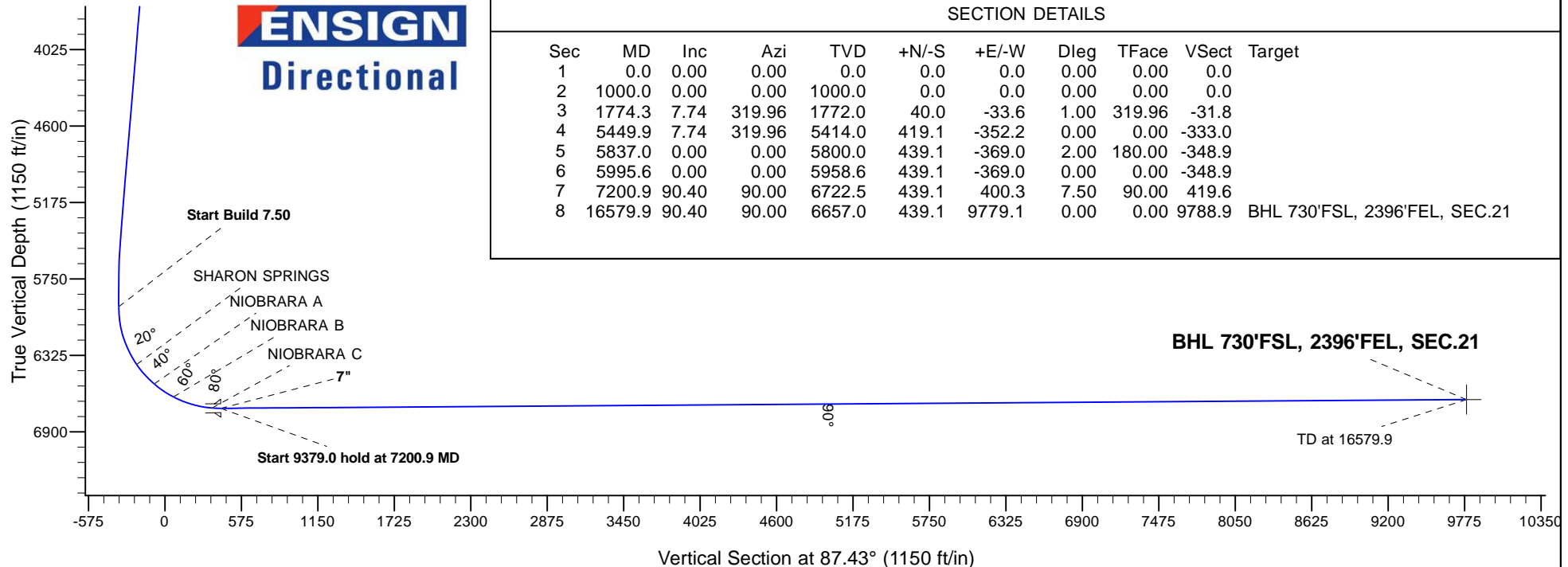
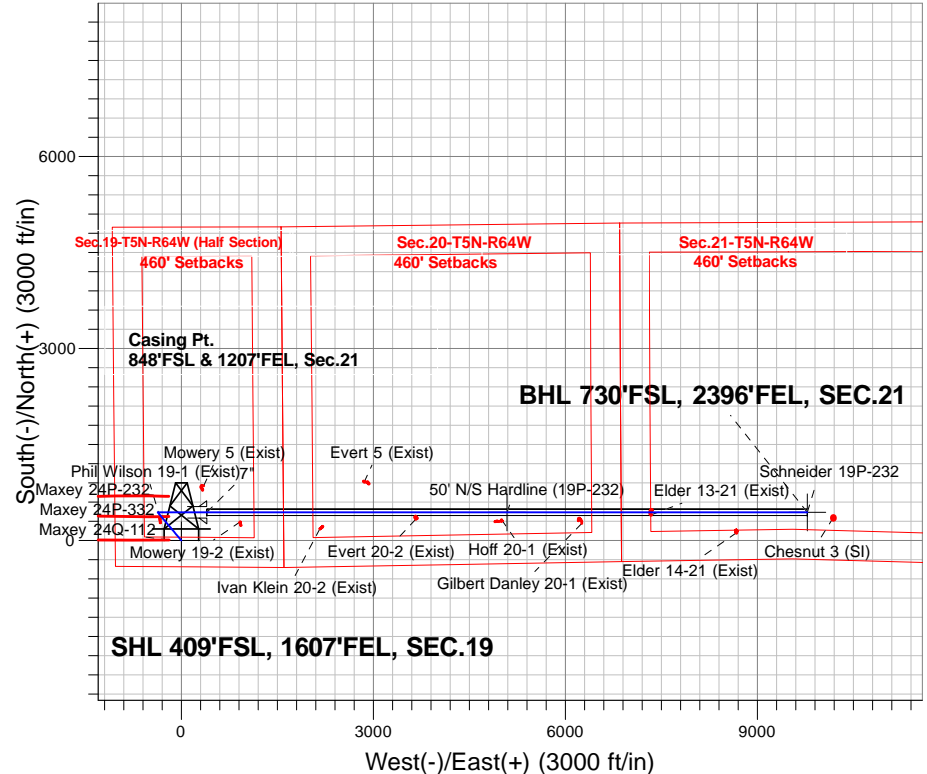
Azimuths to True North
 Magnetic North: 8.21°

Magnetic Field
 Strength: 52708.1snT
 Dip Angle: 66.92°
 Date: 7/20/2015
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP - Start Build 1.00
5958.6	5995.6	Start Build 7.50
6722.5	7200.9	Start 9379.0 hold at 7200.9 MD
6657.0	16579.9	TD at 16579.9

Schneider 19Q-HZ Pad Sec.19-T5N-R64W
 Schneider 19P-232
 Plan #3 (7-20-15)
 12:33, July 28 2015



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1774.3	7.74	319.96	1772.0	40.0	-33.6	1.00	319.96	-31.8	
4	5449.9	7.74	319.96	5414.0	419.1	-352.2	0.00	0.00	-333.0	
5	5837.0	0.00	0.00	5800.0	439.1	-369.0	2.00	180.00	-348.9	
6	5995.6	0.00	0.00	5958.6	439.1	-369.0	0.00	0.00	-348.9	
7	7200.9	90.40	90.00	6722.5	439.1	400.3	7.50	90.00	419.6	
8	16579.9	90.40	90.00	6657.0	439.1	9779.1	0.00	0.00	9788.9	BHL 730'FSL, 2396'FEL, SEC.21



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

Schneider 19Q-HZ Pad Sec.19-T5N-R64W

Schneider 19P-232

Wellbore #1

Plan: Plan #3 (7-20-15)

Standard Planning Report

28 July, 2015

Database:	US_EDM	Local Co-ordinate Reference:	Well Schneider 19P-232
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (7-20-15)		

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

Site	Schneider 19Q-HZ Pad Sec.19-T5N-R64W				
Site Position:		Northing:	1,382,009.88 usft	Latitude:	40.378440
From:	Lat/Long	Easting:	3,253,799.16 usft	Longitude:	-104.589000
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.59

Well	Schneider 19P-232					
Well Position	+N/-S	0.0 ft	Northing:	1,382,009.87 usft	Latitude:	40.378440
	+E/-W	0.0 ft	Easting:	3,253,799.16 usft	Longitude:	-104.589000
Position Uncertainty		0.0 ft	Wellhead Elevation:		Ground Level:	4,652.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/20/2015	8.22	66.92	52,708

Design	Plan #3 (7-20-15)			
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	87.43

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,774.3	7.74	319.96	1,772.0	40.0	-33.6	1.00	1.00	0.00	319.96	
5,449.9	7.74	319.96	5,414.0	419.1	-352.2	0.00	0.00	0.00	0.00	
5,837.0	0.00	0.00	5,800.0	439.1	-369.0	2.00	-2.00	0.00	180.00	
5,995.6	0.00	0.00	5,958.6	439.1	-369.0	0.00	0.00	0.00	0.00	
7,200.9	90.40	90.00	6,722.5	439.1	400.3	7.50	7.50	0.00	90.00	
16,579.9	90.40	90.00	6,657.0	439.1	9,779.1	0.00	0.00	0.00	0.00	BHL 730'FSL, 2396'FI

Database:	US_EDM	Local Co-ordinate Reference:	Well Schneider 19P-232
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (7-20-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 1.00									
1,100.0	1.00	319.96	1,100.0	0.7	-0.6	-0.5	1.00	1.00	0.00
1,200.0	2.00	319.96	1,200.0	2.7	-2.2	-2.1	1.00	1.00	0.00
1,300.0	3.00	319.96	1,299.9	6.0	-5.1	-4.8	1.00	1.00	0.00
1,400.0	4.00	319.96	1,399.7	10.7	-9.0	-8.5	1.00	1.00	0.00
1,500.0	5.00	319.96	1,499.4	16.7	-14.0	-13.3	1.00	1.00	0.00
1,600.0	6.00	319.96	1,598.9	24.0	-20.2	-19.1	1.00	1.00	0.00
1,700.0	7.00	319.96	1,698.3	32.7	-27.5	-26.0	1.00	1.00	0.00
1,774.3	7.74	319.96	1,772.0	40.0	-33.6	-31.8	1.00	1.00	0.00
1,800.0	7.74	319.96	1,797.4	42.6	-35.8	-33.9	0.00	0.00	0.00
1,900.0	7.74	319.96	1,896.5	53.0	-44.5	-42.1	0.00	0.00	0.00
2,000.0	7.74	319.96	1,995.6	63.3	-53.2	-50.3	0.00	0.00	0.00
2,100.0	7.74	319.96	2,094.7	73.6	-61.8	-58.5	0.00	0.00	0.00
2,200.0	7.74	319.96	2,193.8	83.9	-70.5	-66.7	0.00	0.00	0.00
2,300.0	7.74	319.96	2,292.9	94.2	-79.2	-74.9	0.00	0.00	0.00
2,400.0	7.74	319.96	2,391.9	104.5	-87.8	-83.1	0.00	0.00	0.00
2,500.0	7.74	319.96	2,491.0	114.8	-96.5	-91.3	0.00	0.00	0.00
2,600.0	7.74	319.96	2,590.1	125.2	-105.2	-99.5	0.00	0.00	0.00
2,700.0	7.74	319.96	2,689.2	135.5	-113.8	-107.7	0.00	0.00	0.00
2,800.0	7.74	319.96	2,788.3	145.8	-122.5	-115.8	0.00	0.00	0.00
2,900.0	7.74	319.96	2,887.4	156.1	-131.2	-124.0	0.00	0.00	0.00
3,000.0	7.74	319.96	2,986.5	166.4	-139.8	-132.2	0.00	0.00	0.00
3,100.0	7.74	319.96	3,085.6	176.7	-148.5	-140.4	0.00	0.00	0.00
3,200.0	7.74	319.96	3,184.6	187.1	-157.2	-148.6	0.00	0.00	0.00
3,300.0	7.74	319.96	3,283.7	197.4	-165.9	-156.8	0.00	0.00	0.00
3,400.0	7.74	319.96	3,382.8	207.7	-174.5	-165.0	0.00	0.00	0.00
3,500.0	7.74	319.96	3,481.9	218.0	-183.2	-173.2	0.00	0.00	0.00
3,600.0	7.74	319.96	3,581.0	228.3	-191.9	-181.4	0.00	0.00	0.00
3,700.0	7.74	319.96	3,680.1	238.6	-200.5	-189.6	0.00	0.00	0.00
3,800.0	7.74	319.96	3,779.2	248.9	-209.2	-197.8	0.00	0.00	0.00
3,900.0	7.74	319.96	3,878.3	259.3	-217.9	-206.0	0.00	0.00	0.00
4,000.0	7.74	319.96	3,977.4	269.6	-226.5	-214.2	0.00	0.00	0.00
4,100.0	7.74	319.96	4,076.4	279.9	-235.2	-222.4	0.00	0.00	0.00
4,200.0	7.74	319.96	4,175.5	290.2	-243.9	-230.6	0.00	0.00	0.00
4,300.0	7.74	319.96	4,274.6	300.5	-252.5	-238.8	0.00	0.00	0.00
4,400.0	7.74	319.96	4,373.7	310.8	-261.2	-247.0	0.00	0.00	0.00
4,500.0	7.74	319.96	4,472.8	321.1	-269.9	-255.2	0.00	0.00	0.00
4,600.0	7.74	319.96	4,571.9	331.5	-278.5	-263.4	0.00	0.00	0.00
4,700.0	7.74	319.96	4,671.0	341.8	-287.2	-271.6	0.00	0.00	0.00
4,800.0	7.74	319.96	4,770.1	352.1	-295.9	-279.8	0.00	0.00	0.00
4,900.0	7.74	319.96	4,869.1	362.4	-304.5	-288.0	0.00	0.00	0.00
5,000.0	7.74	319.96	4,968.2	372.7	-313.2	-296.2	0.00	0.00	0.00

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Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (7-20-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.0	7.74	319.96	5,067.3	383.0	-321.9	-304.4	0.00	0.00	0.00
5,200.0	7.74	319.96	5,166.4	393.3	-330.5	-312.6	0.00	0.00	0.00
5,300.0	7.74	319.96	5,265.5	403.7	-339.2	-320.8	0.00	0.00	0.00
5,400.0	7.74	319.96	5,364.6	414.0	-347.9	-329.0	0.00	0.00	0.00
5,449.9	7.74	319.96	5,414.0	419.1	-352.2	-333.0	0.00	0.00	0.00
5,500.0	6.74	319.96	5,463.7	424.0	-356.3	-336.9	2.00	-2.00	0.00
5,600.0	4.74	319.96	5,563.2	431.6	-362.7	-343.0	2.00	-2.00	0.00
5,700.0	2.74	319.96	5,663.0	436.6	-366.9	-346.9	2.00	-2.00	0.00
5,800.0	0.74	319.96	5,763.0	438.9	-368.8	-348.8	2.00	-2.00	0.00
5,837.0	0.00	0.00	5,800.0	439.1	-369.0	-348.9	2.00	-2.00	0.00
5,900.0	0.00	0.00	5,863.0	439.1	-369.0	-348.9	0.00	0.00	0.00
5,995.6	0.00	0.00	5,958.6	439.1	-369.0	-348.9	0.00	0.00	0.00
Start Build 7.50									
6,000.0	0.33	90.00	5,963.0	439.1	-369.0	-348.9	7.51	7.51	0.00
6,100.0	7.83	90.00	6,062.6	439.1	-361.9	-341.8	7.50	7.50	0.00
6,200.0	15.33	90.00	6,160.5	439.1	-341.8	-321.8	7.50	7.50	0.00
6,300.0	22.83	90.00	6,255.0	439.1	-309.2	-289.1	7.50	7.50	0.00
6,400.0	30.33	90.00	6,344.3	439.1	-264.4	-244.5	7.50	7.50	0.00
6,500.0	37.83	90.00	6,427.1	439.1	-208.4	-188.5	7.50	7.50	0.00
6,600.0	45.33	90.00	6,501.8	439.1	-142.1	-122.3	7.50	7.50	0.00
6,700.0	52.83	90.00	6,567.3	439.1	-66.6	-46.8	7.50	7.50	0.00
6,800.0	60.33	90.00	6,622.3	439.1	16.8	36.5	7.50	7.50	0.00
6,900.0	67.83	90.00	6,666.0	439.1	106.7	126.3	7.50	7.50	0.00
7,000.0	75.33	90.00	6,697.6	439.1	201.5	221.0	7.50	7.50	0.00
7,100.0	82.83	90.00	6,716.5	439.1	299.6	319.0	7.50	7.50	0.00
7,200.0	90.33	90.00	6,722.5	439.1	399.3	418.6	7.50	7.50	0.00
7,200.9	90.40	90.00	6,722.5	439.1	400.2	419.5	7.50	7.50	0.00
Start 9379.0 hold at 7200.9 MD - 7"									
7,300.0	90.40	90.00	6,721.8	439.1	499.3	518.5	0.00	0.00	0.00
7,400.0	90.40	90.00	6,721.1	439.1	599.3	618.4	0.00	0.00	0.00
7,500.0	90.40	90.00	6,720.4	439.1	699.3	718.3	0.00	0.00	0.00
7,600.0	90.40	90.00	6,719.7	439.1	799.3	818.2	0.00	0.00	0.00
7,700.0	90.40	90.00	6,719.0	439.1	899.3	918.1	0.00	0.00	0.00
7,800.0	90.40	90.00	6,718.3	439.1	999.3	1,018.0	0.00	0.00	0.00
7,900.0	90.40	90.00	6,717.6	439.1	1,099.3	1,117.9	0.00	0.00	0.00
8,000.0	90.40	90.00	6,716.9	439.1	1,199.3	1,217.8	0.00	0.00	0.00
8,100.0	90.40	90.00	6,716.2	439.1	1,299.3	1,317.7	0.00	0.00	0.00
8,200.0	90.40	90.00	6,715.5	439.1	1,399.3	1,417.6	0.00	0.00	0.00
8,300.0	90.40	90.00	6,714.8	439.1	1,499.3	1,517.5	0.00	0.00	0.00
8,400.0	90.40	90.00	6,714.1	439.1	1,599.3	1,617.4	0.00	0.00	0.00
8,500.0	90.40	90.00	6,713.4	439.1	1,699.3	1,717.3	0.00	0.00	0.00
8,600.0	90.40	90.00	6,712.7	439.1	1,799.3	1,817.2	0.00	0.00	0.00
8,700.0	90.40	90.00	6,712.0	439.1	1,899.3	1,917.1	0.00	0.00	0.00
8,800.0	90.40	90.00	6,711.3	439.1	1,999.3	2,017.0	0.00	0.00	0.00
8,900.0	90.40	90.00	6,710.6	439.1	2,099.3	2,116.9	0.00	0.00	0.00
9,000.0	90.40	90.00	6,709.9	439.1	2,199.3	2,216.8	0.00	0.00	0.00
9,100.0	90.40	90.00	6,709.2	439.1	2,299.3	2,316.7	0.00	0.00	0.00
9,200.0	90.40	90.00	6,708.5	439.1	2,399.3	2,416.6	0.00	0.00	0.00
9,300.0	90.40	90.00	6,707.8	439.1	2,499.3	2,516.5	0.00	0.00	0.00
9,400.0	90.40	90.00	6,707.1	439.1	2,599.3	2,616.4	0.00	0.00	0.00
9,500.0	90.40	90.00	6,706.4	439.1	2,699.3	2,716.3	0.00	0.00	0.00
9,600.0	90.40	90.00	6,705.7	439.1	2,799.3	2,816.2	0.00	0.00	0.00
9,700.0	90.40	90.00	6,705.0	439.1	2,899.3	2,916.1	0.00	0.00	0.00

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Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (7-20-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,800.0	90.40	90.00	6,704.3	439.1	2,999.3	3,016.0	0.00	0.00	0.00
9,900.0	90.40	90.00	6,703.6	439.1	3,099.3	3,115.9	0.00	0.00	0.00
10,000.0	90.40	90.00	6,702.9	439.1	3,199.3	3,215.8	0.00	0.00	0.00
10,100.0	90.40	90.00	6,702.2	439.1	3,299.3	3,315.7	0.00	0.00	0.00
10,200.0	90.40	90.00	6,701.5	439.1	3,399.3	3,415.6	0.00	0.00	0.00
10,300.0	90.40	90.00	6,700.8	439.1	3,499.3	3,515.4	0.00	0.00	0.00
10,400.0	90.40	90.00	6,700.1	439.1	3,599.3	3,615.3	0.00	0.00	0.00
10,500.0	90.40	90.00	6,699.4	439.1	3,699.3	3,715.2	0.00	0.00	0.00
10,600.0	90.40	90.00	6,698.7	439.1	3,799.3	3,815.1	0.00	0.00	0.00
10,700.0	90.40	90.00	6,698.0	439.1	3,899.3	3,915.0	0.00	0.00	0.00
10,800.0	90.40	90.00	6,697.4	439.1	3,999.3	4,014.9	0.00	0.00	0.00
10,900.0	90.40	90.00	6,696.7	439.1	4,099.3	4,114.8	0.00	0.00	0.00
11,000.0	90.40	90.00	6,696.0	439.1	4,199.3	4,214.7	0.00	0.00	0.00
11,100.0	90.40	90.00	6,695.3	439.1	4,299.3	4,314.6	0.00	0.00	0.00
11,200.0	90.40	90.00	6,694.6	439.1	4,399.2	4,414.5	0.00	0.00	0.00
11,300.0	90.40	90.00	6,693.9	439.1	4,499.2	4,514.4	0.00	0.00	0.00
11,400.0	90.40	90.00	6,693.2	439.1	4,599.2	4,614.3	0.00	0.00	0.00
11,500.0	90.40	90.00	6,692.5	439.1	4,699.2	4,714.2	0.00	0.00	0.00
11,600.0	90.40	90.00	6,691.8	439.1	4,799.2	4,814.1	0.00	0.00	0.00
11,700.0	90.40	90.00	6,691.1	439.1	4,899.2	4,914.0	0.00	0.00	0.00
11,800.0	90.40	90.00	6,690.4	439.1	4,999.2	5,013.9	0.00	0.00	0.00
11,900.0	90.40	90.00	6,689.7	439.1	5,099.2	5,113.8	0.00	0.00	0.00
12,000.0	90.40	90.00	6,689.0	439.1	5,199.2	5,213.7	0.00	0.00	0.00
12,100.0	90.40	90.00	6,688.3	439.1	5,299.2	5,313.6	0.00	0.00	0.00
12,200.0	90.40	90.00	6,687.6	439.1	5,399.2	5,413.5	0.00	0.00	0.00
12,300.0	90.40	90.00	6,686.9	439.1	5,499.2	5,513.4	0.00	0.00	0.00
12,400.0	90.40	90.00	6,686.2	439.1	5,599.2	5,613.3	0.00	0.00	0.00
12,500.0	90.40	90.00	6,685.5	439.1	5,699.2	5,713.2	0.00	0.00	0.00
12,600.0	90.40	90.00	6,684.8	439.1	5,799.2	5,813.1	0.00	0.00	0.00
12,700.0	90.40	90.00	6,684.1	439.1	5,899.2	5,913.0	0.00	0.00	0.00
12,800.0	90.40	90.00	6,683.4	439.1	5,999.2	6,012.9	0.00	0.00	0.00
12,900.0	90.40	90.00	6,682.7	439.1	6,099.2	6,112.8	0.00	0.00	0.00
13,000.0	90.40	90.00	6,682.0	439.1	6,199.2	6,212.7	0.00	0.00	0.00
13,100.0	90.40	90.00	6,681.3	439.1	6,299.2	6,312.6	0.00	0.00	0.00
13,200.0	90.40	90.00	6,680.6	439.1	6,399.2	6,412.5	0.00	0.00	0.00
13,300.0	90.40	90.00	6,679.9	439.1	6,499.2	6,512.4	0.00	0.00	0.00
13,400.0	90.40	90.00	6,679.2	439.1	6,599.2	6,612.3	0.00	0.00	0.00
13,500.0	90.40	90.00	6,678.5	439.1	6,699.2	6,712.1	0.00	0.00	0.00
13,600.0	90.40	90.00	6,677.8	439.1	6,799.2	6,812.0	0.00	0.00	0.00
13,700.0	90.40	90.00	6,677.1	439.1	6,899.2	6,911.9	0.00	0.00	0.00
13,800.0	90.40	90.00	6,676.4	439.1	6,999.2	7,011.8	0.00	0.00	0.00
13,900.0	90.40	90.00	6,675.7	439.1	7,099.2	7,111.7	0.00	0.00	0.00
14,000.0	90.40	90.00	6,675.0	439.1	7,199.2	7,211.6	0.00	0.00	0.00
14,100.0	90.40	90.00	6,674.3	439.1	7,299.2	7,311.5	0.00	0.00	0.00
14,200.0	90.40	90.00	6,673.6	439.1	7,399.2	7,411.4	0.00	0.00	0.00
14,300.0	90.40	90.00	6,672.9	439.1	7,499.2	7,511.3	0.00	0.00	0.00
14,400.0	90.40	90.00	6,672.2	439.1	7,599.2	7,611.2	0.00	0.00	0.00
14,500.0	90.40	90.00	6,671.5	439.1	7,699.2	7,711.1	0.00	0.00	0.00
14,600.0	90.40	90.00	6,670.8	439.1	7,799.2	7,811.0	0.00	0.00	0.00
14,700.0	90.40	90.00	6,670.1	439.1	7,899.2	7,910.9	0.00	0.00	0.00
14,800.0	90.40	90.00	6,669.4	439.1	7,999.2	8,010.8	0.00	0.00	0.00
14,900.0	90.40	90.00	6,668.7	439.1	8,099.2	8,110.7	0.00	0.00	0.00
15,000.0	90.40	90.00	6,668.0	439.1	8,199.2	8,210.6	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Schneider 19P-232
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (7-20-15)		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
15,100.0	90.40	90.00	6,667.3	439.1	8,299.2	8,310.5	0.00	0.00	0.00	
15,200.0	90.40	90.00	6,666.6	439.1	8,399.2	8,410.4	0.00	0.00	0.00	
15,300.0	90.40	90.00	6,665.9	439.1	8,499.1	8,510.3	0.00	0.00	0.00	
15,400.0	90.40	90.00	6,665.2	439.1	8,599.1	8,610.2	0.00	0.00	0.00	
15,500.0	90.40	90.00	6,664.5	439.1	8,699.1	8,710.1	0.00	0.00	0.00	
15,600.0	90.40	90.00	6,663.8	439.1	8,799.1	8,810.0	0.00	0.00	0.00	
15,700.0	90.40	90.00	6,663.1	439.1	8,899.1	8,909.9	0.00	0.00	0.00	
15,800.0	90.40	90.00	6,662.4	439.1	8,999.1	9,009.8	0.00	0.00	0.00	
15,900.0	90.40	90.00	6,661.7	439.1	9,099.1	9,109.7	0.00	0.00	0.00	
16,000.0	90.40	90.00	6,661.0	439.1	9,199.1	9,209.6	0.00	0.00	0.00	
16,100.0	90.40	90.00	6,660.4	439.1	9,299.1	9,309.5	0.00	0.00	0.00	
16,200.0	90.40	90.00	6,659.7	439.1	9,399.1	9,409.4	0.00	0.00	0.00	
16,300.0	90.40	90.00	6,659.0	439.1	9,499.1	9,509.3	0.00	0.00	0.00	
16,400.0	90.40	90.00	6,658.3	439.1	9,599.1	9,609.2	0.00	0.00	0.00	
16,500.0	90.40	90.00	6,657.6	439.1	9,699.1	9,709.1	0.00	0.00	0.00	
16,579.9	90.40	90.00	6,657.0	439.1	9,779.0	9,788.9	0.00	0.00	0.00	
TD at 16579.9										

Design Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
50' N/S Hardline (19P-232) - plan misses target center by 5108.6ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Rectangle (sides W100.0 H9,378.8 D0.0)	0.00	0.00	1.0	439.1	5,089.7	1,382,501.21	3,258,883.87	40.379644	-104.570732	
SHL 409'FSL, 1607'FEL - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,382,009.88	3,253,799.16	40.378440	-104.589000	
BHL 730'FSL, 2396'FEL - plan hits target center - Point	0.00	0.00	6,657.0	439.1	9,779.1	1,382,549.41	3,263,572.79	40.379640	-104.553900	

Casing Points									
Measured Depth (ft)	Vertical Depth (ft)	Name				Casing Diameter (")	Hole Diameter (")		
7,200.9	6,722.5	7"				7	7-1/2		

Database:	US_EDM	Local Co-ordinate Reference:	Well Schneider 19P-232
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (7-20-15)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,533.4	3,515.0	PARKMAN				
4,337.7	4,312.0	SUSSEX				
4,527.5	4,500.0	SHANNON				
6,457.7	6,393.0	SHARON SPRINGS				
6,654.9	6,539.0	NIOBRARA A				
6,830.7	6,637.0	NIOBRARA B				
7,133.8	6,720.0	NIOBRARA C				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,000.0	1,000.0	0.0	0.0	KOP - Start Build 1.00	
5,995.6	5,958.6	419.1	-352.2	Start Build 7.50	
7,200.9	6,722.5	439.1	-369.0	Start 9379.0 hold at 7200.9 MD	
16,579.9	6,657.0	439.1	400.2	TD at 16579.9	



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

Schneider 19Q-HZ Pad Sec.19-T5N-R64W

Schneider 19P-232

Wellbore #1

Plan #3 (7-20-15)

Anticollision Report

28 July, 2015



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #3 (7-20-15)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	7/28/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	16,579.9	Plan #3 (7-20-15) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells Sec.21-T5N-R64W						
Chesnut 3 (SI) - Wellbore #1 - Wellbore #1	16,579.9	6,619.0	417.3	5.8	1.014	Level 2, CC, ES, SF
Elder 13-21 (Exist) - Wellbore #1 - Wellbore #1	14,144.6	6,500.0	158.6	78.2	1.972	CC, ES, SF
Elder 14-21 (Exist) - Wellbore #1 - Wellbore #1	15,476.2	6,500.0	343.9	102.4	1.424	Level 3, CC, ES
Elder 14-21 (Exist) - Wellbore #1 - Wellbore #1	15,500.0	6,500.0	344.7	102.6	1.424	Level 3, SF
Maxey 24Q-HZ Pad Sec.24-T5N-R65W						
Maxey 24P-232 - Wellbore #1 - Wellbore #1	6,699.3	12,522.0	332.1	189.4	2.327	CC, ES, SF
Maxey 24P-332 - Wellbore #1 - Wellbore #1	6,721.4	12,536.0	258.9	195.0	4.049	CC, ES, SF
Maxey 24Q-112 - Wellbore #1 - Wellbore #1	6,634.8	12,358.0	447.0	271.3	2.544	CC, ES, SF
Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W						
Evert 20-2 (Exist) - Wellbore #1 - Wellbore #1	10,468.7	6,693.8	106.5	-13.8	0.885	Level 1, CC, ES, SF
Evert 5 (Exist) - Wellbore #1 - Wellbore #1	9,647.9	6,696.8	484.3	385.2	4.885	CC, ES
Evert 5 (Exist) - Wellbore #1 - Wellbore #1	9,700.0	6,697.0	487.1	386.5	4.843	SF
Gilbert Danley 20-1 (Exist) - Wellbore #1 - Wellbore #1	13,055.6	6,662.8	161.5	-30.9	0.839	Level 1, CC, ES, SF
Hoff 20-1 (Exist) - Wellbore #1 - Wellbore #1	11,805.8	6,702.5	124.5	-35.1	0.780	Level 1, CC, ES, SF
Ivan Klein 20-2 (Exist) - Wellbore #1 - Wellbore #1	8,969.5	6,708.3	255.1	174.3	3.158	CC, ES
Ivan Klein 20-2 (Exist) - Wellbore #1 - Wellbore #1	9,000.0	6,707.9	256.9	175.3	3.148	SF
Mowery 19-2 (Exist) - Wellbore #1 - Wellbore #1	7,718.9	6,707.3	149.7	103.3	3.228	CC, ES, SF
Mowery 5 (Exist) - Wellbore #1 - Wellbore #1	7,145.8	6,681.7	413.1	378.5	11.932	CC
Mowery 5 (Exist) - Wellbore #1 - Wellbore #1	7,150.0	6,682.0	413.2	378.5	11.907	ES
Mowery 5 (Exist) - Wellbore #1 - Wellbore #1	7,200.9	6,683.9	416.8	381.1	11.687	SF
Phil Wilson 19-1 (Exist) - Wellbore #1 - Wellbore #1	4,882.4	4,827.2	50.3	27.1	2.169	CC
Phil Wilson 19-1 (Exist) - Wellbore #1 - Wellbore #1	4,900.0	4,844.8	50.4	27.1	2.162	ES, SF
Schneider 19Q-HZ Pad Sec.19-T5N-R64W						
Schneider 19P-332 - Wellbore #1 - Plan #3 (7-20-15)	200.0	200.0	30.6	30.0	45.451	CC
Schneider 19P-332 - Wellbore #1 - Plan #3 (7-20-15)	16,579.9	16,804.1	263.9	-271.6	0.493	Level 1, ES, SF
Schneider 19Q-202 - Wellbore #1 - Plan #3 (7-20-15)	1,000.0	1,001.0	30.6	26.4	7.173	CC, ES
Schneider 19Q-202 - Wellbore #1 - Plan #3 (7-20-15)	16,579.9	16,469.2	721.3	165.6	1.298	Level 3, SF
Schneider 19Q-312 - Wellbore #1 - Plan #2 (7-20-15)	1,000.0	1,001.0	58.5	54.2	13.693	CC
Schneider 19Q-312 - Wellbore #1 - Plan #2 (7-20-15)	16,579.9	16,466.5	383.5	-160.7	0.705	Level 1, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.21-T5N-R64W - Chesnut 3 (SI) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7000-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						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	
16,000.0	6,661.0	6,623.0	6,623.0	263.1	132.5	94.94	359.1	10,188.6	992.7	598.5	394.29	2.518	
16,100.0	6,660.4	6,622.4	6,622.4	265.9	132.4	94.44	359.1	10,188.6	893.1	495.8	397.33	2.248	
16,200.0	6,659.7	6,621.7	6,621.7	268.7	132.4	93.94	359.1	10,188.6	793.6	393.2	400.34	1.982	
16,300.0	6,659.0	6,621.0	6,621.0	271.5	132.4	93.44	359.1	10,188.6	694.1	290.8	403.33	1.721	
16,400.0	6,658.3	6,620.3	6,620.3	274.3	132.4	92.95	359.1	10,188.6	594.9	188.6	406.29	1.464	Level 3
16,500.0	6,657.6	6,619.6	6,619.6	277.2	132.4	92.45	359.1	10,188.6	496.0	86.8	409.22	1.212	Level 2
16,579.9	6,657.0	6,619.0	6,619.0	279.4	132.4	92.05	359.1	10,188.6	417.3	5.8	411.55	1.014	Level 2, CC, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.21-T5N-R64W - Elder 13-21 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
13,200.0	6,680.6	6,500.0	6,497.8	184.7	12.4	14.89	398.4	7,342.7	957.8	886.9	70.88	13.513		
13,300.0	6,679.9	6,500.0	6,497.8	187.5	12.4	14.89	398.4	7,342.7	859.3	787.4	71.88	11.954		
13,400.0	6,679.2	6,500.0	6,497.8	190.3	12.4	14.89	398.4	7,342.7	761.3	688.4	72.89	10.444		
13,500.0	6,678.5	6,500.0	6,497.8	193.1	12.4	14.89	398.4	7,342.7	663.8	589.9	73.90	8.983		
13,600.0	6,677.8	6,500.0	6,497.8	195.9	12.4	14.89	398.4	7,342.7	567.2	492.3	74.90	7.572		
13,700.0	6,677.1	6,500.0	6,497.8	198.7	12.4	14.89	398.4	7,342.7	472.0	396.1	75.91	6.218		
13,800.0	6,676.4	6,500.0	6,497.8	201.5	12.4	14.89	398.4	7,342.7	379.3	302.4	76.92	4.931		
13,900.0	6,675.7	6,500.0	6,497.8	204.3	12.4	14.89	398.4	7,342.7	291.5	213.6	77.92	3.741		
14,000.0	6,675.0	6,500.0	6,497.8	207.1	12.4	14.89	398.4	7,342.7	214.6	135.6	78.93	2.719		
14,100.0	6,674.3	6,500.0	6,497.8	209.9	12.4	14.89	398.4	7,342.7	164.7	84.8	79.94	2.060		
14,144.6	6,674.0	6,500.0	6,497.8	211.1	12.4	14.89	398.4	7,342.7	158.6	78.2	80.38	1.972 CC, ES, SF		
14,200.0	6,673.6	6,500.0	6,497.8	212.7	12.4	14.89	398.4	7,342.7	168.0	87.0	80.94	2.075		
14,300.0	6,672.9	6,500.0	6,497.8	215.5	12.4	14.89	398.4	7,342.7	222.0	140.1	81.95	2.709		
14,400.0	6,672.2	6,500.0	6,497.8	218.3	12.4	14.89	398.4	7,342.7	300.6	217.7	82.96	3.624		
14,500.0	6,671.5	6,500.0	6,497.8	221.1	12.4	14.89	398.4	7,342.7	389.2	305.2	83.96	4.635		
14,600.0	6,670.8	6,500.0	6,497.8	223.9	12.4	14.89	398.4	7,342.7	482.2	397.3	84.97	5.675		
14,700.0	6,670.1	6,500.0	6,497.8	226.7	12.4	14.89	398.4	7,342.7	577.6	491.6	85.98	6.718		
14,800.0	6,669.4	6,500.0	6,497.8	229.5	12.4	14.89	398.4	7,342.7	674.3	587.3	86.98	7.752		
14,900.0	6,668.7	6,500.0	6,497.8	232.3	12.4	14.89	398.4	7,342.7	771.9	683.9	87.99	8.772		
15,000.0	6,668.0	6,500.0	6,497.8	235.1	12.4	14.89	398.4	7,342.7	870.0	781.0	89.00	9.776		
15,100.0	6,667.3	6,500.0	6,497.8	237.9	12.4	14.89	398.4	7,342.7	968.5	878.5	90.00	10.761		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.21-T5N-R64W - Elder 14-21 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
14,600.0	6,670.8	6,500.0	6,499.5	223.9	11.9	67.57	121.3	8,674.4	941.3	722.5	218.70	4.304	
14,700.0	6,670.1	6,500.0	6,499.5	226.7	11.9	67.57	121.3	8,674.4	849.0	627.6	221.30	3.836	
14,800.0	6,669.4	6,500.0	6,499.5	229.5	11.9	67.57	121.3	8,674.4	758.6	534.7	223.91	3.388	
14,900.0	6,668.7	6,500.0	6,499.5	232.3	11.9	67.57	121.3	8,674.4	671.0	444.5	226.51	2.962	
15,000.0	6,668.0	6,500.0	6,499.5	235.1	11.9	67.57	121.3	8,674.4	587.4	358.3	229.12	2.564	
15,100.0	6,667.3	6,500.0	6,499.5	237.9	11.9	67.57	121.3	8,674.4	509.7	278.0	231.72	2.200	
15,200.0	6,666.6	6,500.0	6,499.5	240.7	11.9	67.57	121.3	8,674.4	441.1	206.7	234.32	1.882	
15,300.0	6,665.9	6,500.0	6,499.5	243.5	11.9	67.57	121.3	8,674.4	386.4	149.5	236.93	1.631	
15,400.0	6,665.2	6,500.0	6,499.5	246.3	11.9	67.57	121.3	8,674.4	352.2	112.7	239.53	1.470	Level 3
15,476.2	6,664.7	6,500.0	6,499.5	248.4	11.9	67.57	121.3	8,674.4	343.9	102.4	241.52	1.424	Level 3, CC, ES
15,500.0	6,664.5	6,500.0	6,499.5	249.1	11.9	67.57	121.3	8,674.4	344.7	102.6	242.14	1.424	Level 3, SF
15,600.0	6,663.8	6,500.0	6,499.5	251.9	11.9	67.57	121.3	8,674.4	365.5	120.8	244.74	1.493	Level 3
15,700.0	6,663.1	6,500.0	6,499.5	254.7	11.9	67.57	121.3	8,674.4	410.3	163.0	247.35	1.659	
15,800.0	6,662.4	6,500.0	6,499.5	257.5	11.9	67.57	121.3	8,674.4	472.4	222.4	249.95	1.890	
15,900.0	6,661.7	6,500.0	6,499.5	260.3	11.9	67.57	121.3	8,674.4	545.8	293.2	252.56	2.161	
16,000.0	6,661.0	6,500.0	6,499.5	263.1	11.9	67.57	121.3	8,674.4	626.6	371.5	255.16	2.456	
16,100.0	6,660.4	6,500.0	6,499.5	265.9	11.9	67.57	121.3	8,674.4	712.3	454.6	257.77	2.763	
16,200.0	6,659.7	6,500.0	6,499.5	268.7	11.9	67.57	121.3	8,674.4	801.4	541.0	260.37	3.078	
16,300.0	6,659.0	6,500.0	6,499.5	271.5	11.9	67.57	121.3	8,674.4	892.7	629.7	262.98	3.395	
16,400.0	6,658.3	6,500.0	6,499.5	274.3	11.9	67.57	121.3	8,674.4	985.8	720.2	265.58	3.712	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design													Maxey 24Q-HZ Pad Sec.24-T5N-R65W - Maxey 24P-232 - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft
Survey Program: 119-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)						
5,837.0	5,800.0	12,381.2	6,725.7	16.6	162.0	6.82	692.6	-338.7	976.7	929.6	47.08	20.745					
5,900.0	5,863.0	12,380.0	6,725.8	16.7	162.0	6.55	692.6	-339.9	916.1	869.5	46.58	19.666					
5,995.6	5,958.6	12,378.1	6,725.8	16.8	161.9	6.13	692.7	-341.8	824.7	778.8	45.84	17.990					
6,000.0	5,963.0	12,378.0	6,725.8	16.8	161.9	-84.90	692.7	-341.9	820.5	644.6	175.93	4.664					
6,050.0	6,012.9	12,378.7	6,725.8	16.9	162.0	-95.89	692.7	-341.2	773.1	596.5	176.57	4.378					
6,100.0	6,062.6	12,382.0	6,725.7	16.9	162.1	-105.21	692.5	-337.9	726.2	553.6	172.57	4.208					
6,150.0	6,111.9	12,388.1	6,725.6	17.0	162.2	-112.60	692.4	-331.8	680.0	513.4	166.54	4.083					
6,200.0	6,160.5	12,397.1	6,725.4	17.0	162.5	-118.17	692.1	-322.8	634.8	474.3	160.42	3.957					
6,250.0	6,208.3	12,410.4	6,725.1	17.0	162.8	-121.99	691.9	-309.5	590.8	435.3	155.54	3.799					
6,300.0	6,255.0	12,427.0	6,724.6	17.0	163.3	-124.55	691.6	-292.9	548.5	396.5	152.04	3.608					
6,350.0	6,300.4	12,445.5	6,724.1	16.9	163.8	-126.23	691.4	-274.4	508.1	358.4	149.69	3.394					
6,400.0	6,344.3	12,467.1	6,723.5	16.9	164.4	-127.01	691.3	-252.9	469.8	321.1	148.74	3.159					
6,450.0	6,386.6	12,492.5	6,722.8	16.9	165.1	-126.90	691.3	-227.4	434.1	284.8	149.30	2.908					
6,500.0	6,427.1	12,520.7	6,722.0	16.8	165.9	-126.13	691.2	-199.2	401.2	250.2	151.02	2.656					
6,550.0	6,465.6	12,522.0	6,722.0	16.8	166.0	-128.08	691.2	-198.0	372.5	224.9	147.63	2.524					
6,600.0	6,501.8	12,522.0	6,722.0	16.8	166.0	-129.51	691.2	-198.0	350.6	205.6	144.97	2.418					
6,650.0	6,535.8	12,522.0	6,722.0	16.7	166.0	-130.35	691.2	-198.0	336.8	193.4	143.33	2.350					
6,699.3	6,566.9	12,522.0	6,722.0	16.7	166.0	-130.61	691.2	-198.0	332.1	189.4	142.72	2.327					
6,700.0	6,567.3	12,522.0	6,722.0	16.7	166.0	-130.61	691.2	-198.0	332.1	189.4	142.72	2.327	CC, ES, SF				
6,750.0	6,596.2	12,522.0	6,722.0	16.7	166.0	-130.33	691.2	-198.0	337.0	193.9	143.17	2.354					
6,800.0	6,622.3	12,522.0	6,722.0	16.8	166.0	-129.48	691.2	-198.0	351.1	206.4	144.70	2.426					
6,850.0	6,645.6	12,522.0	6,722.0	17.1	166.0	-128.03	691.2	-198.0	373.3	225.9	147.37	2.533					
6,900.0	6,666.0	12,522.0	6,722.0	17.6	166.0	-125.91	691.2	-198.0	402.1	250.9	151.21	2.659					
6,950.0	6,683.4	12,522.0	6,722.0	18.3	166.0	-123.03	691.2	-198.0	436.1	279.9	156.25	2.791					
7,000.0	6,697.6	12,522.0	6,722.0	19.0	166.0	-119.26	691.2	-198.0	474.1	311.7	162.40	2.920					
7,050.0	6,708.7	12,522.0	6,722.0	19.8	166.0	-114.47	691.2	-198.0	515.1	345.7	169.42	3.040					
7,100.0	6,716.5	12,522.0	6,722.0	20.6	166.0	-108.51	691.2	-198.0	558.2	381.5	176.74	3.158					
7,150.0	6,721.1	12,522.0	6,722.0	21.6	166.0	-101.33	691.2	-198.0	602.9	419.5	183.36	3.288					
7,200.9	6,722.5	12,522.0	6,722.0	22.5	166.0	-92.81	691.2	-198.0	649.4	461.5	187.88	3.456					
7,300.0	6,721.8	12,522.0	6,722.0	24.5	166.0	-92.81	691.2	-198.0	741.7	551.8	189.87	3.906					
7,400.0	6,721.1	12,522.0	6,722.0	26.7	166.0	-92.81	691.2	-198.0	836.4	644.4	192.02	4.356					
7,500.0	6,720.4	12,522.0	6,722.0	29.0	166.0	-92.81	691.2	-198.0	932.2	737.9	194.28	4.798					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 122-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,837.0	5,800.0	12,376.4	6,766.8	16.6	160.7	168.41	369.5	-354.7	986.3	938.0	48.39	20.385		
5,900.0	5,863.0	12,375.5	6,766.8	16.7	160.7	169.17	369.5	-355.7	923.6	876.9	46.67	19.789		
5,995.6	5,958.6	12,374.1	6,766.8	16.8	160.7	170.26	369.5	-357.1	828.3	784.0	44.28	18.708		
6,000.0	5,963.0	12,374.1	6,766.8	16.8	160.7	84.14	369.5	-357.1	823.9	648.9	175.02	4.708		
6,050.0	6,012.9	12,375.3	6,766.8	16.9	160.7	122.10	369.5	-355.8	774.1	623.1	150.98	5.127		
6,100.0	6,062.6	12,380.3	6,766.7	16.9	160.8	141.47	369.6	-350.9	724.5	609.5	114.98	6.301		
6,150.0	6,111.9	12,388.9	6,766.6	17.0	161.1	150.72	369.6	-342.3	675.4	581.6	93.82	7.199		
6,200.0	6,160.5	12,401.0	6,766.4	17.0	161.4	155.70	369.8	-330.2	626.8	544.9	81.91	7.652		
6,250.0	6,208.3	12,415.3	6,766.2	17.0	161.8	158.75	370.1	-315.9	579.1	504.4	74.74	7.748		
6,300.0	6,255.0	12,432.1	6,765.9	17.0	162.3	160.76	370.8	-299.1	532.5	462.2	70.29	7.576		
6,350.0	6,300.4	12,448.6	6,765.8	16.9	162.7	162.30	371.8	-282.6	487.1	420.0	67.10	7.260		
6,400.0	6,344.3	12,466.0	6,765.8	16.9	163.2	163.36	372.7	-265.2	443.5	378.3	65.21	6.801		
6,450.0	6,386.6	12,488.1	6,766.2	16.9	163.8	163.87	373.6	-243.1	402.0	337.2	64.73	6.210		
6,500.0	6,427.1	12,518.2	6,766.8	16.8	164.7	163.83	374.6	-213.1	362.5	296.8	65.63	5.523		
6,550.0	6,465.6	12,536.0	6,767.1	16.8	165.2	164.18	375.2	-195.3	325.4	259.9	65.52	4.967		
6,600.0	6,501.8	12,536.0	6,767.1	16.8	165.2	164.98	375.2	-195.3	294.2	229.9	64.29	4.577		
6,650.0	6,535.8	12,536.0	6,767.1	16.7	165.2	165.47	375.2	-195.3	271.7	207.9	63.77	4.260		
6,700.0	6,567.3	12,536.0	6,767.1	16.7	165.2	165.69	375.2	-195.3	260.1	196.3	63.80	4.077		
6,721.4	6,580.0	12,536.0	6,767.1	16.7	165.2	165.72	375.2	-195.3	258.9	195.0	63.95	4.049 CC, ES, SF		
6,750.0	6,596.2	12,536.0	6,767.1	16.7	165.2	165.68	375.2	-195.3	261.0	196.7	64.28	4.060		
6,800.0	6,622.3	12,536.0	6,767.1	16.8	165.2	165.42	375.2	-195.3	274.3	209.1	65.23	4.205		
6,850.0	6,645.6	12,536.0	6,767.1	17.1	165.2	164.89	375.2	-195.3	298.2	231.5	66.70	4.471		
6,900.0	6,666.0	12,536.0	6,767.1	17.6	165.2	164.04	375.2	-195.3	330.5	261.6	68.87	4.798		
6,950.0	6,683.4	12,536.0	6,767.1	18.3	165.2	162.76	375.2	-195.3	368.7	296.7	72.04	5.118		
7,000.0	6,697.6	12,536.0	6,767.1	19.0	165.2	160.87	375.2	-195.3	411.1	334.4	76.70	5.360		
7,050.0	6,708.7	12,536.0	6,767.1	19.8	165.2	158.05	375.2	-195.3	456.4	372.6	83.77	5.448		
7,100.0	6,716.5	12,536.0	6,767.1	20.6	165.2	153.62	375.2	-195.3	503.6	408.7	94.90	5.306		
7,150.0	6,721.1	12,536.0	6,767.1	21.6	165.2	146.18	375.2	-195.3	552.0	438.7	113.34	4.871		
7,200.9	6,722.5	12,536.0	6,767.1	22.5	165.2	131.97	375.2	-195.3	602.2	457.1	145.02	4.152		
7,300.0	6,721.8	12,536.0	6,767.1	24.5	165.2	131.97	375.2	-195.3	700.4	553.8	146.55	4.779		
7,400.0	6,721.1	12,536.0	6,767.1	26.7	165.2	131.97	375.2	-195.3	799.7	651.5	148.20	5.396		
7,500.0	6,720.4	12,536.0	6,767.1	29.0	165.2	131.97	375.2	-195.3	899.2	749.2	149.94	5.997		
7,600.0	6,719.7	12,536.0	6,767.1	31.3	165.2	131.97	375.2	-195.3	998.8	847.0	151.74	6.582		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 92-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,800.0	5,763.0	12,167.2	6,593.5	16.5	159.7	-139.00	4.7	-383.3	952.4	777.9	174.52	5.457		
5,837.0	5,800.0	12,167.6	6,593.5	16.6	159.7	-178.16	4.7	-383.0	919.7	888.5	31.13	29.545		
5,900.0	5,863.0	12,168.4	6,593.5	16.7	159.7	-178.27	4.7	-382.1	864.7	833.6	31.13	27.775		
5,995.6	5,958.6	12,169.6	6,593.5	16.8	159.8	-178.43	4.7	-380.9	783.5	752.4	31.16	25.141		
6,000.0	5,963.0	12,169.7	6,593.5	16.8	159.8	92.05	4.7	-380.8	779.9	605.0	174.90	4.459		
6,050.0	6,012.9	12,172.4	6,593.5	16.9	159.8	97.02	4.6	-378.1	738.9	564.8	174.19	4.242		
6,100.0	6,062.6	12,178.7	6,593.6	16.9	160.0	101.01	4.6	-371.8	699.4	526.6	172.85	4.046		
6,150.0	6,111.9	12,188.4	6,593.7	17.0	160.3	104.03	4.5	-362.1	661.6	490.2	171.46	3.859		
6,200.0	6,160.5	12,201.6	6,593.9	17.0	160.7	106.16	4.4	-348.9	625.9	455.6	170.37	3.674		
6,250.0	6,208.3	12,219.7	6,594.1	17.0	161.2	107.28	4.4	-330.8	592.7	422.7	169.98	3.487		
6,300.0	6,255.0	12,243.9	6,594.2	17.0	161.8	107.36	4.5	-306.6	562.0	391.4	170.53	3.295		
6,350.0	6,300.4	12,271.0	6,594.1	16.9	162.6	106.82	4.8	-279.6	534.1	362.5	171.65	3.112		
6,400.0	6,344.3	12,300.7	6,593.7	16.9	163.4	105.70	5.3	-249.9	509.3	336.0	173.26	2.939		
6,450.0	6,386.6	12,326.8	6,593.2	16.9	164.2	104.70	5.9	-223.8	487.7	313.1	174.65	2.793		
6,500.0	6,427.1	12,355.3	6,592.7	16.8	164.9	103.21	6.5	-195.2	469.7	293.3	176.40	2.663		
6,550.0	6,465.6	12,358.0	6,592.6	16.8	165.0	103.97	6.6	-192.6	456.2	280.2	176.01	2.592		
6,600.0	6,501.8	12,358.0	6,592.6	16.8	165.0	104.53	6.6	-192.6	448.6	272.9	175.71	2.553		
6,634.8	6,525.7	12,358.0	6,592.6	16.7	165.0	104.64	6.6	-192.6	447.0	271.3	175.71	2.544	CC, ES, SF	
6,650.0	6,535.8	12,358.0	6,592.6	16.7	165.0	104.62	6.6	-192.6	447.3	271.6	175.76	2.545		
6,700.0	6,567.3	12,358.0	6,592.6	16.7	165.0	104.25	6.6	-192.6	452.5	276.3	176.21	2.568		
6,750.0	6,596.2	12,358.0	6,592.6	16.7	165.0	103.40	6.6	-192.6	463.8	286.7	177.05	2.619		
6,800.0	6,622.3	12,358.0	6,592.6	16.8	165.0	102.08	6.6	-192.6	480.7	302.5	178.22	2.697		
6,850.0	6,645.6	12,358.0	6,592.6	17.1	165.0	100.28	6.6	-192.6	502.7	323.0	179.64	2.798		
6,900.0	6,666.0	12,358.0	6,592.6	17.6	165.0	97.99	6.6	-192.6	529.0	347.8	181.20	2.919		
6,950.0	6,683.4	12,358.0	6,592.6	18.3	165.0	95.20	6.6	-192.6	558.9	376.2	182.70	3.059		
7,000.0	6,697.6	12,358.0	6,592.6	19.0	165.0	91.94	6.6	-192.6	591.7	407.8	183.93	3.217		
7,050.0	6,708.7	12,358.0	6,592.6	19.8	165.0	88.23	6.6	-192.6	626.9	442.2	184.63	3.395		
7,100.0	6,716.5	12,358.0	6,592.6	20.6	165.0	84.11	6.6	-192.6	663.9	479.4	184.53	3.598		
7,150.0	6,721.1	12,358.0	6,592.6	21.6	165.0	79.65	6.6	-192.6	702.3	518.9	183.37	3.830		
7,200.9	6,722.5	12,358.0	6,592.6	22.5	165.0	74.86	6.6	-192.6	742.5	561.6	180.93	4.104		
7,300.0	6,721.8	12,358.0	6,592.6	24.5	165.0	74.86	6.6	-192.6	823.7	640.8	182.86	4.504		
7,400.0	6,721.1	12,358.0	6,592.6	26.7	165.0	74.86	6.6	-192.6	909.2	724.2	184.96	4.916		
7,500.0	6,720.4	12,358.0	6,592.6	29.0	165.0	74.86	6.6	-192.6	997.4	810.3	187.16	5.329		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Evert 20-2 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,500.0	6,706.4	6,722.5	6,721.0	81.7	11.9	105.40	332.8	3,667.4	974.2	883.4	90.73	10.737	
9,600.0	6,705.7	6,719.4	6,717.8	84.5	11.9	103.83	332.8	3,667.5	874.9	780.9	93.97	9.310	
9,700.0	6,705.0	6,716.3	6,714.8	87.2	11.9	102.25	332.8	3,667.5	775.8	678.6	97.18	7.982	
9,800.0	6,704.3	6,713.2	6,711.7	90.0	11.9	100.68	332.8	3,667.6	676.9	576.5	100.36	6.745	
9,900.0	6,703.6	6,710.2	6,708.7	92.7	11.9	99.11	332.7	3,667.7	578.4	474.9	103.50	5.589	
10,000.0	6,702.9	6,707.3	6,705.8	95.5	11.9	97.55	332.7	3,667.7	480.5	373.9	106.58	4.508	
10,100.0	6,702.2	6,704.4	6,702.9	98.3	11.8	96.00	332.7	3,667.8	383.7	274.0	109.62	3.500	
10,200.0	6,701.5	6,701.5	6,700.0	101.0	11.8	94.46	332.7	3,667.8	289.0	176.4	112.59	2.567	
10,300.0	6,700.8	6,698.6	6,697.1	103.8	11.8	92.92	332.7	3,667.9	199.5	84.0	115.50	1.727	
10,400.0	6,700.1	6,695.7	6,694.2	106.6	11.8	91.38	332.7	3,668.0	126.7	8.4	118.35	1.071 Level 2	
10,468.7	6,699.7	6,693.8	6,692.3	108.5	11.8	90.33	332.6	3,668.0	106.5	-13.8	120.26	0.885 Level 1, CC, ES, SF	
10,500.0	6,699.4	6,692.9	6,691.4	109.4	11.8	89.85	332.6	3,668.0	111.0	-10.2	121.12	0.916 Level 1	
10,600.0	6,698.7	6,690.1	6,688.6	112.1	11.8	88.35	332.6	3,668.1	169.0	45.2	123.81	1.365 Level 3	
10,700.0	6,698.0	6,687.3	6,685.8	114.9	11.8	86.87	332.6	3,668.1	254.5	128.1	126.42	2.013	
10,800.0	6,697.4	6,684.6	6,683.1	117.7	11.8	85.41	332.6	3,668.2	347.8	218.9	128.96	2.697	
10,900.0	6,696.7	6,681.9	6,680.4	120.5	11.8	83.98	332.6	3,668.3	444.0	312.6	131.42	3.379	
11,000.0	6,696.0	6,679.3	6,677.8	123.3	11.8	82.57	332.6	3,668.3	541.6	407.8	133.79	4.048	
11,100.0	6,695.3	6,676.7	6,675.2	126.0	11.8	81.20	332.6	3,668.4	639.9	503.9	136.09	4.702	
11,200.0	6,694.6	6,674.1	6,672.6	128.8	11.8	79.85	332.6	3,668.4	738.7	600.4	138.30	5.341	
11,300.0	6,693.9	6,671.5	6,670.0	131.6	11.8	78.52	332.5	3,668.5	837.7	697.3	140.44	5.965	
11,400.0	6,693.2	6,669.0	6,667.5	134.4	11.8	77.23	332.5	3,668.5	937.0	794.5	142.50	6.575	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Evert 5 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
8,800.0	6,711.3	6,693.2	6,691.1	62.6	13.6	-91.74	923.2	2,847.3	976.5	900.5	75.96	12.855	
8,900.0	6,710.6	6,693.7	6,691.5	65.3	13.6	-91.79	923.2	2,847.3	891.0	812.3	78.67	11.325	
9,000.0	6,709.9	6,694.1	6,692.0	68.0	13.6	-91.84	923.2	2,847.3	808.9	727.5	81.39	9.938	
9,100.0	6,709.2	6,694.5	6,692.4	70.7	13.6	-91.89	923.2	2,847.3	731.3	647.1	84.12	8.693	
9,200.0	6,708.5	6,694.9	6,692.8	73.5	13.6	-91.94	923.2	2,847.3	659.7	572.8	86.85	7.596	
9,300.0	6,707.8	6,695.3	6,693.2	76.2	13.6	-91.99	923.1	2,847.3	596.3	506.7	89.59	6.656	
9,400.0	6,707.1	6,695.7	6,693.6	79.0	13.6	-92.04	923.1	2,847.3	544.1	451.7	92.33	5.893	
9,500.0	6,706.4	6,696.2	6,694.0	81.7	13.6	-92.09	923.1	2,847.3	506.4	411.3	95.07	5.326	
9,600.0	6,705.7	6,696.6	6,694.4	84.5	13.6	-92.14	923.1	2,847.3	486.7	388.9	97.82	4.975	
9,647.9	6,705.4	6,696.8	6,694.6	85.8	13.6	-92.16	923.1	2,847.3	484.3	385.2	99.14	4.885 CC, ES	
9,700.0	6,705.0	6,697.0	6,694.9	87.2	13.6	-92.19	923.1	2,847.3	487.1	386.5	100.57	4.843 SF	
9,800.0	6,704.3	6,697.4	6,695.3	90.0	13.6	-92.23	923.1	2,847.3	507.6	404.3	103.33	4.913	
9,900.0	6,703.6	6,697.8	6,695.7	92.7	13.6	-92.28	923.1	2,847.3	546.0	439.9	106.09	5.147	
10,000.0	6,702.9	6,698.2	6,696.1	95.5	13.6	-92.33	923.0	2,847.3	598.8	489.9	108.85	5.501	
10,100.0	6,702.2	6,698.6	6,696.5	98.3	13.6	-92.38	923.0	2,847.3	662.5	550.9	111.61	5.936	
10,200.0	6,701.5	6,699.0	6,696.9	101.0	13.6	-92.43	923.0	2,847.3	734.4	620.0	114.38	6.421	
10,300.0	6,700.8	6,699.4	6,697.3	103.8	13.6	-92.48	923.0	2,847.3	812.3	695.1	117.14	6.934	
10,400.0	6,700.1	6,699.9	6,697.7	106.6	13.6	-92.52	923.0	2,847.3	894.5	774.6	119.91	7.460	
10,500.0	6,699.4	6,700.3	6,698.1	109.4	13.6	-92.57	923.0	2,847.3	980.1	857.4	122.68	7.989	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Gilbert Danley 20-1 (Exist) - Wellbore #1 - Wellb													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
12,100.0	6,688.3	6,672.5	6,670.5	153.9	12.1	90.32	277.3	6,254.7	969.1	803.1	166.01	5.838		
12,200.0	6,687.6	6,671.5	6,669.5	156.7	12.1	89.96	277.4	6,254.7	870.7	701.9	168.80	5.158		
12,300.0	6,686.9	6,670.5	6,668.5	159.5	12.1	89.60	277.4	6,254.7	772.6	601.0	171.58	4.503		
12,400.0	6,686.2	6,669.5	6,667.5	162.3	12.1	89.24	277.5	6,254.7	675.2	500.8	174.35	3.872		
12,500.0	6,685.5	6,668.5	6,666.5	165.1	12.1	88.88	277.6	6,254.7	578.6	401.4	177.12	3.266		
12,600.0	6,684.8	6,667.5	6,665.4	167.9	12.1	88.52	277.6	6,254.7	483.3	303.5	179.88	2.687		
12,700.0	6,684.1	6,666.4	6,664.4	170.7	12.1	88.16	277.7	6,254.7	390.5	207.9	182.64	2.138		
12,800.0	6,683.4	6,665.4	6,663.4	173.5	12.1	87.79	277.7	6,254.7	302.3	116.9	185.38	1.631		
12,900.0	6,682.7	6,664.4	6,662.4	176.3	12.1	87.43	277.8	6,254.7	224.2	36.1	188.12	1.192 Level 2		
13,000.0	6,682.0	6,663.4	6,661.3	179.1	12.1	87.07	277.8	6,254.7	170.8	-20.1	190.85	0.895 Level 1		
13,055.6	6,681.6	6,662.8	6,660.8	180.7	12.1	86.86	277.9	6,254.7	161.5	-30.9	192.37	0.839 Level 1, CC, ES, SF		
13,100.0	6,681.3	6,662.3	6,660.3	181.9	12.1	86.70	277.9	6,254.7	167.5	-26.1	193.58	0.865 Level 1		
13,200.0	6,680.6	6,661.3	6,659.3	184.7	12.1	86.34	278.0	6,254.7	216.6	20.3	196.29	1.104 Level 2		
13,300.0	6,679.9	6,660.3	6,658.3	187.5	12.1	85.97	278.0	6,254.7	292.9	93.9	198.99	1.472 Level 3		
13,400.0	6,679.2	6,659.2	6,657.2	190.3	12.1	85.61	278.1	6,254.8	380.4	178.7	201.69	1.886		
13,500.0	6,678.5	6,658.2	6,656.2	193.1	12.1	85.24	278.1	6,254.8	472.8	268.4	204.37	2.313		
13,600.0	6,677.8	6,657.2	6,655.2	195.9	12.1	84.88	278.2	6,254.8	567.8	360.8	207.05	2.742		
13,700.0	6,677.1	6,656.1	6,654.1	198.7	12.1	84.51	278.2	6,254.8	664.3	454.6	209.71	3.168		
13,800.0	6,676.4	6,655.1	6,653.1	201.5	12.1	84.14	278.3	6,254.8	761.7	549.3	212.36	3.587		
13,900.0	6,675.7	6,654.1	6,652.1	204.3	12.1	83.78	278.3	6,254.8	859.7	644.7	215.00	3.998		
14,000.0	6,675.0	6,653.0	6,651.0	207.1	12.1	83.41	278.4	6,254.8	958.1	740.4	217.63	4.402		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Hoff 20-1 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,900.0	6,696.7	6,709.9	6,707.9	120.5	13.9	95.30	315.0	5,005.1	914.3	780.4	133.91	6.828		
11,000.0	6,696.0	6,709.1	6,707.0	123.3	13.9	94.93	314.9	5,005.1	815.3	678.6	136.75	5.962		
11,100.0	6,695.3	6,708.3	6,706.2	126.0	13.9	94.56	314.9	5,005.1	716.7	577.1	139.58	5.134		
11,200.0	6,694.6	6,707.4	6,705.4	128.8	13.9	94.18	314.9	5,005.1	618.4	476.0	142.42	4.342		
11,300.0	6,693.9	6,706.6	6,704.6	131.6	13.9	93.81	314.9	5,005.1	520.9	375.6	145.25	3.586		
11,400.0	6,693.2	6,705.8	6,703.8	134.4	13.9	93.43	314.8	5,005.1	424.5	276.4	148.08	2.866		
11,500.0	6,692.5	6,705.0	6,703.0	137.2	13.9	93.06	314.8	5,005.1	330.2	179.3	150.91	2.188		
11,600.0	6,691.8	6,704.2	6,702.2	140.0	13.9	92.68	314.8	5,005.1	240.5	86.8	153.73	1.565		
11,700.0	6,691.1	6,703.4	6,701.3	142.8	13.9	92.31	314.7	5,005.1	163.4	6.8	156.55	1.044	Level 2	
11,800.0	6,690.4	6,702.6	6,700.5	145.6	13.9	91.93	314.7	5,005.1	124.6	-34.8	159.37	0.782	Level 1	
11,805.8	6,690.3	6,702.5	6,700.5	145.7	13.9	91.91	314.7	5,005.1	124.5	-35.1	159.53	0.780	Level 1, CC, ES, SF	
11,900.0	6,689.7	6,701.7	6,699.7	148.4	13.9	91.56	314.7	5,005.1	156.1	-6.1	162.18	0.962	Level 1	
12,000.0	6,689.0	6,700.9	6,698.9	151.1	13.9	91.18	314.7	5,005.1	230.6	65.7	164.99	1.398	Level 3	
12,100.0	6,688.3	6,700.1	6,698.1	153.9	13.9	90.80	314.6	5,005.1	319.4	151.6	167.79	1.904		
12,200.0	6,687.6	6,699.3	6,697.3	156.7	13.9	90.43	314.6	5,005.1	413.4	242.8	170.58	2.423		
12,300.0	6,686.9	6,698.5	6,696.4	159.5	13.9	90.05	314.6	5,005.1	509.6	336.2	173.37	2.939		
12,400.0	6,686.2	6,697.7	6,695.6	162.3	13.9	89.68	314.6	5,005.1	607.1	430.9	176.15	3.446		
12,500.0	6,685.5	6,696.8	6,694.8	165.1	13.9	89.31	314.5	5,005.1	705.2	526.3	178.93	3.941		
12,600.0	6,684.8	6,696.0	6,694.0	167.9	13.9	88.93	314.5	5,005.1	803.9	622.2	181.70	4.424		
12,700.0	6,684.1	6,695.2	6,693.2	170.7	13.9	88.56	314.5	5,005.1	902.8	718.3	184.46	4.894		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Ivan Klein 20-2 (Exist) - Wellbore #1 - Wellbore #													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,100.0	6,716.2	6,719.8	6,718.9	43.9	13.7	93.09	184.2	2,168.8	906.1	848.6	57.48	15.763		
8,200.0	6,715.5	6,718.5	6,717.6	46.5	13.7	92.80	184.2	2,168.8	810.6	750.5	60.10	13.488		
8,300.0	6,714.8	6,717.2	6,716.3	49.2	13.7	92.51	184.1	2,168.8	716.4	653.7	62.74	11.418		
8,400.0	6,714.1	6,715.9	6,715.0	51.8	13.7	92.22	184.1	2,168.8	624.0	558.6	65.40	9.541		
8,500.0	6,713.4	6,714.6	6,713.7	54.5	13.7	91.93	184.1	2,168.8	534.3	466.2	68.08	7.848		
8,600.0	6,712.7	6,713.3	6,712.4	57.2	13.7	91.63	184.1	2,168.8	449.0	378.2	70.76	6.345		
8,700.0	6,712.0	6,711.9	6,711.1	59.9	13.7	91.33	184.1	2,168.8	371.1	297.6	73.46	5.051		
8,800.0	6,711.3	6,710.6	6,709.7	62.6	13.7	91.03	184.1	2,168.8	306.2	230.1	76.17	4.021		
8,900.0	6,710.6	6,709.3	6,708.4	65.3	13.7	90.73	184.1	2,168.8	264.4	185.5	78.88	3.351		
8,969.5	6,710.1	6,708.3	6,707.4	67.2	13.7	90.52	184.1	2,168.8	255.1	174.3	80.77	3.158 CC, ES		
9,000.0	6,709.9	6,707.9	6,707.0	68.0	13.7	90.43	184.1	2,168.8	256.9	175.3	81.60	3.148 SF		
9,100.0	6,709.2	6,706.5	6,705.7	70.7	13.7	90.12	184.1	2,168.8	286.5	202.2	84.32	3.398		
9,200.0	6,708.5	6,705.2	6,704.3	73.5	13.7	89.81	184.0	2,168.9	343.8	256.7	87.05	3.949		
9,300.0	6,707.8	6,703.8	6,702.9	76.2	13.7	89.50	184.0	2,168.9	417.4	327.7	89.78	4.649		
9,400.0	6,707.1	6,702.4	6,701.5	79.0	13.7	89.19	184.0	2,168.9	500.3	407.8	92.52	5.408		
9,500.0	6,706.4	6,701.0	6,700.1	81.7	13.7	88.87	184.0	2,168.9	588.6	493.3	95.25	6.179		
9,600.0	6,705.7	6,699.6	6,698.7	84.5	13.7	88.56	184.0	2,168.9	680.1	582.1	97.98	6.941		
9,700.0	6,705.0	6,698.1	6,697.2	87.2	13.7	88.23	184.0	2,168.9	773.7	673.0	100.72	7.681		
9,800.0	6,704.3	6,696.6	6,695.7	90.0	13.7	87.89	184.0	2,168.9	868.7	765.2	103.45	8.397		
9,900.0	6,703.6	6,695.1	6,694.2	92.7	13.7	87.55	183.9	2,168.9	964.7	858.5	106.18	9.086		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Mowery 19-2 (Exist) - Wellbore #1 - Wellbore #1												Offset Well Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													
Reference				Offset			Semi Major Axis		Distance				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	75.68	236.8	927.8	957.6				
100.0	100.0	88.0	88.0	0.1	0.1	75.69	236.7	927.7	957.4	957.2	0.23	4,177.907	
141.1	141.1	127.1	127.1	0.2	0.2	75.70	236.5	927.7	957.4	957.0	0.40	2,410.335	
200.0	200.0	181.5	181.5	0.3	0.3	75.71	236.3	927.9	957.5	956.9	0.65	1,473.211	
300.0	300.0	280.5	280.5	0.6	0.5	75.73	236.1	928.5	958.1	957.0	1.06	900.027	
400.0	400.0	384.3	384.3	0.8	0.7	75.72	236.4	928.9	958.5	957.0	1.46	657.035	
500.0	500.0	487.8	487.8	1.0	0.8	75.72	236.5	928.9	958.5	956.7	1.83	524.197	
563.5	563.5	549.5	549.5	1.2	0.9	75.73	236.3	928.8	958.4	956.3	2.08	461.174	
600.0	600.0	584.5	584.5	1.2	1.0	75.74	236.1	928.9	958.4	956.2	2.22	430.906	
700.0	700.0	680.0	680.0	1.5	1.2	75.76	235.8	929.4	958.8	956.2	2.66	361.084	
800.0	800.0	783.4	783.4	1.7	1.4	75.77	235.9	929.9	959.4	956.3	3.10	309.205	
900.0	900.0	886.1	886.1	1.9	1.6	75.78	235.7	930.1	959.5	955.9	3.54	271.042	
910.0	910.0	896.3	896.3	1.9	1.7	75.78	235.6	930.1	959.5	955.9	3.58	267.759	
1,000.0	1,000.0	981.8	981.8	2.1	1.8	75.82	235.1	930.4	959.6	955.7	3.98	241.228	
1,100.0	1,100.0	1,079.9	1,079.9	2.4	2.1	115.93	234.7	931.1	960.6	956.2	4.43	216.648	
1,200.0	1,200.0	1,185.1	1,185.0	2.6	2.3	116.07	234.7	931.5	962.2	957.3	4.89	196.611	
1,300.0	1,299.9	1,286.4	1,286.4	2.8	2.5	116.31	234.4	931.6	964.1	958.8	5.34	180.648	
1,400.0	1,399.7	1,381.5	1,381.5	3.0	2.8	116.63	233.7	931.9	967.0	961.2	5.78	167.171	
1,500.0	1,499.4	1,481.8	1,481.7	3.3	3.0	117.05	233.3	932.5	971.0	964.7	6.26	155.155	
1,600.0	1,598.9	1,591.7	1,591.6	3.5	3.2	117.56	233.2	932.4	975.3	968.6	6.68	146.037	
1,700.0	1,698.3	1,692.7	1,692.6	3.8	3.3	118.13	232.9	931.6	979.8	972.8	7.03	139.351	
1,774.3	1,772.0	1,762.8	1,762.7	4.0	3.4	118.56	232.6	931.2	983.9	976.6	7.29	134.963	
1,800.0	1,797.4	1,786.8	1,786.8	4.0	3.4	118.72	232.7	931.1	985.4	978.0	7.38	133.508	
1,900.0	1,896.5	1,889.9	1,889.9	4.3	3.5	119.39	233.3	930.5	991.5	983.8	7.73	128.316	
2,000.0	1,995.6	1,991.6	1,991.6	4.6	3.6	120.00	234.4	929.3	997.4	989.3	8.09	123.268	
6,700.0	6,567.3	6,546.2	6,545.2	16.7	11.9	14.14	287.9	916.6	994.8	977.3	17.49	56.876	
6,750.0	6,596.2	6,575.4	6,574.5	16.7	12.0	16.02	288.2	916.9	954.8	938.2	16.60	57.530	
6,800.0	6,622.3	6,602.0	6,601.0	16.8	12.0	18.44	288.4	917.2	912.9	897.0	15.92	57.351	
6,850.0	6,645.6	6,625.7	6,624.8	17.1	12.1	21.57	288.7	917.4	869.5	853.9	15.65	55.577	
6,900.0	6,666.0	6,646.5	6,645.6	17.6	12.1	25.72	288.9	917.6	824.8	808.7	16.04	51.409	
6,950.0	6,683.4	6,664.3	6,663.4	18.3	12.2	31.27	289.0	917.8	778.8	761.4	17.42	44.698	
7,000.0	6,697.6	6,679.0	6,678.1	19.0	12.2	38.76	289.2	917.9	732.0	711.9	20.04	36.521	
7,050.0	6,708.7	6,690.6	6,689.6	19.8	12.2	48.74	289.3	918.0	684.4	660.5	23.90	28.641	
7,100.0	6,716.5	6,698.9	6,698.0	20.6	12.2	61.37	289.4	918.1	636.4	608.0	28.42	22.390	
7,150.0	6,721.1	6,704.0	6,703.1	21.6	12.2	75.75	289.4	918.2	588.2	555.8	32.38	18.162	
7,200.9	6,722.5	6,705.9	6,704.9	22.5	12.3	90.01	289.4	918.2	539.1	504.4	34.69	15.539	
7,300.0	6,721.8	6,706.1	6,705.2	24.5	12.3	90.12	289.4	918.2	444.8	408.1	36.69	12.124	
7,400.0	6,721.1	6,706.4	6,705.4	26.7	12.3	90.22	289.5	918.2	352.2	313.4	38.84	9.068	
7,500.0	6,720.4	6,706.7	6,705.7	29.0	12.3	90.33	289.5	918.2	265.1	224.0	41.11	6.449	
7,600.0	6,719.7	6,707.0	6,706.0	31.3	12.3	90.43	289.5	918.2	191.1	147.6	43.47	4.396	
7,700.0	6,719.0	6,707.2	6,706.3	33.8	12.3	90.54	289.5	918.2	150.8	104.9	45.90	3.286	
7,718.9	6,718.9	6,707.3	6,706.3	34.2	12.3	90.56	289.5	918.2	149.7	103.3	46.37	3.228 CC, ES, SF	
7,800.0	6,718.3	6,707.5	6,706.5	36.3	12.3	90.64	289.5	918.2	170.2	121.9	48.38	3.519	
7,900.0	6,717.6	6,707.8	6,706.8	38.8	12.3	90.75	289.5	918.2	235.0	184.1	50.91	4.615	
8,000.0	6,716.9	6,708.1	6,707.1	41.3	12.3	90.86	289.5	918.2	318.5	265.0	53.48	5.956	
8,100.0	6,716.2	6,708.3	6,707.4	43.9	12.3	90.96	289.5	918.2	409.5	353.4	56.07	7.303	
8,200.0	6,715.5	6,708.6	6,707.7	46.5	12.3	91.07	289.5	918.2	503.9	445.2	58.69	8.586	
8,300.0	6,714.8	6,708.9	6,707.9	49.2	12.3	91.17	289.5	918.2	600.1	538.8	61.33	9.785	
8,400.0	6,714.1	6,709.2	6,708.2	51.8	12.3	91.28	289.5	918.2	697.4	633.4	63.99	10.899	
8,500.0	6,713.4	6,709.5	6,708.5	54.5	12.3	91.38	289.5	918.2	795.4	728.7	66.66	11.932	
8,600.0	6,712.7	6,709.7	6,708.8	57.2	12.3	91.49	289.5	918.2	893.8	824.4	69.34	12.889	

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 Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Mowery 19-2 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore	Centre	Between	Between	Minimum	Separation		
Depth	Depth	Depth	Depth			Toolface	+N/-S	+E/-W	Centres	Ellipses	Separation	Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)			
8,700.0	6,712.0	6,710.0	6,709.0	59.9	12.3	91.60	289.5	918.2	992.5	920.5	72.04	13.777		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Mowery 5 (Exist) - Wellbore #1 - Wellbore #1													Offset Well Error:	0.0 ft
Survey Program:		100-NS-GYRO-MS												
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	22.77	783.3	328.8	850.5					
100.0	100.0	59.1	59.1	0.1	0.1	22.78	783.2	328.9	849.5	849.3	0.19	4,447.358		
200.0	200.0	161.9	161.9	0.3	0.3	22.83	782.8	329.5	849.3	848.7	0.63	1,351.646		
300.0	300.0	261.9	261.9	0.6	0.5	22.86	782.2	329.8	848.9	847.8	1.07	795.534		
367.4	367.4	326.4	326.4	0.7	0.6	22.86	782.1	329.8	848.8	847.4	1.32	643.223		
400.0	400.0	356.8	356.8	0.8	0.6	22.86	782.1	329.7	848.8	847.4	1.43	594.995		
500.0	500.0	453.2	453.2	1.0	0.8	22.86	782.7	329.9	849.4	847.6	1.78	478.363		
600.0	600.0	553.2	553.2	1.2	0.9	22.88	783.2	330.4	850.1	847.9	2.17	391.843		
700.0	700.0	653.0	653.0	1.5	1.1	22.88	783.8	330.7	850.7	848.2	2.60	327.754		
800.0	800.0	752.9	752.9	1.7	1.4	22.88	784.5	331.1	851.5	848.4	3.04	279.858		
900.0	900.0	853.9	853.9	1.9	1.6	22.89	785.0	331.4	852.1	848.6	3.51	242.831		
1,000.0	1,000.0	956.0	956.0	2.1	1.8	22.90	785.4	331.8	852.6	848.7	3.96	215.073		
1,100.0	1,100.0	1,061.6	1,061.5	2.4	2.0	62.98	785.6	331.6	852.3	848.0	4.35	195.863		
1,200.0	1,200.0	1,159.6	1,159.6	2.6	2.1	63.15	785.3	331.4	850.8	846.1	4.71	180.787		
1,300.0	1,299.9	1,257.1	1,257.1	2.8	2.3	63.44	785.3	331.8	849.0	843.9	5.10	166.431		
1,400.0	1,399.7	1,356.2	1,356.1	3.0	2.5	63.83	785.5	331.8	846.5	841.0	5.53	153.064		
1,500.0	1,499.4	1,457.2	1,457.2	3.3	2.7	64.36	785.7	332.2	843.4	837.4	5.97	141.160		
1,600.0	1,598.9	1,555.4	1,555.3	3.5	2.9	65.02	785.5	332.8	839.3	832.9	6.42	130.671		
1,700.0	1,698.3	1,654.5	1,654.4	3.8	3.2	65.77	785.8	333.2	835.1	828.2	6.90	120.958		
1,774.3	1,772.0	1,726.4	1,726.4	4.0	3.3	66.39	786.0	333.3	831.4	824.1	7.28	114.255		
1,800.0	1,797.4	1,748.8	1,748.8	4.0	3.4	66.58	786.1	333.5	830.2	822.8	7.40	112.156		
1,900.0	1,896.5	1,838.9	1,838.8	4.3	3.6	67.41	787.1	334.8	826.4	818.5	7.90	104.584		
2,000.0	1,995.6	1,938.0	1,937.9	4.6	3.9	68.27	788.9	335.9	823.6	815.1	8.43	97.649		
2,100.0	2,094.7	2,045.0	2,045.0	4.9	4.1	69.24	790.2	337.0	820.1	811.1	9.00	91.169		
2,200.0	2,193.8	2,147.2	2,147.1	5.2	4.4	70.15	790.8	337.5	816.2	806.7	9.55	85.464		
2,300.0	2,292.9	2,247.9	2,247.8	5.5	4.6	71.04	791.5	337.7	812.4	802.3	10.08	80.587		
2,400.0	2,391.9	2,348.6	2,348.5	5.8	4.8	71.90	792.1	337.2	808.4	797.8	10.58	76.428		
2,500.0	2,491.0	2,452.8	2,452.7	6.1	5.0	72.79	792.7	336.6	804.4	793.4	11.04	72.840		
2,600.0	2,590.1	2,557.0	2,556.9	6.4	5.1	73.69	792.5	335.4	799.7	788.2	11.46	69.776		
2,700.0	2,689.2	2,656.7	2,656.6	6.8	5.1	74.56	792.1	334.2	794.9	783.1	11.86	67.006		
2,800.0	2,788.3	2,748.9	2,748.8	7.1	5.3	75.34	792.2	332.7	790.6	778.3	12.30	64.267		
2,900.0	2,887.4	2,843.1	2,843.0	7.4	5.4	76.10	793.5	331.4	787.6	774.8	12.79	61.590		
3,000.0	2,986.5	2,942.7	2,942.5	7.7	5.6	76.86	795.3	329.4	784.7	771.4	13.31	58.957		
3,100.0	3,085.6	3,039.5	3,039.3	8.0	5.8	77.61	797.3	327.9	782.4	768.5	13.83	56.553		
3,200.0	3,184.6	3,139.1	3,138.9	8.4	6.0	78.37	799.5	325.9	780.0	765.7	14.37	54.269		
3,300.0	3,283.7	3,234.6	3,234.3	8.7	6.3	79.09	801.9	324.2	778.3	763.4	14.91	52.192		
3,400.0	3,382.8	3,333.8	3,333.4	9.0	6.5	79.83	804.7	322.6	777.0	761.5	15.47	50.230		
3,500.0	3,481.9	3,433.1	3,432.7	9.3	6.7	80.63	807.0	321.3	775.6	759.5	16.03	48.381		
3,600.0	3,581.0	3,530.6	3,530.1	9.7	6.9	81.41	809.6	320.4	774.9	758.3	16.59	46.700		
3,700.0	3,680.1	3,636.0	3,635.5	10.0	7.2	82.25	811.9	318.8	773.6	756.4	17.17	45.052		
3,800.0	3,779.2	3,731.6	3,731.1	10.3	7.4	82.98	814.4	317.2	772.6	754.8	17.73	43.582		
3,900.0	3,878.3	3,833.0	3,832.5	10.6	7.7	83.78	817.1	315.7	772.0	753.7	18.30	42.182		
4,000.0	3,977.4	3,940.2	3,939.6	11.0	7.9	84.59	819.4	313.2	770.5	751.6	18.88	40.817		
4,100.0	4,076.4	4,038.3	4,037.6	11.3	8.1	85.31	821.6	310.5	768.9	749.4	19.43	39.573		
4,200.0	4,175.5	4,133.5	4,132.8	11.6	8.3	86.01	824.1	308.0	767.9	747.9	19.98	38.425		
4,300.0	4,274.6	4,231.3	4,230.5	12.0	8.6	86.78	826.4	306.3	767.3	746.8	20.55	37.337		
4,400.0	4,373.7	4,329.1	4,328.3	12.3	8.8	87.54	828.9	304.5	767.1	746.0	21.12	36.315		
4,401.1	4,374.8	4,330.2	4,329.4	12.3	8.8	87.55	828.9	304.5	767.1	746.0	21.13	36.305		
4,500.0	4,472.8	4,424.7	4,423.8	12.6	9.1	88.31	831.2	303.4	767.4	745.7	21.69	35.373		
4,600.0	4,571.9	4,517.5	4,516.6	13.0	9.3	89.05	834.1	302.7	768.5	746.2	22.26	34.522		
4,700.0	4,671.0	4,606.3	4,605.3	13.3	9.5	89.78	837.3	302.9	771.0	748.2	22.81	33.796		

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 Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design		Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Mowery 5 (Exist) - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft
Survey Program:		100-NS-GYRO-MS											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	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)				
4,800.0	4,770.1	4,709.3	4,708.3	13.6	9.8	90.67	840.6	304.1	773.9	750.5	23.39	33.089			
4,900.0	4,869.1	4,800.0	4,798.9	14.0	10.0	91.48	843.4	305.4	777.3	753.4	23.93	32.482			
5,000.0	4,968.2	4,896.6	4,895.5	14.3	10.2	92.34	846.6	307.5	781.6	757.1	24.48	31.932			
5,100.0	5,067.3	5,000.0	4,998.8	14.6	10.4	93.29	849.8	310.0	786.1	761.0	25.03	31.402			
5,200.0	5,166.4	5,092.0	5,090.7	15.0	10.7	94.08	853.1	312.0	790.9	765.3	25.57	30.929			
5,300.0	5,265.5	5,195.6	5,194.2	15.3	10.9	94.93	857.3	314.3	796.1	770.0	26.14	30.457			
5,400.0	5,364.6	5,296.6	5,295.1	15.6	11.1	95.85	860.1	316.9	801.1	774.4	26.68	30.031			
5,449.9	5,414.0	5,354.1	5,352.6	15.8	11.2	96.44	860.6	318.7	803.4	776.5	26.92	29.848			
5,500.0	5,463.7	5,410.3	5,408.7	15.9	11.3	97.08	859.9	320.5	805.2	778.0	27.12	29.685			
5,600.0	5,563.2	5,507.2	5,505.5	16.2	11.4	98.10	857.7	324.1	808.4	781.0	27.42	29.483			
5,700.0	5,663.0	5,603.7	5,601.9	16.4	11.5	98.87	855.6	327.9	811.7	784.0	27.69	29.308			
5,800.0	5,763.0	5,714.2	5,712.4	16.5	11.6	99.41	853.5	331.4	813.8	785.9	27.96	29.110			
5,837.0	5,800.0	5,749.6	5,747.8	16.6	11.6	59.46	852.9	332.3	814.3	789.3	25.02	32.544			
5,900.0	5,863.0	5,810.8	5,808.9	16.7	11.7	59.54	852.3	333.7	815.3	790.1	25.21	32.340			
5,995.6	5,958.6	5,911.2	5,909.3	16.8	11.8	59.69	851.2	335.9	816.5	791.0	25.53	31.982			
6,000.0	5,963.0	5,915.8	5,913.9	16.8	11.8	-30.31	851.2	336.0	816.6	788.1	28.50	28.654			
6,050.0	6,012.9	5,967.1	5,965.2	16.9	11.8	-30.35	850.6	336.8	815.4	786.8	28.57	28.541			
6,100.0	6,062.6	6,016.7	6,014.7	16.9	11.9	-30.64	850.1	337.5	811.3	782.7	28.55	28.414			
6,150.0	6,111.9	6,063.0	6,061.1	17.0	12.0	-31.16	850.0	338.2	804.5	776.1	28.46	28.272			
6,200.0	6,160.5	6,109.6	6,107.6	17.0	12.1	-31.93	850.2	338.8	795.2	767.0	28.28	28.116			
6,250.0	6,208.3	6,158.4	6,156.4	17.0	12.2	-33.00	850.4	339.5	783.3	755.2	28.06	27.912			
6,300.0	6,255.0	6,206.0	6,204.1	17.0	12.3	-34.35	850.7	340.1	768.8	741.0	27.79	27.668			
6,350.0	6,300.4	6,252.0	6,250.1	16.9	12.4	-36.02	851.0	340.6	751.8	724.3	27.48	27.360			
6,400.0	6,344.3	6,296.5	6,294.5	16.9	12.5	-38.03	851.4	341.0	732.5	705.3	27.16	26.968			
6,450.0	6,386.6	6,339.0	6,337.0	16.9	12.6	-40.42	851.7	341.4	711.2	684.3	26.87	26.466			
6,500.0	6,427.1	6,379.7	6,377.8	16.8	12.6	-43.20	852.0	341.8	688.0	661.3	26.65	25.817			
6,550.0	6,465.6	6,419.0	6,417.1	16.8	12.7	-46.42	852.1	342.3	663.1	636.6	26.54	24.988			
6,600.0	6,501.8	6,456.5	6,454.5	16.8	12.8	-50.10	852.2	342.7	637.0	610.4	26.59	23.955			
6,650.0	6,535.8	6,491.6	6,489.6	16.7	12.9	-54.22	852.2	343.1	609.8	583.0	26.84	22.719			
6,700.0	6,567.3	6,523.6	6,521.7	16.7	12.9	-58.67	852.2	343.5	582.1	554.8	27.30	21.326			
6,750.0	6,596.2	6,553.0	6,551.0	16.7	13.0	-63.38	852.2	343.8	554.3	526.4	27.94	19.842			
6,800.0	6,622.3	6,579.6	6,577.6	16.8	13.0	-68.20	852.2	344.1	527.1	498.4	28.72	18.352			
6,850.0	6,645.6	6,603.4	6,601.4	17.1	13.1	-72.94	852.2	344.4	501.0	471.4	29.58	16.937			
6,900.0	6,666.0	6,624.3	6,622.3	17.6	13.1	-77.40	852.2	344.6	476.8	446.3	30.45	15.655			
6,950.0	6,683.4	6,642.1	6,640.1	18.3	13.1	-81.39	852.3	344.8	455.3	423.9	31.31	14.540			
7,000.0	6,697.6	6,656.9	6,654.9	19.0	13.2	-84.75	852.3	345.0	437.3	405.2	32.14	13.606			
7,050.0	6,708.7	6,668.5	6,666.5	19.8	13.2	-87.35	852.3	345.1	423.9	390.9	32.97	12.858			
7,100.0	6,716.5	6,676.9	6,674.9	20.6	13.2	-89.13	852.3	345.2	415.7	381.8	33.81	12.294			
7,145.8	6,720.9	6,681.7	6,679.8	21.5	13.2	-89.98	852.3	345.2	413.1	378.5	34.62	11.932 CC			
7,150.0	6,721.1	6,682.0	6,680.1	21.6	13.2	-90.02	852.3	345.2	413.2	378.5	34.70	11.907 ES			
7,200.9	6,722.5	6,683.9	6,682.0	22.5	13.2	-90.01	852.3	345.3	416.8	381.1	35.66	11.687 SF			
7,300.0	6,721.8	6,684.3	6,682.4	24.5	13.2	-90.07	852.3	345.3	440.9	403.3	37.65	11.711			
7,400.0	6,721.1	6,684.7	6,682.8	26.7	13.2	-90.13	852.3	345.3	485.0	445.2	39.81	12.185			
7,500.0	6,720.4	6,685.1	6,683.2	29.0	13.2	-90.18	852.3	345.3	544.1	502.1	42.07	12.933			
7,600.0	6,719.7	6,685.5	6,683.6	31.3	13.2	-90.24	852.3	345.3	613.9	569.5	44.43	13.819			
7,700.0	6,719.0	6,685.9	6,684.0	33.8	13.2	-90.29	852.3	345.3	691.2	644.3	46.85	14.752			
7,800.0	6,718.3	6,686.3	6,684.4	36.3	13.2	-90.35	852.3	345.3	773.6	724.3	49.33	15.683			
7,900.0	6,717.6	6,686.7	6,684.8	38.8	13.2	-90.40	852.3	345.3	859.8	808.0	51.86	16.582			
8,000.0	6,716.9	6,687.1	6,685.2	41.3	13.2	-90.46	852.3	345.3	948.8	894.3	54.42	17.435			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Phil Wilson 19-1 (Exist) - Wellbore #1 - Wellbore												Offset Well Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													
Reference				Offset			Semi Major Axis		Distance				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-50.51	273.2	-331.5	430.4				
100.0	100.0	76.7	76.7	0.1	0.1	-50.50	273.1	-331.3	429.4	429.2	0.21	2,004.027	
192.9	192.9	166.9	166.9	0.3	0.2	-50.48	272.9	-330.9	428.9	428.4	0.55	774.270	
200.0	200.0	173.6	173.6	0.3	0.2	-50.48	272.9	-330.9	428.9	428.4	0.58	739.511	
300.0	300.0	275.7	275.7	0.6	0.4	-50.49	272.9	-331.0	429.0	428.0	0.97	442.184	
399.6	399.6	373.6	373.6	0.8	0.6	-50.46	272.9	-330.6	428.6	427.3	1.36	314.946	
400.0	400.0	374.0	374.0	0.8	0.6	-50.46	272.9	-330.6	428.6	427.3	1.36	314.554	
500.0	500.0	474.1	474.1	1.0	0.7	-50.44	273.1	-330.5	428.8	427.0	1.76	244.188	
600.0	600.0	574.0	574.0	1.2	0.9	-50.35	273.5	-330.1	428.7	426.5	2.15	199.145	
700.0	700.0	674.9	674.9	1.5	1.1	-50.33	273.6	-330.0	428.6	426.1	2.55	167.851	
800.0	800.0	775.1	775.1	1.7	1.3	-50.25	273.9	-329.4	428.4	425.4	2.97	144.380	
847.7	847.7	821.7	821.7	1.8	1.4	-50.25	273.9	-329.3	428.3	425.1	3.16	135.460	
900.0	900.0	871.6	871.6	1.9	1.5	-50.22	274.1	-329.3	428.4	425.0	3.37	127.133	
1,000.0	1,000.0	974.1	974.1	2.1	1.7	-50.14	274.9	-329.2	428.9	425.1	3.79	113.219	
1,100.0	1,100.0	1,071.6	1,071.6	2.4	1.8	-10.05	275.3	-329.0	428.1	423.9	4.19	102.078	
1,200.0	1,200.0	1,171.4	1,171.3	2.6	2.0	-10.06	276.1	-329.3	426.3	421.7	4.60	92.636	
1,300.0	1,299.9	1,271.8	1,271.8	2.8	2.2	-10.07	277.0	-329.2	422.5	417.5	5.01	84.310	
1,400.0	1,399.7	1,374.4	1,374.3	3.0	2.4	-10.22	277.3	-329.3	416.8	411.3	5.42	76.865	
1,500.0	1,499.4	1,473.9	1,473.9	3.3	2.6	-10.37	277.4	-328.9	408.8	403.0	5.81	70.414	
1,600.0	1,598.9	1,571.1	1,571.1	3.5	2.7	-10.64	277.4	-329.0	399.5	393.3	6.17	64.704	
1,700.0	1,698.3	1,669.5	1,669.4	3.8	2.9	-10.94	278.0	-329.4	389.0	382.4	6.58	59.146	
1,774.3	1,772.0	1,745.3	1,745.3	4.0	3.1	-11.17	278.6	-329.5	380.1	373.2	6.89	55.168	
1,800.0	1,797.4	1,772.1	1,772.0	4.0	3.1	-11.26	278.7	-329.4	376.7	369.7	7.00	53.808	
1,900.0	1,896.5	1,869.3	1,869.3	4.3	3.3	-11.61	278.9	-329.1	363.3	355.9	7.42	48.979	
2,000.0	1,995.6	1,970.5	1,970.5	4.6	3.5	-12.03	279.2	-329.2	350.4	342.6	7.84	44.719	
2,100.0	2,094.7	2,069.8	2,069.8	4.9	3.6	-12.49	279.0	-328.7	336.8	328.6	8.22	40.959	
2,200.0	2,193.8	2,167.6	2,167.6	5.2	3.8	-13.00	279.0	-328.6	323.5	314.9	8.62	37.546	
2,300.0	2,292.9	2,268.7	2,268.6	5.5	4.0	-13.44	279.5	-328.1	310.3	301.3	9.05	34.305	
2,400.0	2,391.9	2,367.3	2,367.3	5.8	4.2	-14.00	279.2	-327.4	296.5	287.1	9.45	31.367	
2,500.0	2,491.0	2,464.7	2,464.7	6.1	4.3	-14.65	279.1	-327.3	283.3	273.5	9.86	28.738	
2,600.0	2,590.1	2,564.6	2,564.6	6.4	4.5	-15.27	279.6	-327.2	270.4	260.1	10.28	26.300	
2,700.0	2,689.2	2,663.9	2,663.8	6.8	4.7	-16.09	279.3	-327.0	257.1	246.4	10.69	24.053	
2,800.0	2,788.3	2,763.2	2,763.2	7.1	4.8	-16.96	279.2	-326.8	244.0	232.9	11.10	21.970	
2,900.0	2,887.4	2,861.8	2,861.8	7.4	5.0	-17.69	279.8	-325.9	230.7	219.2	11.55	19.975	
3,000.0	2,986.5	2,961.2	2,961.2	7.7	5.3	-18.46	280.7	-325.2	217.8	205.8	12.01	18.127	
3,100.0	3,085.6	3,059.1	3,059.0	8.0	5.5	-19.44	281.2	-324.6	204.8	192.3	12.47	16.422	
3,200.0	3,184.6	3,156.5	3,156.5	8.4	5.6	-20.57	282.1	-325.0	192.9	180.0	12.91	14.938	
3,300.0	3,283.7	3,255.3	3,255.3	8.7	5.8	-21.64	283.9	-325.5	181.6	168.3	13.37	13.587	
3,400.0	3,382.8	3,354.4	3,354.3	9.0	6.0	-22.72	286.1	-325.9	170.5	156.7	13.83	12.328	
3,500.0	3,481.9	3,454.3	3,454.1	9.3	6.2	-24.20	287.7	-326.7	159.6	145.2	14.31	11.150	
3,600.0	3,581.0	3,553.9	3,553.7	9.7	6.4	-25.89	289.2	-326.9	148.2	133.4	14.80	10.009	
3,700.0	3,680.1	3,653.3	3,653.1	10.0	6.6	-27.99	290.3	-327.4	137.0	121.7	15.32	8.944	
3,800.0	3,779.2	3,752.8	3,752.7	10.3	6.9	-30.34	291.6	-327.4	125.7	109.8	15.85	7.928	
3,900.0	3,878.3	3,851.6	3,851.5	10.6	7.1	-32.95	293.2	-327.4	114.6	98.2	16.41	6.986	
4,000.0	3,977.4	3,950.1	3,950.0	11.0	7.3	-36.31	294.6	-328.0	104.5	87.5	16.99	6.151	
4,100.0	4,076.4	4,049.2	4,049.0	11.3	7.5	-40.08	296.6	-329.1	95.4	77.8	17.60	5.420	
4,200.0	4,175.5	4,148.6	4,148.4	11.6	7.7	-44.11	299.3	-330.1	86.8	68.5	18.25	4.755	
4,300.0	4,274.6	4,248.0	4,247.7	12.0	8.0	-48.64	302.6	-331.1	78.6	59.7	18.93	4.153	
4,400.0	4,373.7	4,347.4	4,347.0	12.3	8.2	-53.98	306.1	-332.2	71.2	51.6	19.66	3.623	
4,500.0	4,472.8	4,446.7	4,446.3	12.6	8.4	-60.55	309.4	-333.5	64.7	44.3	20.43	3.169	
4,600.0	4,571.9	4,546.5	4,545.9	13.0	8.7	-67.85	313.4	-335.1	59.4	38.2	21.22	2.799	

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 Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design													Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W - Phil Wilson 19-1 (Exist) - Wellbore #1 - Wellbore		Offset Site Error:		0.0 ft
Survey Program:													100-NS-GYRO-MS		Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance										
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
4,700.0	4,671.0	4,646.3	4,645.7	13.3	8.9	-76.80	317.4	-335.8	54.4	32.3	22.01	2.469					
4,800.0	4,770.1	4,745.4	4,744.8	13.6	9.1	-87.48	321.1	-336.4	51.1	28.3	22.74	2.246					
4,882.4	4,851.7	4,827.2	4,826.5	13.9	9.3	-96.71	324.0	-337.5	50.3	27.1	23.21	2.169	CC				
4,900.0	4,869.1	4,844.8	4,844.0	14.0	9.4	-98.73	324.6	-337.8	50.4	27.1	23.30	2.162	ES, SF				
5,000.0	4,968.2	4,944.3	4,943.5	14.3	9.6	-110.37	327.9	-338.7	51.6	27.9	23.66	2.181					
5,100.0	5,067.3	5,043.5	5,042.6	14.6	9.9	-121.73	330.8	-339.0	55.0	31.1	23.84	2.306					
5,200.0	5,166.4	5,142.2	5,141.3	15.0	10.1	-131.96	332.8	-338.9	61.1	37.2	23.91	2.557					
5,300.0	5,265.5	5,241.0	5,240.1	15.3	10.3	-141.25	333.7	-337.4	70.0	46.1	23.92	2.928					
5,400.0	5,364.6	5,340.2	5,339.3	15.6	10.5	-148.43	334.7	-335.8	80.2	56.1	24.02	3.338					
5,449.9	5,414.0	5,389.4	5,388.5	15.8	10.6	-151.43	335.2	-334.9	85.6	61.5	24.10	3.554					
5,500.0	5,463.7	5,438.8	5,437.9	15.9	10.7	-154.04	335.7	-333.9	91.1	66.9	24.20	3.765					
5,600.0	5,563.2	5,538.0	5,537.0	16.2	10.9	-157.69	336.0	-332.0	100.4	76.0	24.42	4.112					
5,700.0	5,663.0	5,638.0	5,637.1	16.4	11.1	-159.73	336.4	-330.8	106.5	81.8	24.71	4.309					
5,800.0	5,763.0	5,737.9	5,736.9	16.5	11.3	-161.33	337.1	-329.0	109.4	84.4	24.99	4.377					
5,837.0	5,800.0	5,775.0	5,774.0	16.6	11.4	-158.24	337.3	-328.4	109.6	82.0	27.59	3.973					
5,889.1	5,852.1	5,827.1	5,826.1	16.7	11.5	-157.81	337.6	-327.6	109.6	81.8	27.79	3.943					
5,900.0	5,863.0	5,837.9	5,836.9	16.7	11.5	-157.73	337.7	-327.5	109.6	81.8	27.84	3.937					
5,995.6	5,958.6	5,933.6	5,932.6	16.8	11.7	-156.98	338.1	-326.1	109.7	81.5	28.22	3.888					
6,000.0	5,963.0	5,938.1	5,937.1	16.8	11.7	-66.97	338.1	-326.1	109.7	84.0	25.70	4.269					
6,050.0	6,012.9	5,988.6	5,987.6	16.9	11.8	-67.84	338.4	-325.9	108.8	82.9	25.88	4.205					
6,100.0	6,062.6	6,038.4	6,037.4	16.9	11.9	-70.58	338.7	-326.0	106.6	80.5	26.13	4.079					
6,150.0	6,111.9	6,087.7	6,086.7	17.0	12.0	-75.03	339.1	-326.0	103.7	77.2	26.48	3.915					
6,200.0	6,160.5	6,136.3	6,135.3	17.0	12.2	-81.32	339.6	-325.9	100.8	73.9	26.96	3.740					
6,250.0	6,208.3	6,183.9	6,182.9	17.0	12.3	-89.52	339.9	-325.9	99.2	71.7	27.54	3.603					
6,257.8	6,215.6	6,191.2	6,190.2	17.0	12.3	-90.94	339.9	-326.0	99.2	71.6	27.64	3.589					
6,300.0	6,255.0	6,230.4	6,229.4	17.0	12.4	-99.09	340.1	-326.1	100.4	72.3	28.10	3.575					
6,350.0	6,300.4	6,275.9	6,274.9	16.9	12.5	-109.05	340.3	-326.1	105.8	77.4	28.40	3.726					
6,400.0	6,344.3	6,320.2	6,319.1	16.9	12.6	-118.48	340.5	-325.9	116.2	87.9	28.30	4.106					
6,450.0	6,386.6	6,362.6	6,361.6	16.9	12.7	-126.78	340.9	-325.8	131.9	104.1	27.81	4.744					
6,500.0	6,427.1	6,403.0	6,402.0	16.8	12.7	-133.66	341.3	-325.9	152.8	125.8	27.00	5.660					
6,550.0	6,465.6	6,440.8	6,439.8	16.8	12.8	-139.00	341.7	-326.1	178.5	152.4	26.01	6.860					
6,600.0	6,501.8	6,476.5	6,475.4	16.8	12.9	-143.05	342.0	-326.2	208.1	183.2	24.94	8.346					
6,650.0	6,535.8	6,509.9	6,508.9	16.7	13.0	-146.04	342.1	-326.4	241.3	217.5	23.85	10.119					
6,700.0	6,567.3	6,541.2	6,540.2	16.7	13.0	-148.17	342.2	-326.6	277.4	254.6	22.79	12.174					
6,750.0	6,596.2	6,569.8	6,568.8	16.7	13.1	-149.53	342.3	-326.7	316.1	294.3	21.83	14.481					
6,800.0	6,622.3	6,595.8	6,594.7	16.8	13.1	-150.16	342.3	-326.8	357.0	336.0	21.04	16.971					
6,850.0	6,645.6	6,618.8	6,617.8	17.1	13.2	-150.06	342.4	-327.0	399.9	379.4	20.50	19.502					
6,900.0	6,666.0	6,639.0	6,637.9	17.6	13.2	-149.14	342.4	-327.1	444.4	424.0	20.35	21.833					
6,950.0	6,683.4	6,656.1	6,655.0	18.3	13.2	-147.16	342.5	-327.2	490.3	469.6	20.76	23.615					
7,000.0	6,697.6	6,670.0	6,669.0	19.0	13.3	-143.68	342.5	-327.2	537.5	515.5	21.98	24.451					
7,050.0	6,708.7	6,680.9	6,679.8	19.8	13.3	-137.83	342.6	-327.3	585.6	561.2	24.35	24.049					
7,100.0	6,716.5	6,688.4	6,687.4	20.6	13.3	-127.90	342.6	-327.3	634.3	606.1	28.22	22.479					
7,150.0	6,721.1	6,692.8	6,691.8	21.6	13.3	-110.97	342.6	-327.4	683.6	650.4	33.19	20.598					
7,200.9	6,722.5	6,693.9	6,692.8	22.5	13.3	-84.84	342.6	-327.4	734.0	698.6	35.45	20.706					
7,300.0	6,721.8	6,692.6	6,691.6	24.5	13.3	-84.12	342.6	-327.4	832.3	795.0	37.37	22.274					
7,400.0	6,721.1	6,691.4	6,690.4	26.7	13.3	-83.40	342.6	-327.4	931.7	892.3	39.44	23.623					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19P-332 - Wellbore #1 - Plan #3 (7-20-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference				Offset			Semi Major Axis		Distance					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-90.05	0.0	-30.6	30.6					
100.0	100.0	100.0	100.0	0.1	0.1	-90.05	0.0	-30.6	30.6	30.4	0.22	136.352		
200.0	200.0	200.0	200.0	0.3	0.3	-90.05	0.0	-30.6	30.6	30.0	0.67	45.451 CC		
300.0	300.0	299.7	299.7	0.6	0.6	-88.70	0.7	-31.1	31.1	30.0	1.12	27.749		
400.0	400.0	399.3	399.3	0.8	0.8	-84.93	2.9	-32.5	32.7	31.1	1.57	20.792		
500.0	500.0	498.9	498.7	1.0	1.0	-79.42	6.5	-34.9	35.5	33.5	2.02	17.558		
600.0	600.0	598.2	597.9	1.2	1.2	-73.11	11.6	-38.2	39.9	37.5	2.48	16.136		
700.0	700.0	697.3	696.7	1.5	1.5	-66.89	18.1	-42.4	46.2	43.3	2.93	15.761		
800.0	800.0	796.1	795.0	1.7	1.8	-61.31	26.0	-47.5	54.4	51.0	3.39	16.038		
900.0	900.0	894.6	892.9	1.9	2.0	-56.60	35.3	-53.5	64.5	60.6	3.85	16.729		
1,000.0	1,000.0	992.6	990.1	2.1	2.3	-52.75	45.9	-60.4	76.5	72.2	4.33	17.684		
1,100.0	1,100.0	1,090.3	1,086.7	2.4	2.6	-9.67	57.9	-68.2	89.6	84.8	4.76	18.802		
1,200.0	1,200.0	1,188.7	1,183.8	2.6	3.0	-7.32	71.2	-76.8	102.5	97.3	5.22	19.631		
1,300.0	1,299.9	1,288.0	1,281.8	2.8	3.3	-5.55	84.7	-85.5	114.0	108.3	5.68	20.070		
1,400.0	1,399.7	1,387.4	1,379.9	3.0	3.7	-4.16	98.3	-94.3	123.9	117.7	6.14	20.169		
1,500.0	1,499.4	1,487.1	1,478.2	3.3	4.0	-3.02	111.9	-103.1	132.1	125.4	6.61	19.989		
1,600.0	1,598.9	1,586.8	1,576.7	3.5	4.4	-2.04	125.5	-111.9	138.5	131.5	7.07	19.589		
1,700.0	1,698.3	1,686.7	1,675.2	3.8	4.8	-1.17	139.1	-120.7	143.3	135.8	7.54	19.007		
1,774.3	1,772.0	1,760.9	1,748.5	4.0	5.0	-0.56	149.2	-127.3	145.8	137.9	7.89	18.477		
1,800.0	1,797.4	1,786.6	1,773.8	4.0	5.1	-0.36	152.7	-129.5	146.5	138.4	8.01	18.280		
1,900.0	1,896.5	1,886.6	1,872.4	4.3	5.5	0.42	166.3	-138.3	149.1	140.6	8.49	17.566		
2,000.0	1,995.6	1,986.5	1,971.1	4.6	5.9	1.18	180.0	-147.2	151.8	142.9	8.97	16.927		
2,100.0	2,094.7	2,086.4	2,069.7	4.9	6.2	1.90	193.6	-156.0	154.6	145.1	9.45	16.352		
2,200.0	2,193.8	2,186.4	2,168.3	5.2	6.6	2.60	207.2	-164.8	157.3	147.4	9.94	15.833		
2,300.0	2,292.9	2,286.3	2,266.9	5.5	7.0	3.28	220.9	-173.6	160.1	149.7	10.42	15.361		
2,400.0	2,391.9	2,386.3	2,365.5	5.8	7.4	3.93	234.5	-182.4	162.9	152.0	10.91	14.931		
2,500.0	2,491.0	2,486.2	2,464.1	6.1	7.7	4.56	248.1	-191.3	165.7	154.3	11.40	14.537		
2,600.0	2,590.1	2,586.2	2,562.8	6.4	8.1	5.17	261.7	-200.1	168.5	156.7	11.89	14.176		
2,700.0	2,689.2	2,686.1	2,661.4	6.8	8.5	5.76	275.4	-208.9	171.4	159.0	12.38	13.842		
2,800.0	2,788.3	2,786.1	2,760.0	7.1	8.9	6.34	289.0	-217.7	174.3	161.4	12.88	13.534		
2,900.0	2,887.4	2,886.0	2,858.6	7.4	9.2	6.89	302.6	-226.6	177.2	163.8	13.37	13.248		
3,000.0	2,986.5	2,985.9	2,957.2	7.7	9.6	7.42	316.2	-235.4	180.1	166.2	13.87	12.982		
3,100.0	3,085.6	3,085.9	3,055.8	8.0	10.0	7.94	329.9	-244.2	183.0	168.6	14.37	12.734		
3,200.0	3,184.6	3,185.8	3,154.5	8.4	10.4	8.44	343.5	-253.0	185.9	171.1	14.87	12.502		
3,300.0	3,283.7	3,285.8	3,253.1	8.7	10.7	8.92	357.1	-261.8	188.9	173.5	15.37	12.285		
3,400.0	3,382.8	3,385.7	3,351.7	9.0	11.1	9.40	370.7	-270.7	191.8	176.0	15.88	12.081		
3,500.0	3,481.9	3,485.7	3,450.3	9.3	11.5	9.85	384.4	-279.5	194.8	178.4	16.39	11.890		
3,600.0	3,581.0	3,585.6	3,548.9	9.7	11.9	10.29	398.0	-288.3	197.8	180.9	16.89	11.709		
3,700.0	3,680.1	3,685.6	3,647.5	10.0	12.2	10.72	411.6	-297.1	200.8	183.4	17.40	11.539		
3,800.0	3,779.2	3,785.5	3,746.2	10.3	12.6	11.14	425.3	-305.9	203.8	185.9	17.91	11.378		
3,900.0	3,878.3	3,885.4	3,844.8	10.6	13.0	11.54	438.9	-314.8	206.8	188.4	18.42	11.226		
4,000.0	3,977.4	3,985.4	3,943.4	11.0	13.4	11.94	452.5	-323.6	209.9	190.9	18.94	11.081		
4,100.0	4,076.4	4,085.3	4,042.0	11.3	13.7	12.32	466.1	-332.4	212.9	193.4	19.45	10.944		
4,200.0	4,175.5	4,185.3	4,140.6	11.6	14.1	12.69	479.8	-341.2	215.9	196.0	19.97	10.814		
4,300.0	4,274.6	4,285.2	4,239.2	12.0	14.5	13.05	493.4	-350.0	219.0	198.5	20.49	10.690		
4,400.0	4,373.7	4,385.2	4,337.9	12.3	14.9	13.40	507.0	-358.9	222.1	201.1	21.01	10.571		
4,500.0	4,472.8	4,485.1	4,436.5	12.6	15.2	13.74	520.6	-367.7	225.1	203.6	21.53	10.459		
4,600.0	4,571.9	4,585.0	4,535.1	13.0	15.6	14.07	534.3	-376.5	228.2	206.2	22.05	10.351		
4,700.0	4,671.0	4,685.0	4,633.7	13.3	16.0	14.39	547.9	-385.3	231.3	208.7	22.57	10.248		
4,800.0	4,770.1	4,784.9	4,732.3	13.6	16.4	14.71	561.5	-394.2	234.4	211.3	23.10	10.150		
4,900.0	4,869.1	4,884.9	4,830.9	14.0	16.8	15.02	575.1	-403.0	237.5	213.9	23.62	10.055		

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 Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design		Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19P-332 - Wellbore #1 - Plan #3 (7-20-15)											Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.0	4,968.2	4,984.8	4,929.6	14.3	17.1	15.31	588.8	-411.8	240.6	216.5	24.15	9.965		
5,100.0	5,067.3	5,084.8	5,028.2	14.6	17.5	15.60	602.4	-420.6	243.7	219.1	24.67	9.878		
5,200.0	5,166.4	5,184.7	5,126.8	15.0	17.9	15.89	616.0	-429.4	246.9	221.7	25.20	9.795		
5,300.0	5,265.5	5,284.7	5,225.4	15.3	18.3	16.16	629.7	-438.3	250.0	224.2	25.73	9.715		
5,400.0	5,364.6	5,384.6	5,324.0	15.6	18.6	16.43	643.3	-447.1	253.1	226.9	26.26	9.638		
5,449.9	5,414.0	5,434.5	5,373.2	15.8	18.8	16.56	650.1	-451.5	254.7	228.2	26.53	9.600		
5,500.0	5,463.7	5,484.5	5,422.6	15.9	19.0	16.68	656.9	-455.9	256.7	229.9	26.78	9.586		
5,600.0	5,563.2	5,593.0	5,529.9	16.2	19.3	16.80	670.4	-464.6	261.7	234.5	27.17	9.633		
5,700.0	5,663.0	5,702.9	5,639.1	16.4	19.6	16.84	680.5	-471.2	266.3	238.8	27.50	9.686		
5,800.0	5,763.0	5,812.9	5,748.9	16.5	19.8	16.78	687.2	-475.5	270.5	242.8	27.77	9.742		
5,837.0	5,800.0	5,853.8	5,789.7	16.6	19.9	-23.30	688.7	-476.5	272.0	236.0	35.95	7.566		
5,900.0	5,863.0	5,923.2	5,859.1	16.7	20.0	-23.36	690.3	-477.5	273.6	237.4	36.15	7.568		
5,995.6	5,958.6	6,022.7	5,958.6	16.8	20.1	-23.37	690.5	-477.6	273.9	237.4	36.45	7.514		
6,000.0	5,963.0	6,027.1	5,963.0	16.8	20.1	-113.38	690.5	-477.6	273.9	245.4	28.46	9.624		
6,050.0	6,012.9	6,077.0	6,012.9	16.9	20.2	-113.69	690.5	-477.6	274.6	246.1	28.52	9.630		
6,100.0	6,062.6	6,128.6	6,064.4	16.9	20.2	-114.55	690.5	-477.6	276.7	248.2	28.51	9.707		
6,150.0	6,111.9	6,187.4	6,123.1	17.0	20.3	-115.65	690.5	-474.4	279.2	250.7	28.44	9.815		
6,200.0	6,160.5	6,246.7	6,182.0	17.0	20.3	-116.62	690.5	-466.6	281.5	253.1	28.35	9.930		
6,250.0	6,208.3	6,306.6	6,240.6	17.0	20.3	-117.47	690.5	-454.1	283.5	255.3	28.22	10.047		
6,300.0	6,255.0	6,367.0	6,298.4	17.0	20.3	-118.18	690.5	-437.0	285.3	257.3	28.07	10.164		
6,350.0	6,300.4	6,427.8	6,355.1	16.9	20.3	-118.76	690.5	-415.2	286.9	259.0	27.92	10.276		
6,400.0	6,344.3	6,488.9	6,410.2	16.9	20.2	-119.21	690.5	-388.7	288.1	260.3	27.76	10.377		
6,450.0	6,386.6	6,550.2	6,463.2	16.9	20.1	-119.52	690.5	-357.9	288.9	261.3	27.62	10.460		
6,500.0	6,427.1	6,611.7	6,513.7	16.8	20.1	-119.70	690.5	-322.8	289.4	261.9	27.53	10.511		
6,550.0	6,465.6	6,673.3	6,561.2	16.8	20.0	-119.74	690.5	-283.7	289.5	262.0	27.52	10.521		
6,600.0	6,501.8	6,734.8	6,605.4	16.8	19.9	-119.65	690.5	-240.9	289.3	261.7	27.61	10.478		
6,650.0	6,535.8	6,796.3	6,646.0	16.7	19.8	-119.42	690.5	-194.7	288.6	260.8	27.83	10.370		
6,700.0	6,567.3	6,857.5	6,682.6	16.7	19.7	-119.05	690.5	-145.7	287.6	259.4	28.24	10.186		
6,750.0	6,596.2	6,918.5	6,715.0	16.7	19.6	-118.55	690.5	-94.0	286.3	257.5	28.85	9.923		
6,800.0	6,622.3	6,979.1	6,743.1	16.8	19.6	-117.92	690.5	-40.3	284.7	255.0	29.69	9.589		
6,850.0	6,645.6	7,039.3	6,766.7	17.1	19.5	-117.16	690.5	15.0	282.8	252.0	30.76	9.193		
6,900.0	6,666.0	7,099.0	6,785.7	17.6	19.5	-116.26	690.5	71.6	280.6	248.5	32.06	8.751		
6,950.0	6,683.4	7,158.2	6,800.1	18.3	20.0	-115.24	690.5	129.0	278.2	244.6	33.61	8.279		
7,000.0	6,697.6	7,216.8	6,809.9	19.0	21.0	-114.09	690.5	186.7	275.7	240.4	35.38	7.795		
7,050.0	6,708.7	7,274.7	6,815.3	19.8	22.0	-112.83	690.5	244.4	273.1	235.8	37.33	7.317		
7,100.0	6,716.5	7,330.8	6,816.4	20.6	23.0	-111.49	690.5	300.4	270.5	231.1	39.41	6.863		
7,150.0	6,721.1	7,380.5	6,815.9	21.6	24.0	-110.62	690.5	350.2	268.7	227.3	41.35	6.498		
7,200.9	6,722.5	7,431.4	6,815.5	22.5	25.0	-110.31	690.5	401.1	268.1	224.8	43.24	6.199		
7,300.0	6,721.8	7,530.5	6,814.7	24.5	27.1	-110.28	690.5	500.1	268.0	220.9	47.09	5.691		
7,400.0	6,721.1	7,630.5	6,813.9	26.7	29.4	-110.26	690.5	600.1	268.0	216.7	51.23	5.230		
7,500.0	6,720.4	7,730.5	6,813.0	29.0	31.7	-110.23	690.5	700.1	267.9	212.3	55.57	4.821		
7,600.0	6,719.7	7,830.5	6,812.2	31.3	34.1	-110.20	690.5	800.1	267.9	207.8	60.07	4.459		
7,700.0	6,719.0	7,930.5	6,811.3	33.8	36.5	-110.17	690.5	900.1	267.8	203.1	64.69	4.140		
7,800.0	6,718.3	8,030.5	6,810.5	36.3	39.0	-110.14	690.5	1,000.1	267.8	198.4	69.41	3.858		
7,900.0	6,717.6	8,130.5	6,809.7	38.8	41.5	-110.12	690.5	1,100.1	267.7	193.5	74.21	3.608		
8,000.0	6,716.9	8,230.5	6,808.8	41.3	44.1	-110.09	690.5	1,200.1	267.7	188.6	79.08	3.385		
8,100.0	6,716.2	8,330.5	6,808.0	43.9	46.7	-110.06	690.5	1,300.1	267.6	183.6	84.00	3.186		
8,200.0	6,715.5	8,430.5	6,807.1	46.5	49.3	-110.03	690.5	1,400.1	267.6	178.6	88.97	3.007		
8,300.0	6,714.8	8,530.5	6,806.3	49.2	51.9	-110.00	690.5	1,500.1	267.5	173.5	93.98	2.847		
8,400.0	6,714.1	8,630.5	6,805.5	51.8	54.5	-109.97	690.5	1,600.1	267.5	168.5	99.02	2.701		
8,500.0	6,713.4	8,730.5	6,804.6	54.5	57.2	-109.95	690.5	1,700.1	267.4	163.3	104.09	2.569		

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 Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19P-332 - Wellbore #1 - Plan #3 (7-20-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,600.0	6,712.7	8,830.5	6,803.8	57.2	59.9	-109.92	690.5	1,800.1	267.4	158.2	109.19	2.449	
8,700.0	6,712.0	8,930.5	6,803.0	59.9	62.6	-109.89	690.5	1,900.1	267.3	153.0	114.31	2.339	
8,800.0	6,711.3	9,030.5	6,802.1	62.6	65.3	-109.86	690.5	2,000.1	267.3	147.8	119.44	2.238	
8,900.0	6,710.6	9,130.5	6,801.3	65.3	68.0	-109.83	690.5	2,100.1	267.2	142.6	124.60	2.145	
9,000.0	6,709.9	9,230.5	6,800.4	68.0	70.7	-109.81	690.5	2,200.1	267.2	137.4	129.77	2.059	
9,100.0	6,709.2	9,330.5	6,799.6	70.7	73.4	-109.78	690.5	2,300.1	267.1	132.2	134.95	1.979	
9,200.0	6,708.5	9,430.5	6,798.8	73.5	76.1	-109.75	690.5	2,400.1	267.1	126.9	140.15	1.906	
9,300.0	6,707.8	9,530.5	6,797.9	76.2	78.9	-109.72	690.5	2,500.1	267.0	121.7	145.36	1.837	
9,400.0	6,707.1	9,630.5	6,797.1	79.0	81.6	-109.69	690.5	2,600.0	267.0	116.4	150.58	1.773	
9,500.0	6,706.4	9,730.5	6,796.3	81.7	84.4	-109.67	690.5	2,700.0	267.0	111.1	155.81	1.713	
9,600.0	6,705.7	9,830.5	6,795.4	84.5	87.1	-109.64	690.5	2,800.0	266.9	105.9	161.04	1.657	
9,700.0	6,705.0	9,930.5	6,794.6	87.2	89.9	-109.61	690.5	2,900.0	266.9	100.6	166.29	1.605	
9,800.0	6,704.3	10,030.5	6,793.7	90.0	92.6	-109.58	690.5	3,000.0	266.8	95.3	171.54	1.555	
9,900.0	6,703.6	10,130.5	6,792.9	92.7	95.4	-109.55	690.5	3,100.0	266.8	90.0	176.80	1.509	
10,000.0	6,702.9	10,230.5	6,792.1	95.5	98.1	-109.52	690.5	3,200.0	266.7	84.6	182.07	1.465 Level 3	
10,100.0	6,702.2	10,330.5	6,791.2	98.3	100.9	-109.50	690.5	3,300.0	266.7	79.3	187.34	1.423 Level 3	
10,200.0	6,701.5	10,430.5	6,790.4	101.0	103.6	-109.47	690.5	3,400.0	266.6	74.0	192.62	1.384 Level 3	
10,300.0	6,700.8	10,530.5	6,789.6	103.8	106.4	-109.44	690.5	3,500.0	266.6	68.7	197.90	1.347 Level 3	
10,400.0	6,700.1	10,630.5	6,788.7	106.6	109.2	-109.41	690.5	3,600.0	266.5	63.3	203.19	1.312 Level 3	
10,500.0	6,699.4	10,730.5	6,787.9	109.4	112.0	-109.38	690.5	3,700.0	266.5	58.0	208.48	1.278 Level 3	
10,600.0	6,698.7	10,830.5	6,787.0	112.1	114.7	-109.35	690.5	3,800.0	266.4	52.7	213.78	1.246 Level 2	
10,700.0	6,698.0	10,930.5	6,786.2	114.9	117.5	-109.33	690.5	3,900.0	266.4	47.3	219.08	1.216 Level 2	
10,800.0	6,697.4	11,030.5	6,785.4	117.7	120.3	-109.30	690.5	4,000.0	266.3	42.0	224.39	1.187 Level 2	
10,900.0	6,696.7	11,130.5	6,784.5	120.5	123.1	-109.27	690.5	4,100.0	266.3	36.6	229.70	1.159 Level 2	
11,000.0	6,696.0	11,230.5	6,783.7	123.3	125.8	-109.24	690.5	4,200.0	266.3	31.2	235.02	1.133 Level 2	
11,100.0	6,695.3	11,330.5	6,782.9	126.0	128.6	-109.21	690.5	4,300.0	266.2	25.9	240.33	1.108 Level 2	
11,200.0	6,694.6	11,430.5	6,782.0	128.8	131.4	-109.18	690.5	4,400.0	266.2	20.5	245.66	1.083 Level 2	
11,300.0	6,693.9	11,530.5	6,781.2	131.6	134.2	-109.16	690.5	4,500.0	266.1	15.1	250.98	1.060 Level 2	
11,400.0	6,693.2	11,630.5	6,780.3	134.4	137.0	-109.13	690.5	4,600.0	266.1	9.8	256.31	1.038 Level 2	
11,500.0	6,692.5	11,730.5	6,779.5	137.2	139.8	-109.10	690.5	4,700.0	266.0	4.4	261.64	1.017 Level 2	
11,600.0	6,691.8	11,830.5	6,778.7	140.0	142.5	-109.07	690.5	4,800.0	266.0	-1.0	266.98	0.996 Level 1	
11,700.0	6,691.1	11,930.5	6,777.8	142.8	145.3	-109.04	690.5	4,900.0	265.9	-6.4	272.31	0.977 Level 1	
11,800.0	6,690.4	12,030.5	6,777.0	145.6	148.1	-109.01	690.5	5,000.0	265.9	-11.8	277.66	0.958 Level 1	
11,900.0	6,689.7	12,130.5	6,776.2	148.4	150.9	-108.99	690.5	5,100.0	265.8	-17.2	283.00	0.939 Level 1	
12,000.0	6,689.0	12,230.5	6,775.3	151.1	153.7	-108.96	690.5	5,200.0	265.8	-22.6	288.35	0.922 Level 1	
12,100.0	6,688.3	12,330.5	6,774.5	153.9	156.5	-108.93	690.5	5,300.0	265.7	-27.9	293.70	0.905 Level 1	
12,200.0	6,687.6	12,430.5	6,773.6	156.7	159.3	-108.90	690.5	5,399.9	265.7	-33.3	299.05	0.888 Level 1	
12,300.0	6,686.9	12,530.5	6,772.8	159.5	162.1	-108.87	690.5	5,499.9	265.7	-38.7	304.40	0.873 Level 1	
12,400.0	6,686.2	12,630.5	6,772.0	162.3	164.9	-108.84	690.5	5,599.9	265.6	-44.1	309.76	0.857 Level 1	
12,500.0	6,685.5	12,730.5	6,771.1	165.1	167.6	-108.81	690.5	5,699.9	265.6	-49.6	315.12	0.843 Level 1	
12,600.0	6,684.8	12,830.5	6,770.3	167.9	170.4	-108.79	690.5	5,799.9	265.5	-55.0	320.48	0.829 Level 1	
12,700.0	6,684.1	12,930.5	6,769.5	170.7	173.2	-108.76	690.5	5,899.9	265.5	-60.4	325.85	0.815 Level 1	
12,800.0	6,683.4	13,030.5	6,768.6	173.5	176.0	-108.73	690.5	5,999.9	265.4	-65.8	331.22	0.801 Level 1	
12,900.0	6,682.7	13,130.5	6,767.8	176.3	178.8	-108.70	690.5	6,099.9	265.4	-71.2	336.59	0.788 Level 1	
13,000.0	6,682.0	13,230.5	6,766.9	179.1	181.6	-108.67	690.5	6,199.9	265.3	-76.6	341.96	0.776 Level 1	
13,100.0	6,681.3	13,330.5	6,766.1	181.9	184.4	-108.64	690.5	6,299.9	265.3	-82.0	347.33	0.764 Level 1	
13,200.0	6,680.6	13,430.5	6,765.3	184.7	187.2	-108.61	690.5	6,399.9	265.3	-87.5	352.71	0.752 Level 1	
13,300.0	6,679.9	13,530.5	6,764.4	187.5	190.0	-108.59	690.5	6,499.9	265.2	-92.9	358.09	0.741 Level 1	
13,400.0	6,679.2	13,630.5	6,763.6	190.3	192.8	-108.56	690.5	6,599.9	265.2	-98.3	363.47	0.730 Level 1	
13,500.0	6,678.5	13,730.5	6,762.7	193.1	195.6	-108.53	690.5	6,699.9	265.1	-103.7	368.85	0.719 Level 1	
13,600.0	6,677.8	13,830.5	6,761.9	195.9	198.4	-108.50	690.5	6,799.9	265.1	-109.2	374.24	0.708 Level 1	

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 Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19P-332 - Wellbore #1 - Plan #3 (7-20-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
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		
13,700.0	6,677.1	13,930.5	6,761.1	198.7	201.2	-108.47	690.5	6,899.9	265.0	-114.6	379.62	0.698	Level 1	
13,800.0	6,676.4	14,030.5	6,760.2	201.5	204.0	-108.44	690.5	6,999.9	265.0	-120.0	385.01	0.688	Level 1	
13,900.0	6,675.7	14,130.5	6,759.4	204.3	206.8	-108.41	690.5	7,099.9	264.9	-125.5	390.41	0.679	Level 1	
14,000.0	6,675.0	14,230.5	6,758.6	207.1	209.6	-108.39	690.5	7,199.9	264.9	-130.9	395.80	0.669	Level 1	
14,100.0	6,674.3	14,330.5	6,757.7	209.9	212.4	-108.36	690.5	7,299.9	264.9	-136.3	401.19	0.660	Level 1	
14,200.0	6,673.6	14,430.5	6,756.9	212.7	215.2	-108.33	690.5	7,399.9	264.8	-141.8	406.59	0.651	Level 1	
14,300.0	6,672.9	14,530.5	6,756.0	215.5	218.0	-108.30	690.5	7,499.9	264.8	-147.2	411.99	0.643	Level 1	
14,400.0	6,672.2	14,630.5	6,755.2	218.3	220.8	-108.27	690.5	7,599.9	264.7	-152.7	417.39	0.634	Level 1	
14,500.0	6,671.5	14,730.5	6,754.4	221.1	223.6	-108.24	690.5	7,699.9	264.7	-158.1	422.80	0.626	Level 1	
14,600.0	6,670.8	14,830.5	6,753.5	223.9	226.4	-108.21	690.5	7,799.9	264.6	-163.6	428.20	0.618	Level 1	
14,700.0	6,670.1	14,930.5	6,752.7	226.7	229.2	-108.18	690.5	7,899.9	264.6	-169.0	433.61	0.610	Level 1	
14,800.0	6,669.4	15,030.5	6,751.9	229.5	232.0	-108.16	690.5	7,999.9	264.5	-174.5	439.02	0.603	Level 1	
14,900.0	6,668.7	15,130.5	6,751.0	232.3	234.8	-108.13	690.5	8,099.8	264.5	-179.9	444.43	0.595	Level 1	
15,000.0	6,668.0	15,230.5	6,750.2	235.1	237.6	-108.10	690.5	8,199.8	264.5	-185.4	449.84	0.588	Level 1	
15,100.0	6,667.3	15,330.5	6,749.3	237.9	240.4	-108.07	690.5	8,299.8	264.4	-190.8	455.26	0.581	Level 1	
15,200.0	6,666.6	15,430.5	6,748.5	240.7	243.2	-108.04	690.5	8,399.8	264.4	-196.3	460.68	0.574	Level 1	
15,300.0	6,665.9	15,530.5	6,747.7	243.5	246.0	-108.01	690.5	8,499.8	264.3	-201.8	466.09	0.567	Level 1	
15,400.0	6,665.2	15,630.5	6,746.8	246.3	248.8	-107.98	690.5	8,599.8	264.3	-207.2	471.51	0.561	Level 1	
15,500.0	6,664.5	15,730.5	6,746.0	249.1	251.6	-107.95	690.5	8,699.8	264.2	-212.7	476.94	0.554	Level 1	
15,600.0	6,663.8	15,830.5	6,745.2	251.9	254.4	-107.93	690.5	8,799.8	264.2	-218.2	482.36	0.548	Level 1	
15,700.0	6,663.1	15,930.5	6,744.3	254.7	257.2	-107.90	690.5	8,899.8	264.2	-223.6	487.79	0.542	Level 1	
15,800.0	6,662.4	16,030.5	6,743.5	257.5	260.0	-107.87	690.5	8,999.8	264.1	-229.1	493.21	0.535	Level 1	
15,900.0	6,661.7	16,130.5	6,742.6	260.3	262.8	-107.84	690.5	9,099.8	264.1	-234.6	498.64	0.530	Level 1	
16,000.0	6,661.0	16,230.5	6,741.8	263.1	265.6	-107.81	690.5	9,199.8	264.0	-240.0	504.07	0.524	Level 1	
16,100.0	6,660.4	16,330.5	6,741.0	265.9	268.4	-107.78	690.5	9,299.8	264.0	-245.5	509.51	0.518	Level 1	
16,200.0	6,659.7	16,430.5	6,740.1	268.7	271.2	-107.75	690.5	9,399.8	263.9	-251.0	514.94	0.513	Level 1	
16,300.0	6,659.0	16,530.5	6,739.3	271.5	274.0	-107.72	690.5	9,499.8	263.9	-256.5	520.38	0.507	Level 1	
16,400.0	6,658.3	16,630.5	6,738.5	274.3	276.8	-107.70	690.5	9,599.8	263.9	-262.0	525.82	0.502	Level 1	
16,500.0	6,657.6	16,730.5	6,737.6	277.2	279.6	-107.67	690.5	9,699.8	263.8	-267.4	531.26	0.497	Level 1	
16,556.8	6,657.2	16,787.3	6,737.1	278.7	281.2	-107.65	690.5	9,756.6	263.8	-270.6	534.35	0.494	Level 1	
16,579.9	6,657.0	16,804.1	6,737.0	279.4	281.7	-107.65	690.5	9,773.4	263.9	-271.6	535.43	0.493	Level 1, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design		Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19Q-202 - Wellbore #1 - Plan #3 (7-20-15)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	Toolface (°)	+N/-S (ft)	+E/-W (ft)	Centres (ft)	Ellipses (ft)	Separation (ft)	Factor			
0.0	0.0	1.0	1.0	0.0	0.0	90.02	0.0	30.6	30.6	30.6	0.00	N/A			
100.0	100.0	101.0	101.0	0.1	0.1	90.02	0.0	30.6	30.6	30.4	0.23	135.002			
200.0	200.0	201.0	201.0	0.3	0.3	90.02	0.0	30.6	30.6	30.0	0.68	45.300			
300.0	300.0	301.0	301.0	0.6	0.6	90.02	0.0	30.6	30.6	29.5	1.13	27.216			
400.0	400.0	401.0	401.0	0.8	0.8	90.02	0.0	30.6	30.6	29.1	1.58	19.451			
500.0	500.0	501.0	501.0	1.0	1.0	90.02	0.0	30.6	30.6	28.6	2.03	15.133			
600.0	600.0	601.0	601.0	1.2	1.2	90.02	0.0	30.6	30.6	28.2	2.47	12.384			
700.0	700.0	701.0	701.0	1.5	1.5	90.02	0.0	30.6	30.6	27.7	2.92	10.481			
800.0	800.0	801.0	801.0	1.7	1.7	90.02	0.0	30.6	30.6	27.3	3.37	9.084			
900.0	900.0	901.0	901.0	1.9	1.9	90.02	0.0	30.6	30.6	26.8	3.82	8.016			
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	90.02	0.0	30.6	30.6	26.4	4.27	7.173 CC, ES			
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	131.28	0.0	30.6	31.2	26.5	4.72	6.615			
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	134.68	0.0	30.6	33.0	27.8	5.16	6.394			
1,300.0	1,299.9	1,301.2	1,301.2	2.8	2.8	140.74	-0.6	30.0	35.7	30.1	5.58	6.391			
1,400.0	1,399.7	1,401.3	1,401.3	3.0	3.0	149.51	-2.4	28.1	39.3	33.3	5.98	6.572			
1,500.0	1,499.4	1,501.2	1,501.1	3.3	3.2	159.62	-5.4	24.9	44.8	38.4	6.39	7.006			
1,600.0	1,598.9	1,600.7	1,600.4	3.5	3.4	169.61	-9.6	20.4	52.8	45.9	6.81	7.751			
1,700.0	1,698.3	1,699.7	1,699.1	3.8	3.6	178.45	-14.9	14.8	63.7	56.4	7.24	8.801			
1,774.3	1,772.0	1,773.0	1,772.0	4.0	3.7	-175.97	-19.6	9.8	73.8	66.2	7.56	9.751			
1,800.0	1,797.4	1,798.3	1,797.2	4.0	3.8	-174.26	-21.4	7.9	77.6	69.9	7.68	10.097			
1,900.0	1,896.5	1,896.8	1,895.2	4.3	4.0	-168.95	-28.2	0.7	92.9	84.8	8.15	11.403			
2,000.0	1,995.6	1,995.3	1,993.2	4.6	4.3	-165.17	-35.0	-6.5	108.8	100.2	8.62	12.618			
2,100.0	2,094.7	2,093.8	2,091.2	4.9	4.5	-162.35	-41.8	-13.8	125.1	116.0	9.11	13.731			
2,200.0	2,193.8	2,192.3	2,189.2	5.2	4.8	-160.19	-48.6	-21.0	141.5	131.9	9.60	14.745			
2,300.0	2,292.9	2,290.8	2,287.2	5.5	5.0	-158.47	-55.4	-28.2	158.2	148.1	10.10	15.667			
2,400.0	2,391.9	2,389.3	2,385.2	5.8	5.3	-157.08	-62.2	-35.4	174.9	164.3	10.60	16.505			
2,500.0	2,491.0	2,487.8	2,483.2	6.1	5.5	-155.94	-69.0	-42.7	191.8	180.7	11.10	17.268			
2,600.0	2,590.1	2,586.3	2,581.2	6.4	5.8	-154.98	-75.8	-49.9	208.6	197.0	11.62	17.963			
2,700.0	2,689.2	2,684.8	2,679.3	6.8	6.1	-154.17	-82.6	-57.1	225.6	213.5	12.13	18.599			
2,800.0	2,788.3	2,783.4	2,777.3	7.1	6.3	-153.46	-89.4	-64.4	242.6	229.9	12.65	19.182			
2,900.0	2,887.4	2,881.9	2,875.3	7.4	6.6	-152.85	-96.2	-71.6	259.6	246.4	13.16	19.717			
3,000.0	2,986.5	2,980.4	2,973.3	7.7	6.9	-152.32	-103.0	-78.8	276.6	262.9	13.69	20.210			
3,100.0	3,085.6	3,078.9	3,071.3	8.0	7.2	-151.85	-109.8	-86.1	293.7	279.5	14.21	20.666			
3,200.0	3,184.6	3,177.4	3,169.3	8.4	7.4	-151.42	-116.6	-93.3	310.7	296.0	14.74	21.087			
3,300.0	3,283.7	3,275.9	3,267.3	8.7	7.7	-151.05	-123.4	-100.5	327.8	312.6	15.26	21.479			
3,400.0	3,382.8	3,374.4	3,365.3	9.0	8.0	-150.71	-130.2	-107.8	344.9	329.1	15.79	21.842			
3,500.0	3,481.9	3,472.9	3,463.3	9.3	8.3	-150.40	-137.0	-115.0	362.0	345.7	16.32	22.182			
3,600.0	3,581.0	3,571.4	3,561.3	9.7	8.6	-150.12	-143.8	-122.2	379.2	362.3	16.85	22.498			
3,700.0	3,680.1	3,669.9	3,659.3	10.0	8.8	-149.86	-150.6	-129.5	396.3	378.9	17.38	22.794			
3,800.0	3,779.2	3,768.4	3,757.3	10.3	9.1	-149.63	-157.4	-136.7	413.4	395.5	17.92	23.072			
3,900.0	3,878.3	3,866.9	3,855.3	10.6	9.4	-149.41	-164.2	-143.9	430.6	412.1	18.45	23.333			
4,000.0	3,977.4	3,965.4	3,953.3	11.0	9.7	-149.21	-171.0	-151.2	447.7	428.7	18.99	23.579			
4,100.0	4,076.4	4,064.0	4,051.3	11.3	10.0	-149.03	-177.8	-158.4	464.9	445.3	19.52	23.810			
4,200.0	4,175.5	4,162.5	4,149.3	11.6	10.3	-148.86	-184.6	-165.6	482.0	461.9	20.06	24.028			
4,300.0	4,274.6	4,261.0	4,247.3	12.0	10.6	-148.70	-191.4	-172.8	499.2	478.6	20.60	24.234			
4,400.0	4,373.7	4,359.5	4,345.4	12.3	10.9	-148.55	-198.2	-180.1	516.3	495.2	21.14	24.430			
4,500.0	4,472.8	4,458.0	4,443.4	12.6	11.1	-148.41	-205.0	-187.3	533.5	511.8	21.67	24.615			
4,600.0	4,571.9	4,556.5	4,541.4	13.0	11.4	-148.28	-211.8	-194.5	550.7	528.4	22.21	24.790			
4,700.0	4,671.0	4,655.0	4,639.4	13.3	11.7	-148.16	-218.6	-201.8	567.8	545.1	22.75	24.957			
4,800.0	4,770.1	4,753.5	4,737.4	13.6	12.0	-148.04	-225.5	-209.0	585.0	561.7	23.29	25.116			
4,900.0	4,869.1	4,852.0	4,835.4	14.0	12.3	-147.93	-232.3	-216.2	602.2	578.3	23.83	25.267			

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 Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design		Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19Q-202 - Wellbore #1 - Plan #3 (7-20-15)											Offset Site Error:		0.0 ft
Survey Program:		0-MWD											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,000.0	4,968.2	4,950.5	4,933.4	14.3	12.6	-147.83	-239.1	-223.5	619.4	595.0	24.37	25.411			
5,100.0	5,067.3	5,049.0	5,031.4	14.6	12.9	-147.73	-245.9	-230.7	636.5	611.6	24.91	25.549			
5,200.0	5,166.4	5,147.5	5,129.4	15.0	13.2	-147.64	-252.7	-237.9	653.7	628.3	25.46	25.680			
5,300.0	5,265.5	5,246.0	5,227.4	15.3	13.5	-147.55	-259.5	-245.2	670.9	644.9	26.00	25.806			
5,400.0	5,364.6	5,344.6	5,325.4	15.6	13.7	-147.47	-266.3	-252.4	688.1	661.5	26.54	25.926			
5,449.9	5,414.0	5,393.7	5,374.3	15.8	13.9	-147.43	-269.7	-256.0	696.7	669.9	26.81	25.985			
5,500.0	5,463.7	5,445.2	5,425.5	15.9	14.0	-147.46	-273.2	-259.8	704.9	677.8	27.09	26.016			
5,600.0	5,563.2	5,561.1	5,541.1	16.2	14.3	-147.52	-279.2	-266.1	717.7	690.1	27.58	26.026			
5,700.0	5,663.0	5,677.9	5,657.8	16.4	14.5	-147.66	-282.0	-269.1	725.3	697.3	27.99	25.914			
5,800.0	5,763.0	5,784.0	5,764.0	16.5	14.7	-147.81	-282.2	-269.4	728.0	699.7	28.34	25.689			
5,837.0	5,800.0	5,821.1	5,801.0	16.6	14.7	172.13	-282.2	-269.4	728.2	699.2	29.03	25.080			
5,900.0	5,863.0	5,884.0	5,864.0	16.7	14.8	172.13	-282.2	-269.4	728.2	698.9	29.25	24.897			
5,995.6	5,958.6	5,979.6	5,959.6	16.8	15.0	172.13	-282.2	-269.4	728.2	698.6	29.59	24.610			
6,000.0	5,963.0	5,984.0	5,964.0	16.8	15.0	82.14	-282.2	-269.4	728.2	699.1	29.05	25.070			
6,050.0	6,012.9	6,028.3	6,008.2	16.9	15.1	82.18	-282.2	-268.1	728.1	698.9	29.18	24.955			
6,100.0	6,062.6	6,072.6	6,052.3	16.9	15.1	82.25	-282.2	-264.3	728.0	698.7	29.28	24.867			
6,150.0	6,111.9	6,116.9	6,096.2	17.0	15.2	82.34	-282.2	-257.9	727.8	698.5	29.35	24.802			
6,200.0	6,160.5	6,161.3	6,139.6	17.0	15.2	82.47	-282.2	-249.0	727.6	698.2	29.39	24.759			
6,250.0	6,208.3	6,205.8	6,182.6	17.0	15.2	82.63	-282.2	-237.5	727.4	698.0	29.41	24.731			
6,300.0	6,255.0	6,250.0	6,224.6	17.0	15.2	82.81	-282.2	-223.7	727.1	697.6	29.42	24.714			
6,350.0	6,300.4	6,295.0	6,266.4	16.9	15.2	83.03	-282.2	-207.1	726.7	697.3	29.42	24.700			
6,400.0	6,344.3	6,339.8	6,307.1	16.9	15.2	83.27	-282.2	-188.2	726.4	696.9	29.43	24.679			
6,450.0	6,386.6	6,384.8	6,346.6	16.9	15.2	83.54	-282.2	-166.9	726.0	696.5	29.46	24.641			
6,500.0	6,427.1	6,429.9	6,385.0	16.8	15.2	83.83	-282.2	-143.1	725.6	696.0	29.53	24.572			
6,550.0	6,465.6	6,475.2	6,422.1	16.8	15.2	84.14	-282.2	-117.1	725.2	695.5	29.65	24.459			
6,600.0	6,501.8	6,520.7	6,457.7	16.8	15.2	84.49	-282.2	-88.7	724.7	694.9	29.84	24.288			
6,650.0	6,535.8	6,566.5	6,491.7	16.7	15.2	84.85	-282.2	-58.2	724.3	694.2	30.12	24.046			
6,700.0	6,567.3	6,612.5	6,524.0	16.7	15.2	85.23	-282.2	-25.5	723.9	693.4	30.51	23.723			
6,750.0	6,596.2	6,658.7	6,554.4	16.7	15.3	85.64	-282.2	9.3	723.5	692.4	31.03	23.313			
6,800.0	6,622.3	6,705.2	6,582.9	16.8	15.4	86.06	-282.2	46.1	723.1	691.4	31.70	22.813			
6,850.0	6,645.6	6,752.0	6,609.2	17.1	15.6	86.50	-282.2	84.8	722.7	690.2	32.51	22.228			
6,900.0	6,666.0	6,800.0	6,633.6	17.6	16.0	86.96	-282.2	126.1	722.4	688.9	33.50	21.561			
6,950.0	6,683.4	6,846.5	6,654.8	18.3	16.5	87.42	-282.2	167.6	722.1	687.4	34.64	20.843			
7,000.0	6,697.6	6,894.3	6,673.9	19.0	17.0	87.90	-282.2	211.3	721.8	685.9	35.95	20.077			
7,050.0	6,708.7	6,942.4	6,690.3	19.8	17.7	88.40	-282.2	256.6	721.6	684.2	37.42	19.286			
7,100.0	6,716.5	6,990.9	6,704.0	20.6	18.5	88.90	-282.2	303.1	721.5	682.5	39.02	18.490			
7,150.0	6,721.1	7,039.8	6,714.7	21.6	19.3	89.40	-282.2	350.8	721.4	680.6	40.75	17.703			
7,200.9	6,722.5	7,090.0	6,722.5	22.5	20.2	89.92	-282.2	400.4	721.3	678.7	42.62	16.925			
7,208.7	6,722.4	7,097.8	6,723.4	22.7	20.3	90.00	-282.2	408.1	721.3	678.4	42.92	16.807			
7,300.0	6,721.8	7,189.3	6,728.3	24.5	22.1	90.44	-282.2	499.4	721.4	674.8	46.54	15.499			
7,400.0	6,721.1	7,289.3	6,727.6	26.7	24.3	90.43	-282.2	599.4	721.4	670.6	50.80	14.200			
7,500.0	6,720.4	7,389.3	6,726.8	29.0	26.5	90.43	-282.2	699.4	721.4	666.1	55.30	13.045			
7,600.0	6,719.7	7,489.3	6,726.0	31.3	28.8	90.42	-282.2	799.4	721.4	661.4	59.98	12.026			
7,700.0	6,719.0	7,589.3	6,725.3	33.8	31.2	90.42	-282.2	899.4	721.4	656.5	64.82	11.129			
7,800.0	6,718.3	7,689.3	6,724.5	36.3	33.7	90.41	-282.2	999.4	721.4	651.6	69.77	10.339			
7,900.0	6,717.6	7,789.3	6,723.7	38.8	36.2	90.41	-282.2	1,099.4	721.4	646.5	74.82	9.641			
8,000.0	6,716.9	7,889.3	6,723.0	41.3	38.8	90.40	-282.2	1,199.4	721.4	641.4	79.94	9.023			
8,100.0	6,716.2	7,989.3	6,722.2	43.9	41.4	90.40	-282.2	1,299.4	721.4	636.2	85.13	8.474			
8,200.0	6,715.5	8,089.3	6,721.4	46.5	44.0	90.39	-282.2	1,399.4	721.4	631.0	90.37	7.982			
8,300.0	6,714.8	8,189.3	6,720.7	49.2	46.6	90.38	-282.2	1,499.4	721.4	625.7	95.65	7.542			
8,400.0	6,714.1	8,289.3	6,719.9	51.8	49.3	90.38	-282.2	1,599.4	721.4	620.4	100.97	7.144			

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 Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19Q-202 - Wellbore #1 - Plan #3 (7-20-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
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		
8,500.0	6,713.4	8,389.3	6,719.1	54.5	52.0	90.37	-282.2	1,699.4	721.4	615.0	106.32	6.785		
8,600.0	6,712.7	8,489.3	6,718.3	57.2	54.7	90.37	-282.2	1,799.3	721.4	609.7	111.69	6.458		
8,700.0	6,712.0	8,589.3	6,717.6	59.9	57.4	90.36	-282.2	1,899.3	721.4	604.3	117.09	6.161		
8,800.0	6,711.3	8,689.3	6,716.8	62.6	60.1	90.36	-282.2	1,999.3	721.4	598.8	122.51	5.888		
8,900.0	6,710.6	8,789.3	6,716.0	65.3	62.8	90.35	-282.2	2,099.3	721.4	593.4	127.95	5.638		
9,000.0	6,709.9	8,889.3	6,715.3	68.0	65.5	90.35	-282.2	2,199.3	721.4	588.0	133.40	5.408		
9,100.0	6,709.2	8,989.3	6,714.5	70.7	68.3	90.34	-282.2	2,299.3	721.4	582.5	138.86	5.195		
9,200.0	6,708.5	9,089.3	6,713.7	73.5	71.0	90.34	-282.2	2,399.3	721.4	577.0	144.34	4.998		
9,300.0	6,707.8	9,189.3	6,713.0	76.2	73.7	90.33	-282.2	2,499.3	721.4	571.5	149.83	4.815		
9,400.0	6,707.1	9,289.3	6,712.2	79.0	76.5	90.32	-282.2	2,599.3	721.4	566.0	155.32	4.644		
9,500.0	6,706.4	9,389.3	6,711.4	81.7	79.2	90.32	-282.2	2,699.3	721.4	560.5	160.83	4.485		
9,600.0	6,705.7	9,489.3	6,710.7	84.5	82.0	90.31	-282.2	2,799.3	721.4	555.0	166.34	4.337		
9,700.0	6,705.0	9,589.3	6,709.9	87.2	84.8	90.31	-282.2	2,899.3	721.4	549.5	171.86	4.197		
9,800.0	6,704.3	9,689.3	6,709.1	90.0	87.5	90.30	-282.2	2,999.3	721.4	544.0	177.38	4.067		
9,900.0	6,703.6	9,789.3	6,708.4	92.7	90.3	90.30	-282.2	3,099.3	721.3	538.4	182.91	3.944		
10,000.0	6,702.9	9,889.3	6,707.6	95.5	93.1	90.29	-282.2	3,199.3	721.3	532.9	188.45	3.828		
10,100.0	6,702.2	9,989.3	6,706.8	98.3	95.8	90.29	-282.2	3,299.3	721.3	527.4	193.99	3.718		
10,200.0	6,701.5	10,089.3	6,706.1	101.0	98.6	90.28	-282.2	3,399.3	721.3	521.8	199.54	3.615		
10,300.0	6,700.8	10,189.3	6,705.3	103.8	101.4	90.27	-282.2	3,499.3	721.3	516.3	205.09	3.517		
10,400.0	6,700.1	10,289.3	6,704.5	106.6	104.2	90.27	-282.2	3,599.3	721.3	510.7	210.64	3.425		
10,500.0	6,699.4	10,389.3	6,703.8	109.4	106.9	90.26	-282.2	3,699.3	721.3	505.1	216.20	3.337		
10,600.0	6,698.7	10,489.3	6,703.0	112.1	109.7	90.26	-282.2	3,799.3	721.3	499.6	221.76	3.253		
10,700.0	6,698.0	10,589.3	6,702.2	114.9	112.5	90.25	-282.2	3,899.3	721.3	494.0	227.32	3.173		
10,800.0	6,697.4	10,689.3	6,701.5	117.7	115.3	90.25	-282.2	3,999.3	721.3	488.5	232.89	3.097		
10,900.0	6,696.7	10,789.3	6,700.7	120.5	118.1	90.24	-282.2	4,099.3	721.3	482.9	238.45	3.025		
11,000.0	6,696.0	10,889.3	6,699.9	123.3	120.8	90.24	-282.2	4,199.3	721.3	477.3	244.02	2.956		
11,100.0	6,695.3	10,989.3	6,699.1	126.0	123.6	90.23	-282.2	4,299.3	721.3	471.7	249.60	2.890		
11,200.0	6,694.6	11,089.3	6,698.4	128.8	126.4	90.22	-282.2	4,399.3	721.3	466.2	255.17	2.827		
11,300.0	6,693.9	11,189.3	6,697.6	131.6	129.2	90.22	-282.2	4,499.3	721.3	460.6	260.75	2.766		
11,400.0	6,693.2	11,289.3	6,696.8	134.4	132.0	90.21	-282.2	4,599.3	721.3	455.0	266.33	2.708		
11,500.0	6,692.5	11,389.3	6,696.1	137.2	134.8	90.21	-282.2	4,699.3	721.3	449.4	271.91	2.653		
11,600.0	6,691.8	11,489.3	6,695.3	140.0	137.6	90.20	-282.2	4,799.3	721.3	443.9	277.49	2.600		
11,700.0	6,691.1	11,589.3	6,694.5	142.8	140.4	90.20	-282.2	4,899.3	721.3	438.3	283.07	2.548		
11,800.0	6,690.4	11,689.3	6,693.8	145.6	143.2	90.19	-282.2	4,999.3	721.3	432.7	288.65	2.499		
11,900.0	6,689.7	11,789.3	6,693.0	148.4	146.0	90.19	-282.2	5,099.3	721.3	427.1	294.24	2.452		
12,000.0	6,689.0	11,889.3	6,692.2	151.1	148.8	90.18	-282.2	5,199.2	721.3	421.5	299.83	2.406		
12,100.0	6,688.3	11,989.3	6,691.5	153.9	151.5	90.17	-282.2	5,299.2	721.3	415.9	305.42	2.362		
12,200.0	6,687.6	12,089.3	6,690.7	156.7	154.3	90.17	-282.2	5,399.2	721.3	410.3	311.01	2.319		
12,300.0	6,686.9	12,189.3	6,689.9	159.5	157.1	90.16	-282.2	5,499.2	721.3	404.7	316.60	2.278		
12,400.0	6,686.2	12,289.3	6,689.2	162.3	159.9	90.16	-282.2	5,599.2	721.3	399.2	322.19	2.239		
12,500.0	6,685.5	12,389.3	6,688.4	165.1	162.7	90.15	-282.2	5,699.2	721.3	393.6	327.78	2.201		
12,600.0	6,684.8	12,489.3	6,687.6	167.9	165.5	90.15	-282.2	5,799.2	721.3	388.0	333.37	2.164		
12,700.0	6,684.1	12,589.3	6,686.9	170.7	168.3	90.14	-282.2	5,899.2	721.3	382.4	338.97	2.128		
12,800.0	6,683.4	12,689.3	6,686.1	173.5	171.1	90.14	-282.2	5,999.2	721.3	376.8	344.56	2.094		
12,900.0	6,682.7	12,789.3	6,685.3	176.3	173.9	90.13	-282.2	6,099.2	721.3	371.2	350.16	2.060		
13,000.0	6,682.0	12,889.3	6,684.6	179.1	176.7	90.12	-282.2	6,199.2	721.3	365.6	355.75	2.028		
13,100.0	6,681.3	12,989.3	6,683.8	181.9	179.5	90.12	-282.2	6,299.2	721.3	360.0	361.35	1.996		
13,200.0	6,680.6	13,089.3	6,683.0	184.7	182.3	90.11	-282.2	6,399.2	721.3	354.4	366.95	1.966		
13,300.0	6,679.9	13,189.3	6,682.3	187.5	185.1	90.11	-282.2	6,499.2	721.3	348.8	372.55	1.936		
13,400.0	6,679.2	13,289.3	6,681.5	190.3	187.9	90.10	-282.2	6,599.2	721.3	343.2	378.15	1.908		
13,500.0	6,678.5	13,389.3	6,680.7	193.1	190.7	90.10	-282.2	6,699.2	721.3	337.6	383.74	1.880		

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 Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19Q-202 - Wellbore #1 - Plan #3 (7-20-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
13,600.0	6,677.8	13,489.3	6,680.0	195.9	193.5	90.09	-282.2	6,799.2	721.3	332.0	389.34	1.853		
13,700.0	6,677.1	13,589.3	6,679.2	198.7	196.3	90.09	-282.2	6,899.2	721.3	326.4	394.95	1.826		
13,800.0	6,676.4	13,689.3	6,678.4	201.5	199.1	90.08	-282.2	6,999.2	721.3	320.8	400.55	1.801		
13,900.0	6,675.7	13,789.3	6,677.6	204.3	201.9	90.07	-282.2	7,099.2	721.3	315.2	406.15	1.776		
14,000.0	6,675.0	13,889.3	6,676.9	207.1	204.7	90.07	-282.2	7,199.2	721.3	309.6	411.75	1.752		
14,100.0	6,674.3	13,989.3	6,676.1	209.9	207.5	90.06	-282.2	7,299.2	721.3	304.0	417.35	1.728		
14,200.0	6,673.6	14,089.3	6,675.3	212.7	210.3	90.06	-282.2	7,399.2	721.3	298.4	422.96	1.705		
14,300.0	6,672.9	14,189.3	6,674.6	215.5	213.1	90.05	-282.2	7,499.2	721.3	292.8	428.56	1.683		
14,400.0	6,672.2	14,289.3	6,673.8	218.3	215.9	90.05	-282.2	7,599.2	721.3	287.2	434.16	1.661		
14,500.0	6,671.5	14,389.3	6,673.0	221.1	218.7	90.04	-282.2	7,699.2	721.3	281.6	439.77	1.640		
14,600.0	6,670.8	14,489.3	6,672.3	223.9	221.5	90.04	-282.2	7,799.2	721.3	276.0	445.37	1.620		
14,700.0	6,670.1	14,589.3	6,671.5	226.7	224.3	90.03	-282.2	7,899.2	721.3	270.4	450.98	1.599		
14,800.0	6,669.4	14,689.3	6,670.7	229.5	227.1	90.02	-282.2	7,999.2	721.3	264.8	456.58	1.580		
14,900.0	6,668.7	14,789.3	6,670.0	232.3	229.9	90.02	-282.2	8,099.2	721.3	259.1	462.19	1.561		
15,000.0	6,668.0	14,889.3	6,669.2	235.1	232.7	90.01	-282.2	8,199.2	721.3	253.5	467.79	1.542		
15,100.0	6,667.3	14,989.3	6,668.4	237.9	235.5	90.01	-282.2	8,299.2	721.3	247.9	473.40	1.524		
15,200.0	6,666.6	15,089.3	6,667.7	240.7	238.3	90.00	-282.2	8,399.2	721.3	242.3	479.01	1.506		
15,300.0	6,665.9	15,189.3	6,666.9	243.5	241.2	90.00	-282.2	8,499.2	721.3	236.7	484.61	1.488 Level 3		
15,400.0	6,665.2	15,289.3	6,666.1	246.3	244.0	89.99	-282.2	8,599.1	721.3	231.1	490.22	1.471 Level 3		
15,500.0	6,664.5	15,389.3	6,665.4	249.1	246.8	89.99	-282.2	8,699.1	721.3	225.5	495.83	1.455 Level 3		
15,600.0	6,663.8	15,489.3	6,664.6	251.9	249.6	89.98	-282.2	8,799.1	721.3	219.9	501.44	1.439 Level 3		
15,700.0	6,663.1	15,589.3	6,663.8	254.7	252.4	89.97	-282.2	8,899.1	721.3	214.3	507.04	1.423 Level 3		
15,800.0	6,662.4	15,689.3	6,663.1	257.5	255.2	89.97	-282.2	8,999.1	721.3	208.7	512.65	1.407 Level 3		
15,900.0	6,661.7	15,789.3	6,662.3	260.3	258.0	89.96	-282.2	9,099.1	721.3	203.1	518.26	1.392 Level 3		
16,000.0	6,661.0	15,889.3	6,661.5	263.1	260.8	89.96	-282.2	9,199.1	721.3	197.5	523.87	1.377 Level 3		
16,100.0	6,660.4	15,989.3	6,660.8	265.9	263.6	89.95	-282.2	9,299.1	721.3	191.9	529.48	1.362 Level 3		
16,200.0	6,659.7	16,089.3	6,660.0	268.7	266.4	89.95	-282.2	9,399.1	721.3	186.2	535.09	1.348 Level 3		
16,300.0	6,659.0	16,189.3	6,659.2	271.5	269.2	89.94	-282.2	9,499.1	721.3	180.6	540.69	1.334 Level 3		
16,400.0	6,658.3	16,289.3	6,658.4	274.3	272.0	89.94	-282.2	9,599.1	721.3	175.0	546.30	1.320 Level 3		
16,500.0	6,657.6	16,389.3	6,657.7	277.2	274.8	89.93	-282.2	9,699.1	721.3	169.4	551.91	1.307 Level 3		
16,579.9	6,657.0	16,469.2	6,657.1	279.4	276.4	89.93	-282.2	9,779.1	721.3	165.6	555.71	1.298 Level 3, SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance								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	1.0	1.0	0.0	0.0	90.00	0.0	58.5	58.5	58.5	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	90.00	0.0	58.5	58.5	58.3	0.23	257.730		
200.0	200.0	201.0	201.0	0.3	0.3	90.00	0.0	58.5	58.5	57.8	0.68	86.481		
300.0	300.0	301.0	301.0	0.6	0.6	90.00	0.0	58.5	58.5	57.4	1.13	51.958		
400.0	400.0	401.0	401.0	0.8	0.8	90.00	0.0	58.5	58.5	56.9	1.58	37.134		
500.0	500.0	501.0	501.0	1.0	1.0	90.00	0.0	58.5	58.5	56.5	2.03	28.891		
600.0	600.0	601.0	601.0	1.2	1.2	90.00	0.0	58.5	58.5	56.0	2.47	23.643		
700.0	700.0	701.0	701.0	1.5	1.5	90.00	0.0	58.5	58.5	55.6	2.92	20.008		
800.0	800.0	801.0	801.0	1.7	1.7	90.00	0.0	58.5	58.5	55.1	3.37	17.342		
900.0	900.0	901.0	901.0	1.9	1.9	90.00	0.0	58.5	58.5	54.7	3.82	15.303		
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	90.00	0.0	58.5	58.5	54.2	4.27	13.693 CC		
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	130.69	0.0	58.5	59.1	54.4	4.72	12.519		
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	132.55	0.0	58.5	60.8	55.7	5.16	11.781		
1,300.0	1,299.9	1,300.9	1,300.9	2.8	2.8	135.41	0.0	58.5	63.8	58.2	5.61	11.389		
1,400.0	1,399.7	1,400.7	1,400.7	3.0	3.0	138.97	0.0	58.5	68.3	62.3	6.05	11.294		
1,500.0	1,499.4	1,500.4	1,500.4	3.3	3.3	142.90	0.0	58.5	74.4	67.9	6.50	11.459		
1,600.0	1,598.9	1,599.9	1,599.9	3.5	3.5	146.88	0.0	58.5	82.3	75.3	6.94	11.857		
1,700.0	1,698.3	1,699.3	1,699.3	3.8	3.7	150.68	0.0	58.5	92.0	84.6	7.38	12.458		
1,774.3	1,772.0	1,773.0	1,773.0	4.0	3.9	153.30	0.0	58.5	100.4	92.7	7.71	13.020		
1,800.0	1,797.4	1,798.4	1,798.4	4.0	3.9	154.16	0.0	58.5	103.5	95.7	7.83	13.225		
1,900.0	1,896.5	1,897.5	1,897.5	4.3	4.2	157.06	0.0	58.5	115.8	107.5	8.28	13.989		
2,000.0	1,995.6	1,996.6	1,996.6	4.6	4.4	159.41	0.0	58.5	128.4	119.6	8.73	14.699		
2,100.0	2,094.7	2,098.0	2,098.0	4.9	4.6	161.47	0.2	57.7	140.3	131.1	9.18	15.283		
2,200.0	2,193.8	2,199.8	2,199.7	5.2	4.8	163.44	0.8	55.1	150.7	141.1	9.62	15.670		
2,300.0	2,292.9	2,301.8	2,301.7	5.5	5.0	165.38	1.9	50.8	159.6	149.5	10.06	15.867		
2,400.0	2,391.9	2,404.1	2,403.8	5.8	5.2	167.37	3.5	44.7	167.0	156.5	10.50	15.902		
2,500.0	2,491.0	2,504.4	2,503.8	6.1	5.5	169.32	5.3	37.4	173.5	162.5	10.95	15.842		
2,600.0	2,590.1	2,604.1	2,603.2	6.4	5.7	171.13	7.1	30.2	180.0	168.6	11.40	15.793		
2,700.0	2,689.2	2,703.7	2,702.5	6.8	5.9	172.81	8.9	22.9	186.7	174.9	11.85	15.758		
2,800.0	2,788.3	2,803.3	2,801.9	7.1	6.1	174.38	10.8	15.7	193.6	181.3	12.31	15.732		
2,900.0	2,887.4	2,903.0	2,901.2	7.4	6.4	175.83	12.6	8.4	200.6	187.9	12.77	15.715		
3,000.0	2,986.5	3,002.6	3,000.6	7.7	6.6	177.19	14.4	1.2	207.7	194.5	13.23	15.703		
3,100.0	3,085.6	3,102.2	3,099.9	8.0	6.8	178.46	16.2	-6.1	215.0	201.3	13.70	15.696		
3,200.0	3,184.6	3,201.8	3,199.3	8.4	7.1	179.64	18.1	-13.4	222.3	208.2	14.17	15.693		
3,300.0	3,283.7	3,301.5	3,298.6	8.7	7.3	-179.25	19.9	-20.6	229.7	215.1	14.64	15.692		
3,400.0	3,382.8	3,401.1	3,398.0	9.0	7.6	-178.21	21.7	-27.9	237.2	222.1	15.12	15.694		
3,500.0	3,481.9	3,500.7	3,497.3	9.3	7.8	-177.24	23.5	-35.1	244.8	229.2	15.60	15.697		
3,600.0	3,581.0	3,600.4	3,596.6	9.7	8.1	-176.32	25.4	-42.4	252.5	236.4	16.08	15.702		
3,700.0	3,680.1	3,700.0	3,696.0	10.0	8.3	-175.46	27.2	-49.7	260.2	243.6	16.56	15.707		
3,800.0	3,779.2	3,799.6	3,795.3	10.3	8.6	-174.65	29.0	-56.9	267.9	250.9	17.05	15.713		
3,900.0	3,878.3	3,899.2	3,894.7	10.6	8.8	-173.88	30.8	-64.2	275.7	258.2	17.54	15.720		
4,000.0	3,977.4	3,998.9	3,994.0	11.0	9.1	-173.16	32.7	-71.4	283.6	265.6	18.03	15.726		
4,100.0	4,076.4	4,098.5	4,093.4	11.3	9.3	-172.48	34.5	-78.7	291.5	273.0	18.53	15.733		
4,200.0	4,175.5	4,198.1	4,192.7	11.6	9.6	-171.83	36.3	-85.9	299.4	280.4	19.02	15.740		
4,300.0	4,274.6	4,297.8	4,292.1	12.0	9.8	-171.21	38.1	-93.2	307.4	287.9	19.52	15.748		
4,400.0	4,373.7	4,397.4	4,391.4	12.3	10.1	-170.63	40.0	-100.5	315.4	295.4	20.02	15.755		
4,500.0	4,472.8	4,497.0	4,490.8	12.6	10.3	-170.07	41.8	-107.7	323.4	302.9	20.52	15.762		
4,600.0	4,571.9	4,596.6	4,590.1	13.0	10.6	-169.54	43.6	-115.0	331.5	310.5	21.02	15.769		
4,700.0	4,671.0	4,696.3	4,689.5	13.3	10.8	-169.04	45.4	-122.2	339.6	318.1	21.53	15.775		
4,800.0	4,770.1	4,795.9	4,788.8	13.6	11.1	-168.56	47.3	-129.5	347.7	325.7	22.03	15.782		
4,900.0	4,869.1	4,895.5	4,888.2	14.0	11.3	-168.10	49.1	-136.7	355.9	333.3	22.54	15.789		

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 Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design													Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19Q-312 - Wellbore #1 - Plan #2 (7-20-15)		Offset Site Error:		0.0 ft
Survey Program:		0-MWD											Offset Well Error:		0.0 ft		
Reference		Offset		Semi Major Axis			Distance						Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor					
5,000.0	4,968.2	4,995.2	4,987.5	14.3	11.6	-167.67	50.9	-144.0	364.0	341.0	23.05	15.795					
5,100.0	5,067.3	5,094.8	5,086.9	14.6	11.8	-167.25	52.7	-151.3	372.2	348.7	23.56	15.801					
5,200.0	5,166.4	5,194.4	5,186.2	15.0	12.1	-166.85	54.6	-158.5	380.4	356.4	24.07	15.807					
5,300.0	5,265.5	5,294.0	5,285.5	15.3	12.4	-166.47	56.4	-165.8	388.6	364.1	24.58	15.813					
5,400.0	5,364.6	5,393.7	5,384.9	15.6	12.6	-166.10	58.2	-173.0	396.9	371.8	25.09	15.818					
5,449.9	5,414.0	5,443.4	5,434.5	15.8	12.7	-165.92	59.1	-176.7	401.0	375.6	25.34	15.821					
5,500.0	5,463.7	5,493.3	5,484.3	15.9	12.9	-165.75	60.0	-180.3	404.7	379.1	25.61	15.803					
5,600.0	5,563.2	5,593.2	5,583.8	16.2	13.1	-165.31	61.9	-187.6	409.6	383.5	26.09	15.701					
5,700.0	5,663.0	5,684.8	5,675.3	16.4	13.3	-164.95	63.2	-192.9	412.1	385.7	26.45	15.582					
5,800.0	5,763.0	5,776.5	5,767.0	16.5	13.5	-164.79	63.8	-195.3	413.3	386.6	26.76	15.446					
5,837.0	5,800.0	5,810.5	5,801.0	16.6	13.5	155.19	63.9	-195.5	413.4	384.2	29.27	14.126					
5,900.0	5,863.0	5,873.5	5,864.0	16.7	13.6	155.19	63.9	-195.5	413.4	383.9	29.49	14.020					
5,995.6	5,958.6	5,969.1	5,959.6	16.8	13.8	155.19	63.9	-195.5	413.4	383.6	29.85	13.851					
6,000.0	5,963.0	5,973.5	5,964.0	16.8	13.8	65.19	63.9	-195.5	413.4	385.9	27.50	15.033					
6,050.0	6,012.9	6,023.5	6,013.9	16.9	13.9	65.48	63.9	-195.5	412.6	385.0	27.65	14.925					
6,100.0	6,062.6	6,069.9	6,060.4	16.9	14.0	66.21	63.9	-195.3	410.6	382.8	27.78	14.778					
6,150.0	6,111.9	6,110.8	6,101.2	17.0	14.1	67.03	63.9	-193.5	408.1	380.2	27.88	14.637					
6,200.0	6,160.5	6,150.0	6,140.2	17.0	14.2	67.89	63.9	-189.6	405.5	377.6	27.96	14.503					
6,250.0	6,208.3	6,193.2	6,182.9	17.0	14.2	68.91	63.9	-183.0	402.8	374.8	28.04	14.365					
6,300.0	6,255.0	6,234.8	6,223.6	17.0	14.2	69.98	63.9	-174.4	400.0	371.9	28.12	14.227					
6,350.0	6,300.4	6,276.8	6,264.1	16.9	14.3	71.13	63.9	-163.5	397.2	369.0	28.20	14.083					
6,400.0	6,344.3	6,319.0	6,304.2	16.9	14.3	72.37	63.9	-150.3	394.4	366.1	28.31	13.931					
6,450.0	6,386.6	6,361.6	6,343.9	16.9	14.3	73.68	63.9	-134.8	391.6	363.2	28.45	13.766					
6,500.0	6,427.1	6,404.6	6,383.0	16.8	14.4	75.08	63.9	-116.9	388.9	360.3	28.63	13.586					
6,550.0	6,465.6	6,450.0	6,423.1	16.8	14.4	76.60	63.9	-95.6	386.3	357.5	28.87	13.384					
6,600.0	6,501.8	6,491.9	6,458.9	16.8	14.5	78.08	63.9	-73.9	383.9	354.8	29.16	13.166					
6,650.0	6,535.8	6,536.3	6,495.5	16.7	14.5	79.68	63.9	-48.8	381.8	352.2	29.54	12.921					
6,700.0	6,567.3	6,581.2	6,531.0	16.7	14.6	81.35	63.9	-21.3	379.8	349.8	30.02	12.652					
6,750.0	6,596.2	6,626.6	6,565.2	16.7	14.8	83.06	63.9	8.6	378.2	347.6	30.60	12.358					
6,800.0	6,622.3	6,672.7	6,598.0	16.8	14.9	84.83	63.9	41.0	376.9	345.6	31.30	12.042					
6,850.0	6,645.6	6,719.4	6,629.2	17.1	15.2	86.63	63.9	75.7	376.0	343.8	32.11	11.708					
6,900.0	6,666.0	6,766.8	6,658.6	17.6	15.5	88.46	63.9	112.9	375.4	342.4	33.05	11.357					
6,941.7	6,680.7	6,806.9	6,681.7	18.1	15.8	90.00	63.9	145.7	375.3	341.3	33.94	11.057					
6,950.0	6,683.4	6,815.0	6,686.1	18.3	15.9	90.31	63.9	152.4	375.3	341.1	34.12	10.997					
7,000.0	6,697.6	6,863.9	6,711.4	19.0	16.3	92.17	63.9	194.3	375.6	340.2	35.32	10.632					
7,050.0	6,708.7	6,913.6	6,734.4	19.8	16.9	94.04	63.9	238.4	376.3	339.6	36.64	10.268					
7,100.0	6,716.5	6,964.3	6,754.7	20.6	17.5	95.89	63.9	284.7	377.4	339.3	38.08	9.909					
7,150.0	6,721.1	7,015.8	6,772.2	21.6	18.3	97.73	63.9	333.2	378.9	339.3	39.63	9.562					
7,200.9	6,722.5	7,069.2	6,786.9	22.5	19.1	99.57	63.9	384.6	380.9	339.6	41.30	9.222					
7,300.0	6,721.8	7,177.3	6,805.4	24.5	21.0	102.41	63.9	490.9	384.3	339.5	44.86	8.567					
7,400.0	6,721.1	7,286.5	6,809.1	26.7	23.2	103.06	63.9	600.0	385.2	336.2	48.99	7.863					
7,500.0	6,720.4	7,386.5	6,808.3	29.0	25.4	103.04	63.9	700.0	385.2	331.9	53.30	7.227					
7,600.0	6,719.7	7,486.5	6,807.5	31.3	27.6	103.03	63.9	800.0	385.2	327.4	57.81	6.663					
7,700.0	6,719.0	7,586.5	6,806.8	33.8	30.0	103.02	63.9	900.0	385.2	322.7	62.47	6.166					
7,800.0	6,718.3	7,686.5	6,806.0	36.3	32.4	103.01	63.9	1,000.0	385.1	317.9	67.26	5.726					
7,900.0	6,717.6	7,786.5	6,805.2	38.8	34.9	102.99	63.9	1,100.0	385.1	313.0	72.15	5.338					
8,000.0	6,716.9	7,886.5	6,804.4	41.3	37.4	102.98	63.9	1,200.0	385.1	308.0	77.12	4.993					
8,100.0	6,716.2	7,986.5	6,803.6	43.9	40.0	102.97	63.9	1,300.0	385.1	302.9	82.16	4.687					
8,200.0	6,715.5	8,086.5	6,802.8	46.5	42.6	102.96	63.9	1,400.0	385.1	297.8	87.26	4.413					
8,300.0	6,714.8	8,186.5	6,802.0	49.2	45.2	102.94	63.9	1,500.0	385.0	292.6	92.40	4.167					
8,400.0	6,714.1	8,286.5	6,801.3	51.8	47.9	102.93	63.9	1,600.0	385.0	287.4	97.58	3.946					

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 Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19Q-312 - Wellbore #1 - Plan #2 (7-20-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
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	
8,500.0	6,713.4	8,386.5	6,800.5	54.5	50.5	102.92	63.9	1,700.0	385.0	282.2	102.79	3.745	
8,600.0	6,712.7	8,486.5	6,799.7	57.2	53.2	102.91	63.9	1,800.0	385.0	276.9	108.04	3.563	
8,700.0	6,712.0	8,586.5	6,798.9	59.9	55.9	102.89	63.9	1,900.0	385.0	271.7	113.30	3.398	
8,800.0	6,711.3	8,686.5	6,798.1	62.6	58.6	102.88	63.9	2,000.0	384.9	266.4	118.59	3.246	
8,900.0	6,710.6	8,786.5	6,797.3	65.3	61.3	102.87	63.9	2,100.0	384.9	261.0	123.89	3.107	
9,000.0	6,709.9	8,886.5	6,796.6	68.0	64.0	102.86	63.9	2,200.0	384.9	255.7	129.22	2.979	
9,100.0	6,709.2	8,986.5	6,795.8	70.7	66.7	102.84	63.9	2,300.0	384.9	250.3	134.55	2.860	
9,200.0	6,708.5	9,086.5	6,795.0	73.5	69.5	102.83	63.9	2,400.0	384.9	245.0	139.90	2.751	
9,300.0	6,707.8	9,186.5	6,794.2	76.2	72.2	102.82	63.9	2,500.0	384.8	239.6	145.26	2.649	
9,400.0	6,707.1	9,286.5	6,793.4	79.0	75.0	102.80	63.9	2,600.0	384.8	234.2	150.63	2.555	
9,500.0	6,706.4	9,386.5	6,792.6	81.7	77.7	102.79	63.9	2,700.0	384.8	228.8	156.01	2.466	
9,600.0	6,705.7	9,486.5	6,791.8	84.5	80.5	102.78	63.9	2,800.0	384.8	223.4	161.40	2.384	
9,700.0	6,705.0	9,586.5	6,791.1	87.2	83.2	102.77	63.9	2,900.0	384.8	218.0	166.80	2.307	
9,800.0	6,704.3	9,686.5	6,790.3	90.0	86.0	102.75	63.9	3,000.0	384.7	212.5	172.20	2.234	
9,900.0	6,703.6	9,786.5	6,789.5	92.7	88.8	102.74	63.9	3,099.9	384.7	207.1	177.61	2.166	
10,000.0	6,702.9	9,886.5	6,788.7	95.5	91.5	102.73	63.9	3,199.9	384.7	201.7	183.03	2.102	
10,100.0	6,702.2	9,986.5	6,787.9	98.3	94.3	102.72	63.9	3,299.9	384.7	196.2	188.45	2.041	
10,200.0	6,701.5	10,086.5	6,787.1	101.0	97.1	102.70	63.9	3,399.9	384.7	190.8	193.88	1.984	
10,300.0	6,700.8	10,186.5	6,786.3	103.8	99.8	102.69	63.9	3,499.9	384.7	185.3	199.31	1.930	
10,400.0	6,700.1	10,286.5	6,785.6	106.6	102.6	102.68	63.9	3,599.9	384.6	179.9	204.74	1.879	
10,500.0	6,699.4	10,386.5	6,784.8	109.4	105.4	102.67	63.9	3,699.9	384.6	174.4	210.18	1.830	
10,600.0	6,698.7	10,486.5	6,784.0	112.1	108.2	102.65	63.9	3,799.9	384.6	169.0	215.63	1.784	
10,700.0	6,698.0	10,586.5	6,783.2	114.9	110.9	102.64	63.9	3,899.9	384.6	163.5	221.07	1.740	
10,800.0	6,697.4	10,686.5	6,782.4	117.7	113.7	102.63	63.9	3,999.9	384.6	158.0	226.52	1.698	
10,900.0	6,696.7	10,786.5	6,781.6	120.5	116.5	102.61	63.9	4,099.9	384.5	152.6	231.97	1.658	
11,000.0	6,696.0	10,886.5	6,780.8	123.3	119.3	102.60	63.9	4,199.9	384.5	147.1	237.43	1.619	
11,100.0	6,695.3	10,986.5	6,780.1	126.0	122.1	102.59	63.9	4,299.9	384.5	141.6	242.89	1.583	
11,200.0	6,694.6	11,086.5	6,779.3	128.8	124.9	102.58	63.9	4,399.9	384.5	136.1	248.35	1.548	
11,300.0	6,693.9	11,186.5	6,778.5	131.6	127.7	102.56	63.9	4,499.9	384.5	130.6	253.81	1.515	
11,400.0	6,693.2	11,286.5	6,777.7	134.4	130.4	102.55	63.9	4,599.9	384.4	125.2	259.28	1.483 Level 3	
11,500.0	6,692.5	11,386.5	6,776.9	137.2	133.2	102.54	63.9	4,699.9	384.4	119.7	264.75	1.452 Level 3	
11,600.0	6,691.8	11,486.5	6,776.1	140.0	136.0	102.53	63.9	4,799.9	384.4	114.2	270.22	1.423 Level 3	
11,700.0	6,691.1	11,586.5	6,775.3	142.8	138.8	102.51	63.9	4,899.9	384.4	108.7	275.69	1.394 Level 3	
11,800.0	6,690.4	11,686.5	6,774.6	145.6	141.6	102.50	63.9	4,999.9	384.4	103.2	281.16	1.367 Level 3	
11,900.0	6,689.7	11,786.5	6,773.8	148.4	144.4	102.49	63.9	5,099.9	384.3	97.7	286.64	1.341 Level 3	
12,000.0	6,689.0	11,886.5	6,773.0	151.1	147.2	102.47	63.9	5,199.9	384.3	92.2	292.12	1.316 Level 3	
12,100.0	6,688.3	11,986.5	6,772.2	153.9	150.0	102.46	63.9	5,299.9	384.3	86.7	297.60	1.291 Level 3	
12,200.0	6,687.6	12,086.5	6,771.4	156.7	152.8	102.45	63.9	5,399.9	384.3	81.2	303.08	1.268 Level 3	
12,300.0	6,686.9	12,186.5	6,770.6	159.5	155.6	102.44	63.9	5,499.9	384.3	75.7	308.56	1.245 Level 2	
12,400.0	6,686.2	12,286.5	6,769.8	162.3	158.4	102.42	63.9	5,599.9	384.2	70.2	314.04	1.224 Level 2	
12,500.0	6,685.5	12,386.5	6,769.1	165.1	161.2	102.41	63.9	5,699.9	384.2	64.7	319.53	1.202 Level 2	
12,600.0	6,684.8	12,486.5	6,768.3	167.9	164.0	102.40	63.9	5,799.9	384.2	59.2	325.02	1.182 Level 2	
12,700.0	6,684.1	12,586.5	6,767.5	170.7	166.8	102.39	63.9	5,899.9	384.2	53.7	330.51	1.162 Level 2	
12,800.0	6,683.4	12,686.5	6,766.7	173.5	169.6	102.37	63.9	5,999.9	384.2	48.2	335.99	1.143 Level 2	
12,900.0	6,682.7	12,786.5	6,765.9	176.3	172.4	102.36	63.9	6,099.9	384.2	42.7	341.49	1.125 Level 2	
13,000.0	6,682.0	12,886.5	6,765.1	179.1	175.2	102.35	63.9	6,199.9	384.1	37.2	346.98	1.107 Level 2	
13,100.0	6,681.3	12,986.5	6,764.3	181.9	178.0	102.34	63.9	6,299.8	384.1	31.6	352.47	1.090 Level 2	
13,200.0	6,680.6	13,086.5	6,763.6	184.7	180.8	102.32	63.9	6,399.8	384.1	26.1	357.97	1.073 Level 2	
13,300.0	6,679.9	13,186.5	6,762.8	187.5	183.5	102.31	63.9	6,499.8	384.1	20.6	363.46	1.057 Level 2	
13,400.0	6,679.2	13,286.5	6,762.0	190.3	186.3	102.30	63.9	6,599.8	384.1	15.1	368.96	1.041 Level 2	
13,500.0	6,678.5	13,386.5	6,761.2	193.1	189.1	102.28	63.9	6,699.8	384.0	9.6	374.46	1.026 Level 2	

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 Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							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		
13,600.0	6,677.8	13,486.5	6,760.4	195.9	191.9	102.27	63.9	6,799.8	384.0	4.1	379.95	1.011	Level 2	
13,700.0	6,677.1	13,586.5	6,759.6	198.7	194.7	102.26	63.9	6,899.8	384.0	-1.5	385.45	0.996	Level 1	
13,800.0	6,676.4	13,686.5	6,758.9	201.5	197.5	102.25	63.9	6,999.8	384.0	-7.0	390.96	0.982	Level 1	
13,900.0	6,675.7	13,786.5	6,758.1	204.3	200.4	102.23	63.9	7,099.8	384.0	-12.5	396.46	0.968	Level 1	
14,000.0	6,675.0	13,886.5	6,757.3	207.1	203.2	102.22	63.9	7,199.8	383.9	-18.0	401.96	0.955	Level 1	
14,100.0	6,674.3	13,986.5	6,756.5	209.9	206.0	102.21	63.9	7,299.8	383.9	-23.5	407.46	0.942	Level 1	
14,200.0	6,673.6	14,086.5	6,755.7	212.7	208.8	102.20	63.9	7,399.8	383.9	-29.1	412.97	0.930	Level 1	
14,300.0	6,672.9	14,186.5	6,754.9	215.5	211.6	102.18	63.9	7,499.8	383.9	-34.6	418.47	0.917	Level 1	
14,400.0	6,672.2	14,286.5	6,754.1	218.3	214.4	102.17	63.9	7,599.8	383.9	-40.1	423.98	0.905	Level 1	
14,500.0	6,671.5	14,386.5	6,753.4	221.1	217.2	102.16	63.9	7,699.8	383.9	-45.6	429.49	0.894	Level 1	
14,600.0	6,670.8	14,486.5	6,752.6	223.9	220.0	102.14	63.9	7,799.8	383.8	-51.2	435.00	0.882	Level 1	
14,700.0	6,670.1	14,586.5	6,751.8	226.7	222.8	102.13	63.9	7,899.8	383.8	-56.7	440.51	0.871	Level 1	
14,800.0	6,669.4	14,686.5	6,751.0	229.5	225.6	102.12	63.9	7,999.8	383.8	-62.2	446.02	0.861	Level 1	
14,900.0	6,668.7	14,786.5	6,750.2	232.3	228.4	102.11	63.9	8,099.8	383.8	-67.7	451.53	0.850	Level 1	
15,000.0	6,668.0	14,886.5	6,749.4	235.1	231.2	102.09	63.9	8,199.8	383.8	-73.3	457.04	0.840	Level 1	
15,100.0	6,667.3	14,986.5	6,748.6	237.9	234.0	102.08	63.9	8,299.8	383.7	-78.8	462.55	0.830	Level 1	
15,200.0	6,666.6	15,086.5	6,747.9	240.7	236.8	102.07	63.9	8,399.8	383.7	-84.3	468.06	0.820	Level 1	
15,300.0	6,665.9	15,186.5	6,747.1	243.5	239.6	102.06	63.9	8,499.8	383.7	-89.9	473.58	0.810	Level 1	
15,400.0	6,665.2	15,286.5	6,746.3	246.3	242.4	102.04	63.9	8,599.8	383.7	-95.4	479.09	0.801	Level 1	
15,500.0	6,664.5	15,386.5	6,745.5	249.1	245.2	102.03	63.9	8,699.8	383.7	-100.9	484.61	0.792	Level 1	
15,600.0	6,663.8	15,486.5	6,744.7	251.9	248.0	102.02	63.9	8,799.8	383.6	-106.5	490.12	0.783	Level 1	
15,700.0	6,663.1	15,586.5	6,743.9	254.7	250.8	102.00	63.9	8,899.8	383.6	-112.0	495.64	0.774	Level 1	
15,800.0	6,662.4	15,686.5	6,743.1	257.5	253.6	101.99	63.9	8,999.8	383.6	-117.5	501.16	0.765	Level 1	
15,900.0	6,661.7	15,786.5	6,742.4	260.3	256.4	101.98	63.9	9,099.8	383.6	-123.1	506.67	0.757	Level 1	
16,000.0	6,661.0	15,886.5	6,741.6	263.1	259.2	101.97	63.9	9,199.8	383.6	-128.6	512.19	0.749	Level 1	
16,100.0	6,660.4	15,986.5	6,740.8	265.9	262.0	101.95	63.9	9,299.8	383.6	-134.2	517.71	0.741	Level 1	
16,200.0	6,659.7	16,086.5	6,740.0	268.7	264.8	101.94	63.9	9,399.8	383.5	-139.7	523.23	0.733	Level 1	
16,300.0	6,659.0	16,186.5	6,739.2	271.5	267.6	101.93	63.9	9,499.7	383.5	-145.2	528.75	0.725	Level 1	
16,400.0	6,658.3	16,286.5	6,738.4	274.3	270.4	101.91	63.9	9,599.7	383.5	-150.8	534.27	0.718	Level 1	
16,500.0	6,657.6	16,386.5	6,737.6	277.2	273.2	101.90	63.9	9,699.7	383.5	-156.3	539.80	0.710	Level 1	
16,579.9	6,657.0	16,466.5	6,737.0	279.4	275.5	101.89	63.9	9,779.7	383.5	-160.7	544.21	0.705	Level 1, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4667.0ft (RKB - 15')

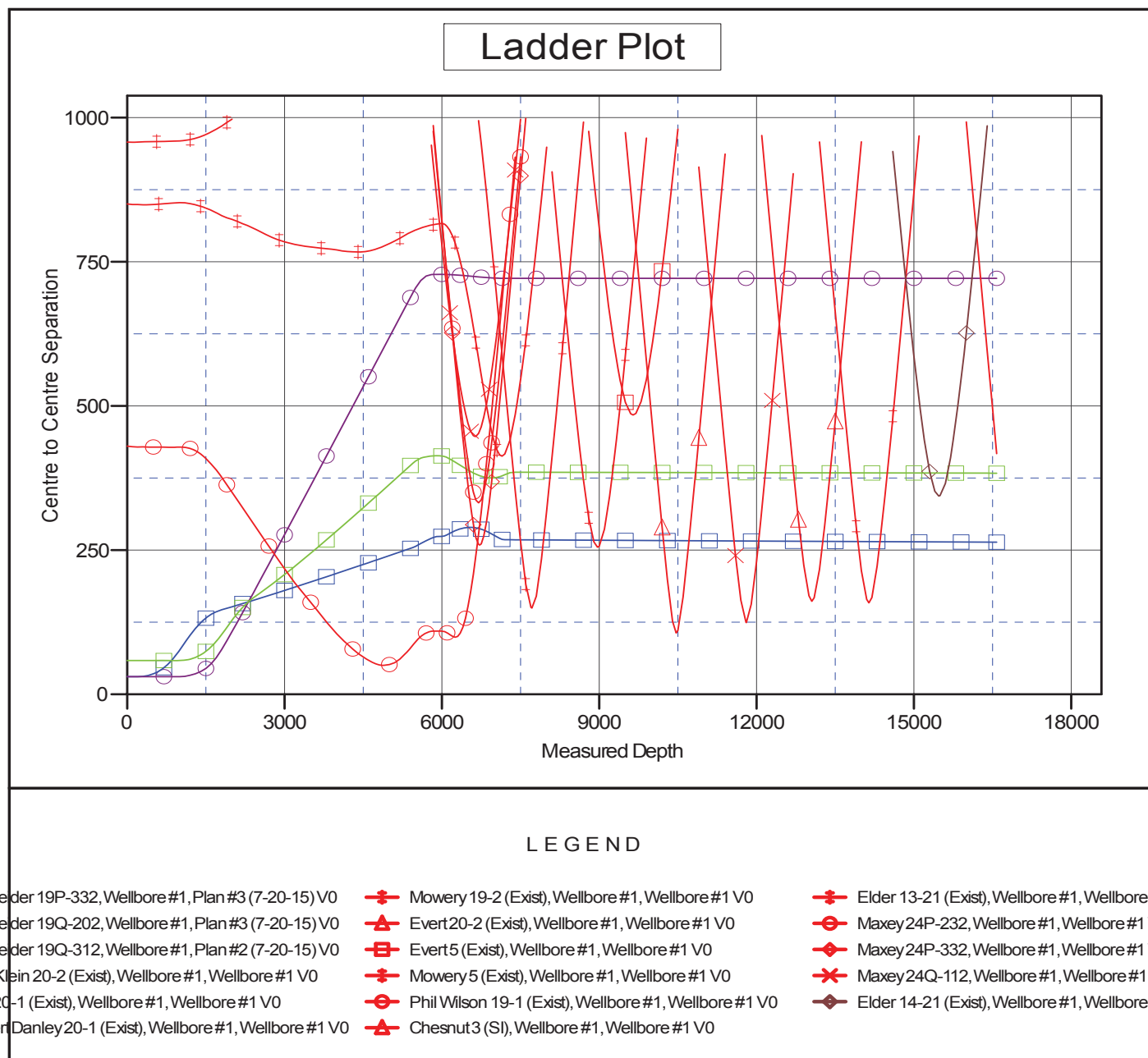
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Schneider 19P-232

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.59°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19P-232
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4667.0ft (RKB - 15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4667.0ft (RKB - 15')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Schneider 19P-232	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #3 (7-20-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4667.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Schneider 19P-232

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.59°

