

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Schneider 19Q-312**

Surface Location: Schneider 19Q-HZ Pad Sec.19-T5N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

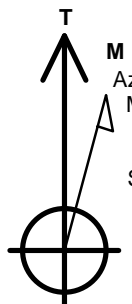
Ground Elevation: 4653.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1382010.47	3253857.66	40.378440	-104.588790	

RKB -15' WELL @ 4668.0ft (RKB -15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 409'FSL, 1547'FEL, SEC.19	1.0	0.0	0.0	Point
BHL 405'FSL, 500'FEL, SEC.20	6725.0	70.0	6324.4	Point



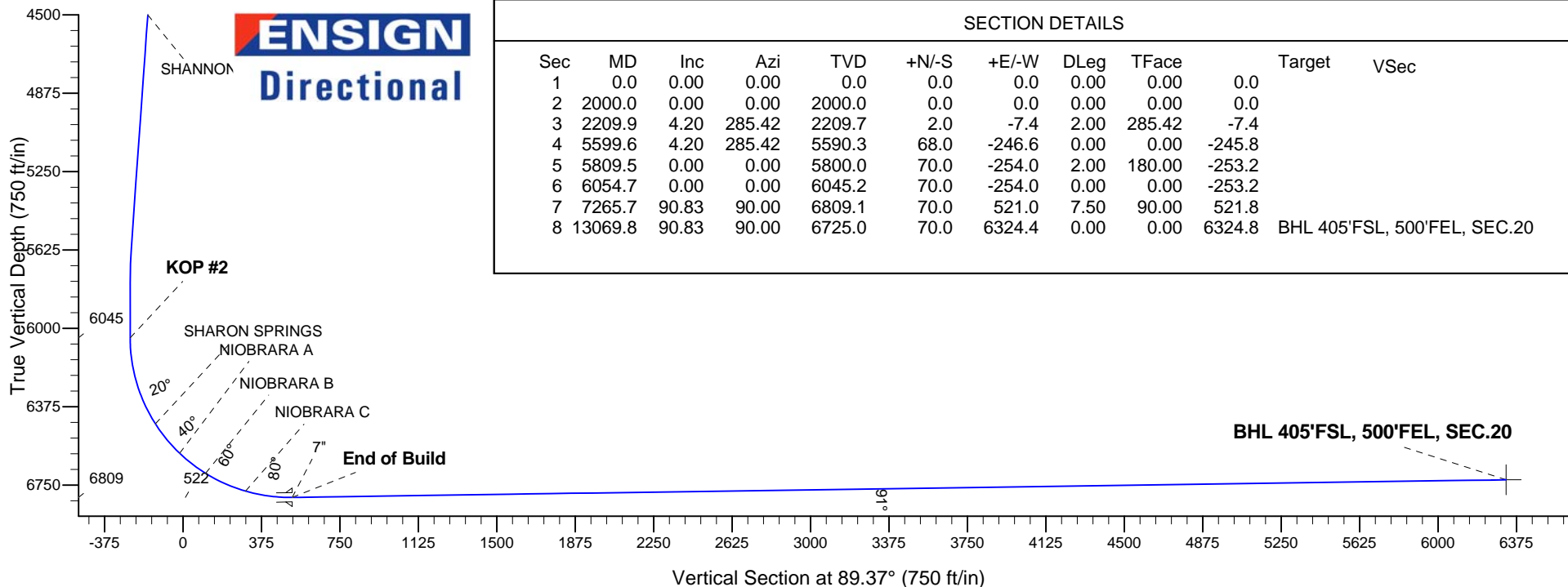
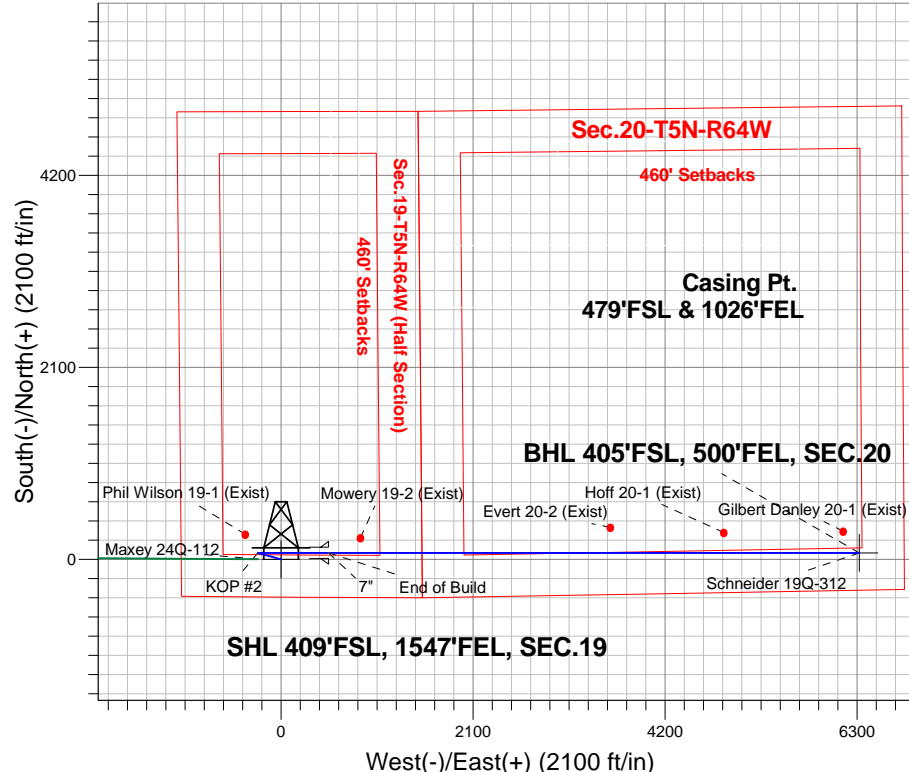
Azimuths to True North
Magnetic North: 8.41°

Magnetic Field
Strength: 52856.9snT
Dip Angle: 66.97°
Date: 2/20/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
2000.0	2000.0	KOP #1
6045.2	6054.7	KOP #2
6809.1	7265.7	End of Build

Schneider 19Q-HZ Pad Sec.19-T5N-R64W
Schneider 19Q-312
Plan #1 (2-18-14)
12:06, February 21 2014





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

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

Schneider 19Q-312

Wellbore #1

Plan: Plan #1 (2-18-14)

Standard Planning Report

21 February, 2014

Database:	Landmark	Local Co-ordinate Reference:	Well Schneider 19Q-312
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-18-14)		

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

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

Well	Schneider 19Q-312					
Well Position	+N-S	0.0 ft	Northing:	1,382,010.47 ft	Latitude:	40.378440
	+E-W	58.5 ft	Easting:	3,253,857.66 ft	Longitude:	-104.588790
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,653.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/20/2014	8.41	66.97	52,857

Design	Plan #1 (2-18-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	89.37

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,209.9	4.20	285.42	2,209.7	2.0	-7.4	2.00	2.00	0.00	285.42	
5,599.6	4.20	285.42	5,590.3	68.0	-246.6	0.00	0.00	0.00	0.00	
5,809.5	0.00	0.00	5,800.0	70.0	-254.0	2.00	-2.00	0.00	180.00	
6,054.7	0.00	0.00	6,045.2	70.0	-254.0	0.00	0.00	0.00	0.00	
7,265.7	90.83	90.00	6,809.1	70.0	521.0	7.50	7.50	0.00	90.00	
13,069.8	90.83	90.00	6,725.0	70.0	6,324.4	0.00	0.00	0.00	0.00	BHL 405'FSL, 500'

Database:	Landmark	Local Co-ordinate Reference:	Well Schneider 19Q-312
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-18-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 409'FSL, 1547'FEL, SEC.19 - SHL 409'FSL, 1577'FEL, SEC.19									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
2,100.0	2.00	285.42	2,100.0	0.5	-1.7	-1.7	2.00	2.00	0.00
2,200.0	4.00	285.42	2,199.8	1.9	-6.7	-6.7	2.00	2.00	0.00
2,209.9	4.20	285.42	2,209.7	2.0	-7.4	-7.4	2.00	2.00	0.00
2,300.0	4.20	285.42	2,299.6	3.8	-13.8	-13.7	0.00	0.00	0.00
2,400.0	4.20	285.42	2,399.3	5.7	-20.8	-20.8	0.00	0.00	0.00
2,500.0	4.20	285.42	2,499.0	7.7	-27.9	-27.8	0.00	0.00	0.00
2,600.0	4.20	285.42	2,598.8	9.6	-34.9	-34.8	0.00	0.00	0.00
2,700.0	4.20	285.42	2,698.5	11.6	-42.0	-41.9	0.00	0.00	0.00
2,800.0	4.20	285.42	2,798.2	13.5	-49.0	-48.9	0.00	0.00	0.00
2,900.0	4.20	285.42	2,898.0	15.5	-56.1	-55.9	0.00	0.00	0.00
3,000.0	4.20	285.42	2,997.7	17.4	-63.2	-63.0	0.00	0.00	0.00
3,100.0	4.20	285.42	3,097.4	19.4	-70.2	-70.0	0.00	0.00	0.00
3,200.0	4.20	285.42	3,197.2	21.3	-77.3	-77.0	0.00	0.00	0.00
3,300.0	4.20	285.42	3,296.9	23.3	-84.3	-84.1	0.00	0.00	0.00
3,400.0	4.20	285.42	3,396.6	25.2	-91.4	-91.1	0.00	0.00	0.00
3,500.0	4.20	285.42	3,496.4	27.1	-98.4	-98.1	0.00	0.00	0.00
3,518.7	4.20	285.42	3,515.0	27.5	-99.8	-99.4	0.00	0.00	0.00
PARKMAN									
3,600.0	4.20	285.42	3,596.1	29.1	-105.5	-105.2	0.00	0.00	0.00
3,700.0	4.20	285.42	3,695.8	31.0	-112.6	-112.2	0.00	0.00	0.00
3,800.0	4.20	285.42	3,795.5	33.0	-119.6	-119.2	0.00	0.00	0.00
3,900.0	4.20	285.42	3,895.3	34.9	-126.7	-126.3	0.00	0.00	0.00
4,000.0	4.20	285.42	3,995.0	36.9	-133.7	-133.3	0.00	0.00	0.00
4,100.0	4.20	285.42	4,094.7	38.8	-140.8	-140.3	0.00	0.00	0.00
4,200.0	4.20	285.42	4,194.5	40.8	-147.8	-147.4	0.00	0.00	0.00
4,300.0	4.20	285.42	4,294.2	42.7	-154.9	-154.4	0.00	0.00	0.00
4,317.8	4.20	285.42	4,312.0	43.1	-156.1	-155.7	0.00	0.00	0.00
SUSSEX									
4,400.0	4.20	285.42	4,393.9	44.7	-161.9	-161.4	0.00	0.00	0.00

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Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-18-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	4.20	285.42	4,493.7	46.6	-169.0	-168.5	0.00	0.00	0.00
4,506.3	4.20	285.42	4,500.0	46.7	-169.5	-168.9	0.00	0.00	0.00
SHANNON									
4,600.0	4.20	285.42	4,593.4	48.6	-176.1	-175.5	0.00	0.00	0.00
4,700.0	4.20	285.42	4,693.1	50.5	-183.1	-182.5	0.00	0.00	0.00
4,800.0	4.20	285.42	4,792.9	52.4	-190.2	-189.6	0.00	0.00	0.00
4,900.0	4.20	285.42	4,892.6	54.4	-197.2	-196.6	0.00	0.00	0.00
5,000.0	4.20	285.42	4,992.3	56.3	-204.3	-203.6	0.00	0.00	0.00
5,100.0	4.20	285.42	5,092.1	58.3	-211.3	-210.7	0.00	0.00	0.00
5,200.0	4.20	285.42	5,191.8	60.2	-218.4	-217.7	0.00	0.00	0.00
5,300.0	4.20	285.42	5,291.5	62.2	-225.5	-224.8	0.00	0.00	0.00
5,400.0	4.20	285.42	5,391.3	64.1	-232.5	-231.8	0.00	0.00	0.00
5,500.0	4.20	285.42	5,491.0	66.1	-239.6	-238.8	0.00	0.00	0.00
5,599.6	4.20	285.42	5,590.3	68.0	-246.6	-245.8	0.00	0.00	0.00
5,600.0	4.19	285.42	5,590.7	68.0	-246.6	-245.9	2.00	-2.00	0.00
5,700.0	2.19	285.42	5,690.6	69.5	-252.0	-251.2	2.00	-2.00	0.00
5,800.0	0.19	285.42	5,790.5	70.0	-254.0	-253.2	2.00	-2.00	0.00
5,809.5	0.00	0.00	5,800.0	70.0	-254.0	-253.2	2.00	-2.00	0.00
5,900.0	0.00	0.00	5,890.5	70.0	-254.0	-253.2	0.00	0.00	0.00
6,000.0	0.00	0.00	5,990.5	70.0	-254.0	-253.2	0.00	0.00	0.00
6,054.7	0.00	0.00	6,045.2	70.0	-254.0	-253.2	0.00	0.00	0.00
KOP #2									
6,100.0	3.40	90.00	6,090.5	70.0	-252.7	-251.9	7.50	7.50	0.00
6,200.0	10.90	90.00	6,189.7	70.0	-240.2	-239.4	7.50	7.50	0.00
6,300.0	18.40	90.00	6,286.3	70.0	-214.9	-214.2	7.50	7.50	0.00
6,400.0	25.90	90.00	6,378.9	70.0	-177.3	-176.5	7.50	7.50	0.00
6,489.6	32.62	90.00	6,457.0	70.0	-133.5	-132.7	7.50	7.50	0.00
SHARON SPRINGS									
6,500.0	33.40	90.00	6,465.7	70.0	-127.8	-127.1	7.50	7.50	0.00
6,600.0	40.90	90.00	6,545.4	70.0	-67.5	-66.7	7.50	7.50	0.00
6,672.7	46.35	90.00	6,598.0	70.0	-17.3	-16.6	7.50	7.50	0.00
NIOBRARA A									
6,700.0	48.40	90.00	6,616.5	70.0	2.7	3.5	7.50	7.50	0.00
6,800.0	55.90	90.00	6,677.8	70.0	81.6	82.4	7.50	7.50	0.00
6,829.8	58.13	90.00	6,694.0	70.0	106.6	107.4	7.50	7.50	0.00
NIOBRARA B									
6,900.0	63.40	90.00	6,728.3	70.0	167.9	168.6	7.50	7.50	0.00
7,000.0	70.90	90.00	6,767.1	70.0	260.0	260.7	7.50	7.50	0.00
7,039.3	73.85	90.00	6,779.0	70.0	297.4	298.2	7.50	7.50	0.00
NIOBRARA C									
7,100.0	78.40	90.00	6,793.5	70.0	356.3	357.1	7.50	7.50	0.00
7,200.0	85.90	90.00	6,807.2	70.0	455.3	456.1	7.50	7.50	0.00
7,265.7	90.83	90.00	6,809.1	70.0	521.0	521.7	7.50	7.50	0.00
End of Build - 7"									
7,300.0	90.83	90.00	6,808.6	70.0	555.3	556.0	0.01	0.01	0.00
7,400.0	90.83	90.00	6,807.1	70.0	655.2	656.0	0.00	0.00	0.00
7,500.0	90.83	90.00	6,805.7	70.0	755.2	756.0	0.00	0.00	0.00
7,600.0	90.83	90.00	6,804.2	70.0	855.2	856.0	0.00	0.00	0.00
7,700.0	90.83	90.00	6,802.8	70.0	955.2	955.9	0.00	0.00	0.00
7,800.0	90.83	90.00	6,801.3	70.0	1,055.2	1,055.9	0.00	0.00	0.00
7,900.0	90.83	90.00	6,799.9	70.0	1,155.2	1,155.9	0.00	0.00	0.00
8,000.0	90.83	90.00	6,798.4	70.0	1,255.2	1,255.9	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Schneider 19Q-312
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Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-18-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,100.0	90.83	90.00	6,797.0	70.0	1,355.2	1,355.9	0.00	0.00	0.00
8,200.0	90.83	90.00	6,795.5	70.0	1,455.2	1,455.9	0.00	0.00	0.00
8,300.0	90.83	90.00	6,794.1	70.0	1,555.2	1,555.8	0.00	0.00	0.00
8,400.0	90.83	90.00	6,792.6	70.0	1,655.1	1,655.8	0.00	0.00	0.00
8,500.0	90.83	90.00	6,791.2	70.0	1,755.1	1,755.8	0.00	0.00	0.00
8,600.0	90.83	90.00	6,789.7	70.0	1,855.1	1,855.8	0.00	0.00	0.00
8,700.0	90.83	90.00	6,788.3	70.0	1,955.1	1,955.8	0.00	0.00	0.00
8,800.0	90.83	90.00	6,786.9	70.0	2,055.1	2,055.8	0.00	0.00	0.00
8,900.0	90.83	90.00	6,785.4	70.0	2,155.1	2,155.7	0.00	0.00	0.00
9,000.0	90.83	90.00	6,784.0	70.0	2,255.1	2,255.7	0.00	0.00	0.00
9,100.0	90.83	90.00	6,782.5	70.0	2,355.1	2,355.7	0.00	0.00	0.00
9,200.0	90.83	90.00	6,781.1	70.0	2,455.1	2,455.7	0.00	0.00	0.00
9,300.0	90.83	90.00	6,779.6	70.0	2,555.1	2,555.7	0.00	0.00	0.00
9,400.0	90.83	90.00	6,778.2	70.0	2,655.0	2,655.7	0.00	0.00	0.00
9,500.0	90.83	90.00	6,776.7	70.0	2,755.0	2,755.6	0.00	0.00	0.00
9,600.0	90.83	90.00	6,775.3	70.0	2,855.0	2,855.6	0.00	0.00	0.00
9,700.0	90.83	90.00	6,773.8	70.0	2,955.0	2,955.6	0.00	0.00	0.00
9,800.0	90.83	90.00	6,772.4	70.0	3,055.0	3,055.6	0.00	0.00	0.00
9,900.0	90.83	90.00	6,770.9	70.0	3,155.0	3,155.6	0.00	0.00	0.00
10,000.0	90.83	90.00	6,769.5	70.0	3,255.0	3,255.6	0.00	0.00	0.00
10,100.0	90.83	90.00	6,768.0	70.0	3,355.0	3,355.5	0.00	0.00	0.00
10,200.0	90.83	90.00	6,766.6	70.0	3,455.0	3,455.5	0.00	0.00	0.00
10,300.0	90.83	90.00	6,765.1	70.0	3,554.9	3,555.5	0.00	0.00	0.00
10,400.0	90.83	90.00	6,763.7	70.0	3,654.9	3,655.5	0.00	0.00	0.00
10,500.0	90.83	90.00	6,762.2	70.0	3,754.9	3,755.5	0.00	0.00	0.00
10,600.0	90.83	90.00	6,760.8	70.0	3,854.9	3,855.5	0.00	0.00	0.00
10,700.0	90.83	90.00	6,759.3	70.0	3,954.9	3,955.4	0.00	0.00	0.00
10,800.0	90.83	90.00	6,757.9	70.0	4,054.9	4,055.4	0.00	0.00	0.00
10,900.0	90.83	90.00	6,756.4	70.0	4,154.9	4,155.4	0.00	0.00	0.00
11,000.0	90.83	90.00	6,755.0	70.0	4,254.9	4,255.4	0.00	0.00	0.00
11,100.0	90.83	90.00	6,753.5	70.0	4,354.9	4,355.4	0.00	0.00	0.00
11,200.0	90.83	90.00	6,752.1	70.0	4,454.9	4,455.4	0.00	0.00	0.00
11,300.0	90.83	90.00	6,750.6	70.0	4,554.8	4,555.3	0.00	0.00	0.00
11,400.0	90.83	90.00	6,749.2	70.0	4,654.8	4,655.3	0.00	0.00	0.00
11,500.0	90.83	90.00	6,747.7	70.0	4,754.8	4,755.3	0.00	0.00	0.00
11,600.0	90.83	90.00	6,746.3	70.0	4,854.8	4,855.3	0.00	0.00	0.00
11,700.0	90.83	90.00	6,744.8	70.0	4,954.8	4,955.3	0.00	0.00	0.00
11,800.0	90.83	90.00	6,743.4	70.0	5,054.8	5,055.3	0.00	0.00	0.00
11,900.0	90.83	90.00	6,741.9	70.0	5,154.8	5,155.2	0.00	0.00	0.00
12,000.0	90.83	90.00	6,740.5	70.0	5,254.8	5,255.2	0.00	0.00	0.00
12,100.0	90.83	90.00	6,739.0	70.0	5,354.8	5,355.2	0.00	0.00	0.00
12,200.0	90.83	90.00	6,737.6	70.0	5,454.7	5,455.2	0.00	0.00	0.00
12,300.0	90.83	90.00	6,736.2	70.0	5,554.7	5,555.2	0.00	0.00	0.00
12,400.0	90.83	90.00	6,734.7	70.0	5,654.7	5,655.2	0.00	0.00	0.00
12,500.0	90.83	90.00	6,733.3	70.0	5,754.7	5,755.1	0.00	0.00	0.00
12,600.0	90.83	90.00	6,731.8	70.0	5,854.7	5,855.1	0.00	0.00	0.00
12,700.0	90.83	90.00	6,730.4	70.0	5,954.7	5,955.1	0.00	0.00	0.00
12,800.0	90.83	90.00	6,728.9	70.0	6,054.7	6,055.1	0.00	0.00	0.00
12,900.0	90.83	90.00	6,727.5	70.0	6,154.7	6,155.1	0.00	0.00	0.00
13,000.0	90.83	90.00	6,726.0	70.0	6,254.7	6,255.1	0.00	0.00	0.00
13,069.8	90.83	90.00	6,725.0	70.0	6,324.4	6,324.8	0.00	0.00	0.00

BHL 405'FSL, 500'FEL, SEC.20

Database:	Landmark	Local Co-ordinate Reference:	Well Schneider 19Q-312
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Project:	SEC.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	North Reference:	True
Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (2-18-14)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,265.7	6,809.1	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,518.7	3,515.0	PARKMAN			
4,317.8	4,312.0	SUSSEX			
4,506.3	4,500.0	SHANNON			
6,489.6	6,457.0	SHARON SPRINGS			
6,672.7	6,598.0	NIOBRARA A			
6,829.8	6,694.0	NIOBRARA B			
7,039.3	6,779.0	NIOBRARA C			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,000.0	2,000.0	0.0	0.0	KOP #1
6,054.7	6,045.2	70.0	-254.0	KOP #2
7,265.7	6,809.1	70.0	521.0	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

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

Schneider 19Q-312

Wellbore #1

Plan #1 (2-18-14)

Anticollision Report

21 February, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (2-18-14)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	2/20/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	13,069.8	Plan #1 (2-18-14) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Maxey 24Q-HZ Pad Sec.24-T5N-R65W						
Maxey 24Q-112 - Wellbore #1 - Plan #3 (1-22-14)	6,547.7	12,335.0	200.4	124.9	2.654	CC, ES, SF
Schneider 19Q-HZ Pad (Existing) Sec.19-T5N-R64W						
Evert 20-2 (Exist) - Wellbore #1 - Wellbore #1	10,347.5	6,755.4	280.0	40.6	1.170	Level 2, CC, ES, SF
Gilbert Danley 20-1 (Exist) - Wellbore #1 - Wellbore #1	12,894.2	6,714.5	236.7	-72.8	0.765	Level 1, CC
Gilbert Danley 20-1 (Exist) - Wellbore #1 - Wellbore #1	12,900.0	6,714.5	236.8	-72.9	0.765	Level 1, ES, SF
Hoff 20-1 (Exist) - Wellbore #1 - Wellbore #1	11,587.4	6,751.5	221.9	-51.9	0.810	Level 1, CC, ES, SF
Mowery 19-2 (Exist) - Wellbore #1 - Wellbore #1	7,614.0	6,789.0	166.8	0.3	1.002	Level 2, CC, ES, SF
Phil Wilson 19-1 (Exist) - Wellbore #1 - Wellbore #1	5,841.8	5,805.4	244.5	115.2	1.891	CC
Phil Wilson 19-1 (Exist) - Wellbore #1 - Wellbore #1	6,100.0	6,063.5	245.3	110.4	1.818	ES, SF
Schneider 19Q-HZ Pad Sec.19-T5N-R64W						
Schneider 19P-232 - Wellbore #1 - Plan #1 (2-18-14)	200.0	199.0	89.2	88.5	132.662	CC, ES
Schneider 19P-232 - Wellbore #1 - Plan #1 (2-18-14)	13,069.8	13,263.2	615.9	251.0	1.688	SF
Schneider 19P-432 - Wellbore #1 - Plan #1 (2-18-14)	1,000.0	999.0	58.5	54.2	13.708	CC, ES
Schneider 19P-432 - Wellbore #1 - Plan #1 (2-18-14)	13,069.8	13,298.5	401.3	55.3	1.160	Level 2, SF
Schneider 19Q-402 - Wellbore #1 - Plan #1 (2-18-14)	1,200.0	1,200.0	27.9	22.7	5.389	CC
Schneider 19Q-402 - Wellbore #1 - Plan #1 (2-18-14)	13,069.8	13,230.7	355.7	16.5	1.049	Level 2, ES, SF

Offset Design Maxey 24Q-HZ Pad Sec.24-T5N-R65W - Maxey 24Q-112 - Wellbore #1 - Plan #3 (1-22-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation		Separation Factor
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
5,700.0	5,690.6	12,335.0	6,600.0	13.4	165.3	-129.96	1.5	-250.8	929.9	766.5	163.43	5.690	
5,800.0	5,790.5	12,335.0	6,600.0	13.6	165.3	-110.25	1.5	-250.8	830.3	652.1	178.18	4.660	
5,900.0	5,890.5	12,335.0	6,600.0	13.7	165.3	177.29	1.5	-250.8	730.7	700.3	30.38	24.050	
6,000.0	5,990.5	12,335.0	6,600.0	13.9	165.3	177.29	1.5	-250.8	631.2	600.6	30.60	20.631	
6,100.0	6,090.5	12,335.0	6,600.0	14.1	165.3	113.19	1.5	-250.8	531.9	365.6	166.33	3.198	
6,200.0	6,189.7	12,335.0	6,600.0	14.3	165.3	143.10	1.5	-250.8	433.9	319.6	114.35	3.795	
6,300.0	6,286.3	12,335.0	6,600.0	14.3	165.3	153.68	1.5	-250.8	340.6	251.2	89.34	3.812	
6,400.0	6,378.9	12,335.0	6,600.0	14.4	165.3	158.09	1.5	-250.8	259.4	180.5	78.93	3.286	
6,500.0	6,465.7	12,335.0	6,600.0	14.5	165.3	159.80	1.5	-250.8	207.4	131.8	75.52	2.746	
6,547.7	6,504.7	12,335.0	6,600.0	14.6	165.3	159.98	1.5	-250.8	200.4	124.9	75.50	2.654	CC, ES, SF

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 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Maxey 24Q-HZ Pad Sec.24-T5N-R65W - Maxey 24Q-112 - Wellbore #1 - Plan #3 (1-22-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
6,600.0	6,545.4	12,335.0	6,600.0	14.7	165.3	159.76	1.5	-250.8	208.7	132.2	76.50	2.728		
6,700.0	6,616.5	12,335.0	6,600.0	15.1	165.3	157.96	1.5	-250.8	262.6	181.0	81.58	3.219		
6,800.0	6,677.8	12,335.0	6,600.0	15.8	165.3	153.38	1.5	-250.8	344.6	251.6	93.01	3.705		
6,900.0	6,728.3	12,335.0	6,600.0	16.7	165.3	142.33	1.5	-250.8	438.3	319.5	118.82	3.689		
7,000.0	6,767.1	12,335.0	6,600.0	18.1	165.3	110.93	1.5	-250.8	536.4	363.9	172.50	3.110		
7,100.0	6,793.5	12,335.0	6,600.0	19.7	165.3	53.97	1.5	-250.8	635.7	483.5	152.21	4.176		
7,200.0	6,807.2	12,335.0	6,600.0	21.5	165.3	26.39	1.5	-250.8	734.2	639.6	94.62	7.759		
7,300.0	6,808.6	12,335.0	6,600.0	23.5	165.3	18.74	1.5	-250.8	831.1	753.3	77.73	10.691		
7,400.0	6,807.1	12,335.0	6,600.0	25.7	165.3	18.74	1.5	-250.8	928.1	849.6	78.51	11.821		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	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: 7025-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
9,400.0	6,778.2	6,769.2	6,769.2	78.1	135.4	-92.81	350.0	3,602.4	987.8	774.7	213.17	4.634	
9,500.0	6,776.7	6,767.7	6,767.7	80.8	135.4	-92.51	350.0	3,602.4	892.4	676.5	215.95	4.133	
9,600.0	6,775.3	6,766.3	6,766.3	83.6	135.3	-92.21	350.0	3,602.4	798.1	579.4	218.72	3.649	
9,700.0	6,773.8	6,764.8	6,764.8	86.3	135.3	-91.92	350.0	3,602.4	705.3	483.8	221.49	3.184	
9,800.0	6,772.4	6,763.4	6,763.4	89.1	135.3	-91.62	350.0	3,602.4	614.8	390.6	224.26	2.742	
9,900.0	6,770.9	6,761.9	6,761.9	91.9	135.2	-91.33	350.0	3,602.4	527.8	300.8	227.02	2.325	
10,000.0	6,769.5	6,760.5	6,760.5	94.6	135.2	-91.03	350.0	3,602.4	446.2	216.4	229.79	1.942	
10,100.0	6,768.0	6,759.0	6,759.0	97.4	135.2	-90.73	350.0	3,602.4	373.6	141.1	232.55	1.607	
10,200.0	6,766.6	6,757.6	6,757.6	100.2	135.2	-90.44	350.0	3,602.4	316.4	81.1	235.30	1.345	Level 3
10,300.0	6,765.1	6,756.1	6,756.1	102.9	135.1	-90.14	350.0	3,602.4	284.0	45.9	238.06	1.193	Level 2
10,347.5	6,764.4	6,755.4	6,755.4	104.3	135.1	-90.00	350.0	3,602.4	280.0	40.6	239.36	1.170	Level 2, CC, ES, SF
10,400.0	6,763.7	6,754.7	6,754.7	105.7	135.1	-89.84	350.0	3,602.4	284.9	44.0	240.81	1.183	Level 2
10,500.0	6,762.2	6,753.2	6,753.2	108.5	135.1	-89.55	350.0	3,602.4	318.8	75.3	243.55	1.309	Level 3
10,600.0	6,760.8	6,751.8	6,751.8	111.3	135.0	-89.25	350.0	3,602.4	377.0	130.7	246.29	1.531	
10,700.0	6,759.3	6,750.3	6,750.3	114.1	135.0	-88.96	350.0	3,602.4	450.2	201.1	249.02	1.808	
10,800.0	6,757.9	6,748.9	6,748.9	116.8	135.0	-88.66	350.0	3,602.4	532.1	280.4	251.75	2.114	
10,900.0	6,756.4	6,747.4	6,747.4	119.6	134.9	-88.36	350.0	3,602.4	619.4	364.9	254.48	2.434	
11,000.0	6,755.0	6,746.0	6,746.0	122.4	134.9	-88.07	350.0	3,602.4	710.0	452.8	257.19	2.761	
11,100.0	6,753.5	6,744.5	6,744.5	125.2	134.9	-87.77	350.0	3,602.4	802.9	543.0	259.90	3.089	
11,200.0	6,752.1	6,743.1	6,743.1	128.0	134.9	-87.47	350.0	3,602.4	897.3	634.7	262.61	3.417	
11,300.0	6,750.6	6,741.6	6,741.6	130.8	134.8	-87.18	350.0	3,602.4	992.7	727.4	265.30	3.742	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	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: 6971-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
12,000.0	6,740.5	6,727.5	6,727.5	150.3	134.5	-93.13	306.8	6,148.9	924.9	640.5	284.41	3.252		
12,100.0	6,739.0	6,726.0	6,726.0	153.1	134.5	-92.78	306.8	6,148.9	828.6	541.4	287.26	2.885		
12,200.0	6,737.6	6,724.6	6,724.6	155.9	134.5	-92.43	306.8	6,148.9	733.4	443.3	290.10	2.528		
12,300.0	6,736.2	6,723.2	6,723.2	158.7	134.5	-92.08	306.8	6,148.9	639.6	346.6	292.93	2.183		
12,400.0	6,734.7	6,721.7	6,721.7	161.5	134.4	-91.73	306.8	6,148.9	547.9	252.2	295.76	1.853		
12,500.0	6,733.3	6,720.3	6,720.3	164.3	134.4	-91.38	306.8	6,148.9	459.8	161.2	298.57	1.540		
12,600.0	6,731.8	6,718.8	6,718.8	167.1	134.4	-91.03	306.8	6,148.9	377.6	76.2	301.38	1.253	Level 3	
12,700.0	6,730.4	6,717.4	6,717.4	169.9	134.3	-90.68	306.8	6,148.9	306.2	2.0	304.17	1.007	Level 2	
12,800.0	6,728.9	6,715.9	6,715.9	172.7	134.3	-90.33	306.8	6,148.9	254.8	-52.2	306.96	0.830	Level 1	
12,894.2	6,727.5	6,714.5	6,714.5	175.3	134.3	-90.00	306.8	6,148.9	236.7	-72.8	309.58	0.765	Level 1, CC	
12,900.0	6,727.5	6,714.5	6,714.5	175.4	134.3	-89.98	306.8	6,148.9	236.8	-72.9	309.74	0.765	Level 1, ES, SF	
13,000.0	6,726.0	6,713.0	6,713.0	178.2	134.3	-89.63	306.8	6,148.9	259.3	-53.2	312.50	0.830	Level 1	
13,069.8	6,725.0	6,712.0	6,712.0	180.2	134.2	-89.38	306.8	6,148.9	294.8	-19.7	314.42	0.937	Level 1	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	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: 7010-UNKNOWN												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,700.0	6,759.3	6,764.3	6,764.3	114.1	135.3	-93.32	291.9	4,842.2	914.6	665.7	248.91	3.674	
10,800.0	6,757.9	6,762.9	6,762.9	116.8	135.3	-92.94	291.9	4,842.2	818.0	566.2	251.75	3.249	
10,900.0	6,756.4	6,761.4	6,761.4	119.6	135.2	-92.57	291.9	4,842.2	722.2	467.7	254.58	2.837	
11,000.0	6,755.0	6,760.0	6,760.0	122.4	135.2	-92.20	291.9	4,842.2	627.8	370.4	257.40	2.439	
11,100.0	6,753.5	6,758.5	6,758.5	125.2	135.2	-91.82	291.9	4,842.2	535.5	275.3	260.22	2.058	
11,200.0	6,752.1	6,757.1	6,757.1	128.0	135.1	-91.45	291.9	4,842.2	446.4	183.4	263.02	1.697	
11,300.0	6,750.6	6,755.6	6,755.6	130.8	135.1	-91.07	291.9	4,842.2	363.1	97.2	265.82	1.366	Level 3
11,400.0	6,749.2	6,754.2	6,754.2	133.5	135.1	-90.70	291.9	4,842.2	290.4	21.8	268.61	1.081	Level 2
11,500.0	6,747.7	6,752.7	6,752.7	136.3	135.1	-90.33	291.9	4,842.2	238.5	-32.9	271.38	0.879	Level 1
11,587.4	6,746.5	6,751.5	6,751.5	138.8	135.0	-90.00	291.9	4,842.2	221.9	-51.9	273.80	0.810	Level 1, CC, ES, SF
11,600.0	6,746.3	6,751.3	6,751.3	139.1	135.0	-89.95	291.9	4,842.2	222.2	-51.9	274.15	0.811	Level 1
11,700.0	6,744.8	6,749.8	6,749.8	141.9	135.0	-89.58	291.9	4,842.2	248.8	-28.1	276.91	0.899	Level 1
11,800.0	6,743.4	6,748.4	6,748.4	144.7	135.0	-89.20	291.9	4,842.2	307.3	27.6	279.66	1.099	Level 2
11,900.0	6,741.9	6,746.9	6,746.9	147.5	134.9	-88.83	291.9	4,842.2	383.3	100.9	282.39	1.357	Level 3
12,000.0	6,740.5	6,745.5	6,745.5	150.3	134.9	-88.46	291.9	4,842.2	468.5	183.3	285.12	1.643	
12,100.0	6,739.0	6,744.0	6,744.0	153.1	134.9	-88.08	291.9	4,842.2	558.5	270.7	287.83	1.940	
12,200.0	6,737.6	6,742.6	6,742.6	155.9	134.9	-87.71	291.9	4,842.2	651.5	361.0	290.53	2.242	
12,300.0	6,736.2	6,741.2	6,741.2	158.7	134.8	-87.34	291.9	4,842.2	746.3	453.1	293.21	2.545	
12,400.0	6,734.7	6,739.7	6,739.7	161.5	134.8	-86.96	291.9	4,842.2	842.3	546.4	295.89	2.847	
12,500.0	6,733.3	6,738.3	6,738.3	164.3	134.8	-86.59	291.9	4,842.2	939.1	640.6	298.55	3.146	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	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: 7035-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance		Between Centres		Between Ellipses	Minimum Separation	Separation Factor	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)						
0.0	0.0	0.0	0.0	0.0	0.0	74.76	236.8	869.3	901.1					
100.0	100.0	85.0	85.0	0.1	1.7	74.76	236.8	869.3	900.9	899.1	1.81	497.049		
200.0	200.0	185.0	185.0	0.3	3.7	74.76	236.8	869.3	900.9	896.9	4.04	223.152		
300.0	300.0	285.0	285.0	0.6	5.7	74.76	236.8	869.3	900.9	894.7	6.26	143.872		
400.0	400.0	385.0	385.0	0.8	7.7	74.76	236.8	869.3	900.9	892.5	8.49	106.157		
500.0	500.0	485.0	485.0	1.0	9.7	74.76	236.8	869.3	900.9	890.2	10.71	84.109		
600.0	600.0	585.0	585.0	1.2	11.7	74.76	236.8	869.3	900.9	888.0	12.94	69.644		
700.0	700.0	685.0	685.0	1.5	13.7	74.76	236.8	869.3	900.9	885.8	15.16	59.424		
800.0	800.0	785.0	785.0	1.7	15.7	74.76	236.8	869.3	900.9	883.6	17.39	51.820		
900.0	900.0	885.0	885.0	1.9	17.7	74.76	236.8	869.3	900.9	881.3	19.61	45.941		
1,000.0	1,000.0	985.0	985.0	2.1	19.7	74.76	236.8	869.3	900.9	879.1	21.84	41.260		
1,100.0	1,100.0	1,085.0	1,085.0	2.4	21.7	74.76	236.8	869.3	900.9	876.9	24.06	37.445		
1,200.0	1,200.0	1,185.0	1,185.0	2.6	23.7	74.76	236.8	869.3	900.9	874.7	26.28	34.276		
1,300.0	1,300.0	1,285.0	1,285.0	2.8	25.7	74.76	236.8	869.3	900.9	872.4	28.51	31.601		
1,400.0	1,400.0	1,385.0	1,385.0	3.0	27.7	74.76	236.8	869.3	900.9	870.2	30.73	29.314		
1,500.0	1,500.0	1,485.0	1,485.0	3.3	29.7	74.76	236.8	869.3	900.9	868.0	32.96	27.335		
1,600.0	1,600.0	1,585.0	1,585.0	3.5	31.7	74.76	236.8	869.3	900.9	865.8	35.18	25.607		
1,700.0	1,700.0	1,685.0	1,685.0	3.7	33.7	74.76	236.8	869.3	900.9	863.5	37.41	24.084		
1,800.0	1,800.0	1,785.0	1,785.0	3.9	35.7	74.76	236.8	869.3	900.9	861.3	39.63	22.732		
1,900.0	1,900.0	1,885.0	1,885.0	4.2	37.7	74.76	236.8	869.3	900.9	859.1	41.86	21.524		
2,000.0	2,000.0	1,985.0	1,985.0	4.4	39.7	74.76	236.8	869.3	900.9	856.9	44.08	20.437		
2,100.0	2,100.0	2,085.0	2,085.0	4.6	41.7	149.38	236.8	869.3	902.4	856.2	46.28	19.501		
2,200.0	2,199.8	2,184.8	2,184.8	4.8	43.7	149.51	236.8	869.3	907.0	858.5	48.41	18.733		
2,300.0	2,299.6	2,284.6	2,284.6	5.0	45.7	149.73	236.8	869.3	913.3	862.7	50.60	18.047		
2,400.0	2,399.3	2,384.3	2,384.3	5.2	47.7	149.96	236.8	869.3	919.6	866.8	52.80	17.415		
2,500.0	2,499.0	2,484.0	2,484.0	5.5	49.7	150.19	236.8	869.3	925.9	870.9	55.01	16.833		
2,600.0	2,598.8	2,583.8	2,583.8	5.7	51.7	150.41	236.8	869.3	932.3	875.1	57.21	16.296		
2,700.0	2,698.5	2,683.5	2,683.5	5.9	53.7	150.63	236.8	869.3	938.7	879.3	59.42	15.798		
2,800.0	2,798.2	2,783.2	2,783.2	6.2	55.7	150.85	236.8	869.3	945.1	883.4	61.62	15.336		
2,900.0	2,898.0	2,883.0	2,883.0	6.4	57.7	151.07	236.8	869.3	951.5	887.6	63.83	14.906		
3,000.0	2,997.7	2,982.7	2,982.7	6.6	59.7	151.28	236.8	869.3	957.9	891.8	66.04	14.504		
3,100.0	3,097.4	3,082.4	3,082.4	6.9	61.6	151.49	236.8	869.3	964.3	896.1	68.25	14.128		
3,200.0	3,197.2	3,182.2	3,182.2	7.1	63.6	151.69	236.8	869.3	970.8	900.3	70.47	13.776		
3,300.0	3,296.9	3,281.9	3,281.9	7.4	65.6	151.90	236.8	869.3	977.2	904.5	72.68	13.446		
3,400.0	3,396.6	3,381.6	3,381.6	7.6	67.6	152.10	236.8	869.3	983.7	908.8	74.89	13.135		
3,500.0	3,496.4	3,481.4	3,481.4	7.8	69.6	152.29	236.8	869.3	990.2	913.0	77.11	12.842		
3,600.0	3,596.1	3,581.1	3,581.1	8.1	71.6	152.49	236.8	869.3	996.6	917.3	79.32	12.565		
6,600.0	6,545.4	6,530.4	6,530.4	14.7	130.6	-13.25	236.8	869.3	951.5	839.3	112.17	8.483		
6,700.0	6,616.5	6,601.5	6,601.5	15.1	132.0	-16.17	236.8	869.3	882.4	779.6	102.84	8.581		
6,800.0	6,677.8	6,662.8	6,662.8	15.8	133.3	-20.69	236.8	869.3	805.1	710.1	94.99	8.475		
6,900.0	6,728.3	6,713.3	6,713.3	16.7	134.3	-27.97	236.8	869.3	720.9	627.3	93.63	7.700		
7,000.0	6,767.1	6,752.1	6,752.1	18.1	135.0	-39.91	236.8	869.3	631.7	525.3	106.42	5.936		
7,100.0	6,793.5	6,778.5	6,778.5	19.7	135.6	-58.26	236.8	869.3	539.4	405.8	133.56	4.038		
7,200.0	6,807.2	6,792.2	6,792.2	21.5	135.8	-79.93	236.8	869.3	446.3	291.2	155.03	2.879		
7,300.0	6,808.6	6,793.6	6,793.6	23.5	135.9	-91.56	236.8	869.3	355.5	196.2	159.32	2.232		
7,400.0	6,807.1	6,792.1	6,792.1	25.7	135.8	-91.06	236.8	869.3	271.3	109.8	161.49	1.680		
7,500.0	6,805.7	6,790.7	6,790.7	28.0	135.8	-90.57	236.8	869.3	202.0	38.3	163.75	1.234 Level 2		
7,600.0	6,804.2	6,789.2	6,789.2	30.3	135.8	-90.07	236.8	869.3	167.4	1.3	166.09	1.008 Level 2		
7,614.0	6,804.0	6,789.0	6,789.0	30.7	135.8	-90.00	236.8	869.3	166.8	0.3	166.43	1.002 Level 2, CC, ES, SF		
7,700.0	6,802.8	6,787.8	6,787.8	32.7	135.8	-89.57	236.8	869.3	187.6	19.1	168.50	1.114 Level 2		
7,800.0	6,801.3	6,786.3	6,786.3	35.2	135.7	-89.07	236.8	869.3	249.8	78.8	170.94	1.461 Level 3		

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 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	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: 7035-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,900.0	6,799.9	6,784.9	6,784.9	37.8	135.7	-88.58		236.8	869.3	331.0	157.6	173.42	1.909	
8,000.0	6,798.4	6,783.4	6,783.4	40.3	135.7	-88.08		236.8	869.3	420.4	244.5	175.92	2.390	
8,100.0	6,797.0	6,782.0	6,782.0	42.9	135.6	-87.58		236.8	869.3	513.7	335.3	178.43	2.879	
8,200.0	6,795.5	6,780.5	6,780.5	45.6	135.6	-87.09		236.8	869.3	609.2	428.2	180.96	3.366	
8,300.0	6,794.1	6,779.1	6,779.1	48.2	135.6	-86.59		236.8	869.3	705.9	522.4	183.49	3.847	
8,400.0	6,792.6	6,777.6	6,777.6	50.9	135.6	-86.10		236.8	869.3	803.4	617.4	186.02	4.319	
8,500.0	6,791.2	6,776.2	6,776.2	53.5	135.5	-85.60		236.8	869.3	901.4	712.9	188.55	4.781	
8,600.0	6,789.7	6,774.7	6,774.7	56.2	135.5	-85.11		236.8	869.3	999.9	808.8	191.07	5.233	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	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: 7030-UNKNOWN														
Reference				Offset			Semi Major Axis		Distance					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-54.99	273.2	-390.1	477.0					
100.0	100.0	73.0	73.0	0.1	1.5	-54.99	273.2	-390.1	476.2	474.7	1.57	302.838		
200.0	200.0	173.0	173.0	0.3	3.5	-54.99	273.2	-390.1	476.2	472.4	3.80	125.413		
300.0	300.0	273.0	273.0	0.6	5.5	-54.99	273.2	-390.1	476.2	470.2	6.02	79.082		
400.0	400.0	373.0	373.0	0.8	7.5	-54.99	273.2	-390.1	476.2	468.0	8.25	57.748		
500.0	500.0	473.0	473.0	1.0	9.5	-54.99	273.2	-390.1	476.2	465.8	10.47	45.479		
600.0	600.0	573.0	573.0	1.2	11.5	-54.99	273.2	-390.1	476.2	463.5	12.70	37.510		
700.0	700.0	673.0	673.0	1.5	13.5	-54.99	273.2	-390.1	476.2	461.3	14.92	31.917		
800.0	800.0	773.0	773.0	1.7	15.5	-54.99	273.2	-390.1	476.2	459.1	17.15	27.776		
900.0	900.0	873.0	873.0	1.9	17.5	-54.99	273.2	-390.1	476.2	456.9	19.37	24.585		
1,000.0	1,000.0	973.0	973.0	2.1	19.5	-54.99	273.2	-390.1	476.2	454.6	21.60	22.053		
1,100.0	1,100.0	1,073.0	1,073.0	2.4	21.5	-54.99	273.2	-390.1	476.2	452.4	23.82	19.993		
1,200.0	1,200.0	1,173.0	1,173.0	2.6	23.5	-54.99	273.2	-390.1	476.2	450.2	26.04	18.285		
1,300.0	1,300.0	1,273.0	1,273.0	2.8	25.5	-54.99	273.2	-390.1	476.2	448.0	28.27	16.846		
1,400.0	1,400.0	1,373.0	1,373.0	3.0	27.5	-54.99	273.2	-390.1	476.2	445.7	30.49	15.617		
1,500.0	1,500.0	1,473.0	1,473.0	3.3	29.5	-54.99	273.2	-390.1	476.2	443.5	32.72	14.555		
1,600.0	1,600.0	1,573.0	1,573.0	3.5	31.5	-54.99	273.2	-390.1	476.2	441.3	34.94	13.629		
1,700.0	1,700.0	1,673.0	1,673.0	3.7	33.5	-54.99	273.2	-390.1	476.2	439.1	37.17	12.813		
1,800.0	1,800.0	1,773.0	1,773.0	3.9	35.5	-54.99	273.2	-390.1	476.2	436.8	39.39	12.089		
1,900.0	1,900.0	1,873.0	1,873.0	4.2	37.5	-54.99	273.2	-390.1	476.2	434.6	41.62	11.443		
2,000.0	2,000.0	1,973.0	1,973.0	4.4	39.5	-54.99	273.2	-390.1	476.2	432.4	43.84	10.862		
2,100.0	2,100.0	2,073.0	2,073.0	4.6	41.5	19.68	273.2	-390.1	474.6	428.6	46.03	10.310		
2,200.0	2,199.8	2,172.8	2,172.8	4.8	43.5	19.93	273.2	-390.1	469.7	421.5	48.16	9.753		
2,300.0	2,299.6	2,272.6	2,272.6	5.0	45.5	20.24	273.2	-390.1	462.8	412.5	50.35	9.192		
2,400.0	2,399.3	2,372.3	2,372.3	5.2	47.4	20.56	273.2	-390.1	455.9	403.4	52.55	8.677		
2,500.0	2,499.0	2,472.0	2,472.0	5.5	49.4	20.88	273.2	-390.1	449.1	394.3	54.75	8.202		
2,600.0	2,598.8	2,571.8	2,571.8	5.7	51.4	21.22	273.2	-390.1	442.3	385.3	56.96	7.765		
2,700.0	2,698.5	2,671.5	2,671.5	5.9	53.4	21.57	273.2	-390.1	435.4	376.3	59.17	7.360		
2,800.0	2,798.2	2,771.2	2,771.2	6.2	55.4	21.93	273.2	-390.1	428.6	367.3	61.38	6.984		
2,900.0	2,898.0	2,871.0	2,871.0	6.4	57.4	22.30	273.2	-390.1	421.9	358.3	63.59	6.634		
3,000.0	2,997.7	2,970.7	2,970.7	6.6	59.4	22.68	273.2	-390.1	415.1	349.3	65.80	6.308		
3,100.0	3,097.4	3,070.4	3,070.4	6.9	61.4	23.08	273.2	-390.1	408.3	340.3	68.01	6.004		
3,200.0	3,197.2	3,170.2	3,170.2	7.1	63.4	23.49	273.2	-390.1	401.6	331.4	70.23	5.719		
3,300.0	3,296.9	3,269.9	3,269.9	7.4	65.4	23.91	273.2	-390.1	394.9	322.5	72.45	5.451		
3,400.0	3,396.6	3,369.6	3,369.6	7.6	67.4	24.35	273.2	-390.1	388.2	313.6	74.67	5.200		
3,500.0	3,496.4	3,469.4	3,469.4	7.8	69.4	24.80	273.2	-390.1	381.6	304.7	76.89	4.963		
3,600.0	3,596.1	3,569.1	3,569.1	8.1	71.4	25.27	273.2	-390.1	374.9	295.8	79.11	4.740		
3,700.0	3,695.8	3,668.8	3,668.8	8.3	73.4	25.76	273.2	-390.1	368.3	287.0	81.33	4.529		
3,800.0	3,795.5	3,768.5	3,768.5	8.6	75.4	26.26	273.2	-390.1	361.8	278.2	83.55	4.330		
3,900.0	3,895.3	3,868.3	3,868.3	8.8	77.4	26.78	273.2	-390.1	355.2	269.4	85.78	4.141		
4,000.0	3,995.0	3,968.0	3,968.0	9.1	79.4	27.33	273.2	-390.1	348.7	260.7	88.00	3.962		
4,100.0	4,094.7	4,067.7	4,067.7	9.3	81.4	27.89	273.2	-390.1	342.2	252.0	90.23	3.792		
4,200.0	4,194.5	4,167.5	4,167.5	9.6	83.3	28.47	273.2	-390.1	335.7	243.3	92.46	3.631		
4,300.0	4,294.2	4,267.2	4,267.2	9.8	85.3	29.08	273.2	-390.1	329.3	234.6	94.69	3.478		
4,400.0	4,393.9	4,366.9	4,366.9	10.1	87.3	29.71	273.2	-390.1	322.9	226.0	96.92	3.332		
4,500.0	4,493.7	4,466.7	4,466.7	10.3	89.3	30.37	273.2	-390.1	316.6	217.4	99.15	3.193		
4,600.0	4,593.4	4,566.4	4,566.4	10.6	91.3	31.05	273.2	-390.1	310.3	208.9	101.39	3.060		
4,700.0	4,693.1	4,666.1	4,666.1	10.9	93.3	31.76	273.2	-390.1	304.0	200.4	103.62	2.934		
4,800.0	4,792.9	4,765.9	4,765.9	11.1	95.3	32.50	273.2	-390.1	297.8	192.0	105.86	2.813		
4,900.0	4,892.6	4,865.6	4,865.6	11.4	97.3	33.27	273.2	-390.1	291.7	183.6	108.10	2.698		
5,000.0	4,992.3	4,965.3	4,965.3	11.6	99.3	34.08	273.2	-390.1	285.6	175.2	110.34	2.588		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	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: 7030-UNKNOWN												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,092.1	5,065.1	5,065.1	11.9	101.3	34.92	273.2	-390.1	279.5	167.0	112.58	2.483	
5,200.0	5,191.8	5,164.8	5,164.8	12.1	103.3	35.79	273.2	-390.1	273.6	158.7	114.83	2.382	
5,300.0	5,291.5	5,264.5	5,264.5	12.4	105.3	36.71	273.2	-390.1	267.7	150.6	117.07	2.286	
5,400.0	5,391.3	5,364.3	5,364.3	12.6	107.3	37.67	273.2	-390.1	261.8	142.5	119.32	2.194	
5,500.0	5,491.0	5,464.0	5,464.0	12.9	109.3	38.67	273.2	-390.1	256.1	134.5	121.57	2.106	
5,600.0	5,590.7	5,563.7	5,563.7	13.2	111.3	39.71	273.2	-390.1	250.4	126.6	123.83	2.022	
5,700.0	5,690.6	5,663.6	5,663.6	13.4	113.3	40.48	273.2	-390.1	246.1	120.0	126.18	1.951	
5,800.0	5,790.5	5,763.5	5,763.5	13.6	115.3	40.78	273.2	-390.1	244.6	116.2	128.40	1.905	
5,841.8	5,832.4	5,805.4	5,805.4	13.6	116.1	40.79	273.2	-390.1	244.5	115.2	129.31	1.891 CC	
5,900.0	5,890.5	5,863.5	5,863.5	13.7	117.3	-33.80	273.2	-390.1	244.5	114.0	130.59	1.873	
6,000.0	5,990.5	5,963.5	5,963.5	13.9	119.3	-33.80	273.2	-390.1	244.5	111.7	132.80	1.841	
6,033.7	6,024.2	5,997.2	5,997.2	14.0	119.9	-123.86	273.2	-390.1	244.7	111.2	133.52	1.833	
6,100.0	6,090.5	6,063.5	6,063.5	14.1	121.3	-124.02	273.2	-390.1	245.3	110.4	134.91	1.818 ES, SF	
6,200.0	6,189.7	6,162.7	6,162.7	14.3	123.3	-125.91	273.2	-390.1	252.5	116.2	136.23	1.853	
6,300.0	6,286.3	6,259.3	6,259.3	14.3	125.2	-129.27	273.2	-390.1	268.2	131.9	136.30	1.968	
6,400.0	6,378.9	6,351.9	6,351.9	14.4	127.0	-133.29	273.2	-390.1	294.2	159.6	134.61	2.186	
6,500.0	6,465.7	6,438.7	6,438.7	14.5	128.8	-137.13	273.2	-390.1	331.7	200.8	130.89	2.534	
6,600.0	6,545.4	6,518.4	6,518.4	14.7	130.4	-140.19	273.2	-390.1	381.2	255.9	125.35	3.041	
6,700.0	6,616.5	6,589.5	6,589.5	15.1	131.8	-142.07	273.2	-390.1	442.2	323.5	118.75	3.724	
6,800.0	6,677.8	6,650.8	6,650.8	15.8	133.0	-142.46	273.2	-390.1	513.6	401.1	112.53	4.564	
6,900.0	6,728.3	6,701.3	6,701.3	16.7	134.0	-140.88	273.2	-390.1	593.8	484.7	109.08	5.443	
7,000.0	6,767.1	6,740.1	6,740.1	18.1	134.8	-136.31	273.2	-390.1	681.0	568.8	112.18	6.071	
7,100.0	6,793.5	6,766.5	6,766.5	19.7	135.3	-126.45	273.2	-390.1	773.5	647.1	126.45	6.117	
7,200.0	6,807.2	6,780.2	6,780.2	21.5	135.6	-106.57	273.2	-390.1	869.4	718.8	150.67	5.771	
7,300.0	6,808.6	6,781.6	6,781.6	23.5	135.6	-86.14	273.2	-390.1	966.9	808.1	158.82	6.088	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19P-232 - Wellbore #1 - Plan #1 (2-18-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	0.0	-89.2	89.2					
100.0	100.0	99.0	99.0	0.1	0.1	-90.01	0.0	-89.2	89.2	88.9	0.22	398.649		
200.0	200.0	199.0	199.0	0.3	0.3	-90.01	0.0	-89.2	89.2	88.5	0.67	132.662 CC, ES		
300.0	300.0	297.3	297.3	0.6	0.6	-89.13	1.4	-90.1	90.1	89.0	1.12	80.524		
400.0	400.0	395.4	395.2	0.8	0.8	-86.58	5.6	-92.8	93.0	91.5	1.57	59.118		
500.0	500.0	493.0	492.5	1.0	1.0	-82.68	12.5	-97.4	98.4	96.3	2.04	48.325		
600.0	600.0	589.9	588.7	1.2	1.3	-77.94	22.1	-103.7	106.5	104.0	2.51	42.450		
700.0	700.0	687.1	684.8	1.5	1.6	-72.90	34.3	-111.7	117.7	114.7	3.01	39.155		
800.0	800.0	785.8	782.3	1.7	1.9	-68.52	47.3	-120.1	130.2	126.7	3.52	37.009		
900.0	900.0	884.6	879.9	1.9	2.3	-64.91	60.2	-128.6	143.3	139.2	4.05	35.408		
1,000.0	1,000.0	983.4	977.4	2.1	2.6	-61.92	73.1	-137.1	156.8	152.3	4.59	34.179		
1,100.0	1,100.0	1,082.1	1,075.0	2.4	3.0	-59.40	86.1	-145.5	170.8	165.6	5.14	33.215		
1,200.0	1,200.0	1,180.9	1,172.5	2.6	3.3	-57.27	99.0	-154.0	185.0	179.3	5.70	32.446		
1,300.0	1,300.0	1,279.7	1,270.1	2.8	3.7	-55.44	111.9	-162.5	199.4	193.1	6.27	31.824		
1,400.0	1,400.0	1,378.4	1,370.6	3.0	4.1	-53.86	124.9	-170.9	214.0	207.2	6.83	31.311		
1,500.0	1,500.0	1,477.2	1,465.2	3.3	4.4	-52.48	137.8	-179.4	228.7	221.3	7.41	30.885		
1,600.0	1,600.0	1,576.0	1,562.7	3.5	4.8	-51.26	150.7	-187.9	243.6	235.6	7.98	30.525		
1,700.0	1,700.0	1,674.7	1,660.3	3.7	5.1	-50.19	163.6	-196.3	258.5	250.0	8.55	30.219		
1,800.0	1,800.0	1,773.5	1,757.8	3.9	5.5	-49.23	176.6	-204.8	273.5	264.4	9.13	29.956		
1,900.0	1,900.0	1,872.3	1,855.4	4.2	5.9	-48.38	189.5	-213.3	288.6	278.9	9.71	29.728		
2,000.0	2,000.0	1,971.0	1,952.9	4.4	6.2	-47.61	202.4	-221.8	303.8	293.5	10.29	29.528		
2,100.0	2,100.0	2,070.0	2,050.6	4.6	6.6	27.69	215.4	-230.2	317.4	307.9	9.54	33.259		
2,200.0	2,199.8	2,169.2	2,148.7	4.8	7.0	28.66	228.4	-238.7	328.1	318.1	9.99	32.840		
2,300.0	2,299.6	2,268.6	2,246.8	5.0	7.3	29.82	241.4	-247.3	337.1	326.7	10.44	32.299		
2,400.0	2,399.3	2,368.0	2,344.9	5.2	7.7	30.94	254.4	-255.8	346.2	335.4	10.89	31.802		
2,500.0	2,499.0	2,467.3	2,443.1	5.5	8.0	31.99	267.4	-264.3	355.5	344.2	11.34	31.345		
2,600.0	2,598.8	2,566.7	2,541.2	5.7	8.4	32.99	280.4	-272.8	364.8	353.1	11.80	30.924		
2,700.0	2,698.5	2,666.0	2,639.4	5.9	8.8	33.95	293.4	-281.3	374.3	362.1	12.26	30.534		
2,800.0	2,798.2	2,765.4	2,737.5	6.2	9.1	34.85	306.4	-289.9	383.9	371.2	12.72	30.173		
2,900.0	2,898.0	2,864.8	2,835.6	6.4	9.5	35.71	319.4	-298.4	393.5	380.3	13.19	29.837		
3,000.0	2,997.7	2,964.1	2,933.8	6.6	9.9	36.53	332.5	-306.9	403.3	389.6	13.66	29.523		
3,100.0	3,097.4	3,063.5	3,031.9	6.9	10.2	37.31	345.5	-315.4	413.1	398.9	14.13	29.230		
3,200.0	3,197.2	3,162.9	3,130.0	7.1	10.6	38.06	358.5	-323.9	423.0	408.4	14.61	28.955		
3,300.0	3,296.9	3,262.2	3,228.2	7.4	11.0	38.77	371.5	-332.5	432.9	417.8	15.09	28.697		
3,400.0	3,396.6	3,361.6	3,326.3	7.6	11.3	39.45	384.5	-341.0	442.9	427.4	15.57	28.455		
3,500.0	3,496.4	3,460.9	3,424.5	7.8	11.7	40.10	397.5	-349.5	453.0	437.0	16.05	28.226		
3,600.0	3,596.1	3,560.3	3,522.6	8.1	12.1	40.72	410.5	-358.0	463.1	446.6	16.53	28.010		
3,700.0	3,695.8	3,659.7	3,620.7	8.3	12.4	41.31	423.5	-366.5	473.3	456.3	17.02	27.806		
3,800.0	3,795.5	3,759.0	3,718.9	8.6	12.8	41.88	436.5	-375.1	483.6	466.0	17.51	27.613		
3,900.0	3,895.3	3,858.4	3,817.0	8.8	13.2	42.43	449.5	-383.6	493.8	475.8	18.00	27.430		
4,000.0	3,995.0	3,957.8	3,915.2	9.1	13.5	42.95	462.5	-392.1	504.2	485.7	18.50	27.256		
4,100.0	4,094.7	4,057.1	4,013.3	9.3	13.9	43.45	475.5	-400.6	514.5	495.5	18.99	27.091		
4,200.0	4,194.5	4,156.5	4,111.4	9.6	14.3	43.93	488.6	-409.1	524.9	505.4	19.49	26.934		
4,300.0	4,294.2	4,255.9	4,209.6	9.8	14.6	44.40	501.6	-417.7	535.3	515.4	19.99	26.785		
4,400.0	4,393.9	4,355.2	4,307.7	10.1	15.0	44.84	514.6	-426.2	545.8	525.3	20.49	26.642		
4,500.0	4,493.7	4,454.6	4,405.8	10.3	15.4	45.27	527.6	-434.7	556.3	535.3	20.99	26.506		
4,600.0	4,593.4	4,553.9	4,504.0	10.6	15.7	45.68	540.6	-443.2	566.8	545.3	21.49	26.375		
4,700.0	4,693.1	4,653.3	4,602.1	10.9	16.1	46.08	553.6	-451.7	577.4	555.4	21.99	26.251		
4,800.0	4,792.9	4,752.7	4,700.3	11.1	16.5	46.47	566.6	-460.3	588.0	565.5	22.50	26.132		
4,900.0	4,892.6	4,852.0	4,798.4	11.4	16.8	46.84	579.6	-468.8	598.6	575.6	23.01	26.018		
5,000.0	4,992.3	4,951.4	4,896.5	11.6	17.2	47.19	592.6	-477.3	609.2	585.7	23.51	25.908		

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 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19P-232 - Wellbore #1 - Plan #1 (2-18-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,092.1	5,050.8	4,994.7	11.9	17.5	47.54		605.6	-485.8	619.9	595.8	24.02	25.803	
5,200.0	5,191.8	5,150.1	5,092.8	12.1	17.9	47.87		618.6	-494.3	630.5	606.0	24.53	25.703	
5,300.0	5,291.5	5,249.5	5,191.0	12.4	18.3	48.20		631.7	-502.9	641.2	616.2	25.04	25.606	
5,400.0	5,391.3	5,348.8	5,289.1	12.6	18.6	48.51		644.7	-511.4	651.9	626.4	25.55	25.513	
5,500.0	5,491.0	5,458.9	5,397.9	12.9	19.0	48.85		658.8	-520.6	662.4	636.3	26.08	25.399	
5,600.0	5,590.7	5,588.4	5,526.4	13.2	19.4	49.28		671.5	-529.0	669.3	642.7	26.60	25.161	
5,700.0	5,690.6	5,718.4	5,656.1	13.4	19.6	49.69		679.5	-534.2	672.9	645.9	27.03	24.893	
5,800.0	5,790.5	5,848.7	5,786.4	13.6	19.8	49.85		682.5	-536.1	674.3	646.9	27.39	24.620	
5,900.0	5,890.5	5,951.9	5,889.5	13.7	19.9	-24.74		682.5	-536.2	674.3	641.3	32.98	20.445	
6,000.0	5,990.5	6,097.4	6,034.5	13.9	20.1	-23.94		682.5	-525.9	671.6	638.3	33.30	20.170	
6,100.0	6,090.5	6,245.6	6,177.4	14.1	20.0	-111.39		682.5	-487.8	661.9	633.2	28.67	23.085	
6,200.0	6,189.7	6,382.7	6,300.8	14.3	19.9	-108.60		682.5	-428.6	650.5	621.5	28.98	22.448	
6,300.0	6,286.3	6,509.6	6,404.0	14.3	19.7	-105.53		682.5	-354.9	639.3	610.0	29.35	21.780	
6,400.0	6,378.9	6,627.3	6,487.5	14.4	19.6	-102.28		682.5	-272.2	629.4	599.4	29.94	21.022	
6,500.0	6,465.7	6,736.8	6,553.1	14.5	19.4	-98.90		682.5	-184.5	621.4	590.5	30.83	20.153	
6,600.0	6,545.4	6,839.5	6,602.5	14.7	19.3	-95.46		682.5	-94.6	615.8	583.7	32.10	19.181	
6,700.0	6,616.5	6,936.4	6,637.7	15.1	19.2	-92.00		682.5	-4.4	612.9	579.1	33.78	18.145	
6,758.0	6,653.3	6,990.3	6,652.3	15.5	19.5	-90.00		682.5	47.5	612.4	577.5	34.96	17.517	
6,800.0	6,677.8	7,028.4	6,660.4	15.8	20.0	-88.56		682.5	84.8	612.7	576.8	35.84	17.094	
6,900.0	6,728.3	7,116.4	6,671.8	16.7	21.5	-85.20		682.5	171.9	615.0	576.7	38.25	16.078	
7,000.0	6,767.1	7,204.3	6,673.8	18.1	23.2	-81.90		682.5	259.7	619.4	578.4	41.00	15.105	
7,100.0	6,793.5	7,300.6	6,673.6	19.7	25.1	-79.23		682.5	356.0	623.9	579.6	44.28	14.091	
7,200.0	6,807.2	7,399.5	6,673.3	21.5	27.2	-77.79		682.5	455.0	626.7	578.7	48.03	13.047	
7,300.0	6,808.6	7,499.5	6,673.1	23.5	29.5	-77.61		682.5	554.9	627.0	574.8	52.21	12.011	
7,400.0	6,807.1	7,599.5	6,672.8	25.7	31.8	-77.72		682.5	654.9	626.8	570.2	56.59	11.075	
7,500.0	6,805.7	7,699.4	6,672.6	28.0	34.2	-77.83		682.5	754.9	626.5	565.4	61.17	10.242	
7,600.0	6,804.2	7,799.4	6,672.4	30.3	36.7	-77.94		682.5	854.9	626.3	560.4	65.90	9.504	
7,700.0	6,802.8	7,899.4	6,672.1	32.7	39.2	-78.05		682.5	954.9	626.0	555.3	70.74	8.849	
7,800.0	6,801.3	7,999.4	6,671.9	35.2	41.7	-78.15		682.5	1,054.9	625.8	550.1	75.69	8.268	
7,900.0	6,799.9	8,099.4	6,671.6	37.8	44.3	-78.26		682.5	1,154.9	625.5	544.8	80.71	7.750	
8,000.0	6,798.4	8,199.4	6,671.4	40.3	46.9	-78.37		682.5	1,254.9	625.3	539.5	85.80	7.287	
8,100.0	6,797.0	8,299.4	6,671.1	42.9	49.5	-78.48		682.5	1,354.9	625.0	534.1	90.95	6.872	
8,200.0	6,795.5	8,399.4	6,670.9	45.6	52.1	-78.59		682.5	1,454.9	624.8	528.7	96.14	6.499	
8,300.0	6,794.1	8,499.4	6,670.6	48.2	54.8	-78.69		682.5	1,554.9	624.6	523.2	101.38	6.161	
8,400.0	6,792.6	8,599.4	6,670.4	50.9	57.5	-78.80		682.5	1,654.8	624.3	517.7	106.65	5.854	
8,500.0	6,791.2	8,699.4	6,670.2	53.5	60.1	-78.91		682.5	1,754.8	624.1	512.1	111.95	5.575	
8,600.0	6,789.7	8,799.4	6,669.9	56.2	62.8	-79.02		682.5	1,854.8	623.9	506.6	117.27	5.320	
8,700.0	6,788.3	8,899.4	6,669.7	58.9	65.5	-79.13		682.5	1,954.8	623.6	501.0	122.62	5.086	
8,800.0	6,786.9	8,999.4	6,669.4	61.6	68.2	-79.24		682.5	2,054.8	623.4	495.4	128.00	4.871	
8,900.0	6,785.4	9,099.3	6,669.2	64.4	71.0	-79.35		682.5	2,154.8	623.2	489.8	133.39	4.672	
9,000.0	6,784.0	9,199.3	6,668.9	67.1	73.7	-79.45		682.5	2,254.8	623.0	484.2	138.79	4.488	
9,100.0	6,782.5	9,299.3	6,668.7	69.8	76.4	-79.56		682.5	2,354.8	622.7	478.5	144.22	4.318	
9,200.0	6,781.1	9,399.3	6,668.4	72.6	79.2	-79.67		682.5	2,454.8	622.5	472.9	149.65	4.160	
9,300.0	6,779.6	9,499.3	6,668.2	75.3	81.9	-79.78		682.5	2,554.8	622.3	467.2	155.10	4.012	
9,400.0	6,778.2	9,599.3	6,668.0	78.1	84.6	-79.89		682.5	2,654.8	622.1	461.5	160.56	3.874	
9,500.0	6,776.7	9,699.3	6,667.7	80.8	87.4	-80.00		682.5	2,754.8	621.9	455.9	166.04	3.745	
9,600.0	6,775.3	9,799.3	6,667.5	83.6	90.1	-80.11		682.5	2,854.8	621.7	450.2	171.52	3.625	
9,700.0	6,773.8	9,899.3	6,667.2	86.3	92.9	-80.22		682.5	2,954.8	621.5	444.5	177.01	3.511	
9,800.0	6,772.4	9,999.3	6,667.0	89.1	95.6	-80.33		682.5	3,054.7	621.3	438.8	182.51	3.404	
9,900.0	6,770.9	10,099.3	6,666.7	91.9	98.4	-80.44		682.5	3,154.7	621.1	433.1	188.02	3.303	
10,000.0	6,769.5	10,199.3	6,666.5	94.6	101.2	-80.55		682.5	3,254.7	620.9	427.3	193.54	3.208	

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 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19P-232 - Wellbore #1 - Plan #1 (2-18-14)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
10,100.0	6,768.0	10,299.3	6,666.2	97.4	103.9	-80.66	682.5	3,354.7	620.7	421.6	199.06	3.118	
10,200.0	6,766.6	10,399.2	6,666.0	100.2	106.7	-80.77	682.5	3,454.7	620.5	415.9	204.59	3.033	
10,300.0	6,765.1	10,499.2	6,665.8	102.9	109.5	-80.88	682.5	3,554.7	620.3	410.2	210.13	2.952	
10,400.0	6,763.7	10,599.2	6,665.5	105.7	112.2	-80.99	682.5	3,654.7	620.1	404.4	215.67	2.875	
10,500.0	6,762.2	10,699.2	6,665.3	108.5	115.0	-81.10	682.5	3,754.7	619.9	398.7	221.22	2.802	
10,600.0	6,760.8	10,799.2	6,665.0	111.3	117.8	-81.21	682.5	3,854.7	619.7	393.0	226.77	2.733	
10,700.0	6,759.3	10,899.2	6,664.8	114.1	120.6	-81.32	682.5	3,954.7	619.5	387.2	232.33	2.667	
10,800.0	6,757.9	10,999.2	6,664.5	116.8	123.3	-81.43	682.5	4,054.7	619.4	381.5	237.89	2.604	
10,900.0	6,756.4	11,099.2	6,664.3	119.6	126.1	-81.54	682.5	4,154.7	619.2	375.7	243.46	2.543	
11,000.0	6,755.0	11,199.2	6,664.0	122.4	128.9	-81.65	682.5	4,254.7	619.0	370.0	249.04	2.486	
11,100.0	6,753.5	11,299.2	6,663.8	125.2	131.7	-81.76	682.5	4,354.6	618.8	364.2	254.61	2.430	
11,200.0	6,752.1	11,399.2	6,663.6	128.0	134.5	-81.87	682.5	4,454.6	618.7	358.5	260.19	2.378	
11,300.0	6,750.6	11,499.2	6,663.3	130.8	137.3	-81.98	682.5	4,554.6	618.5	352.7	265.78	2.327	
11,400.0	6,749.2	11,599.2	6,663.1	133.5	140.0	-82.09	682.5	4,654.6	618.3	347.0	271.37	2.279	
11,500.0	6,747.7	11,699.2	6,662.8	136.3	142.8	-82.20	682.5	4,754.6	618.2	341.2	276.96	2.232	
11,600.0	6,746.3	11,799.1	6,662.6	139.1	145.6	-82.31	682.5	4,854.6	618.0	335.4	282.55	2.187	
11,700.0	6,744.8	11,899.1	6,662.3	141.9	148.4	-82.42	682.5	4,954.6	617.8	329.7	288.15	2.144	
11,800.0	6,743.4	11,999.1	6,662.1	144.7	151.2	-82.53	682.5	5,054.6	617.7	323.9	293.75	2.103	
11,900.0	6,741.9	12,099.1	6,661.8	147.5	154.0	-82.64	682.5	5,154.6	617.5	318.2	299.36	2.063	
12,000.0	6,740.5	12,199.1	6,661.6	150.3	156.8	-82.75	682.5	5,254.6	617.4	312.4	304.97	2.024	
12,100.0	6,739.0	12,299.1	6,661.4	153.1	159.6	-82.86	682.5	5,354.6	617.2	306.6	310.58	1.987	
12,200.0	6,737.6	12,399.1	6,661.1	155.9	162.3	-82.97	682.5	5,454.6	617.1	300.9	316.19	1.952	
12,300.0	6,736.2	12,499.1	6,660.9	158.7	165.1	-83.08	682.5	5,554.6	616.9	295.1	321.80	1.917	
12,400.0	6,734.7	12,599.1	6,660.6	161.5	167.9	-83.20	682.5	5,654.5	616.8	289.4	327.42	1.884	
12,500.0	6,733.3	12,699.1	6,660.4	164.3	170.7	-83.31	682.5	5,754.5	616.6	283.6	333.04	1.852	
12,600.0	6,731.8	12,799.1	6,660.1	167.1	173.5	-83.42	682.5	5,854.5	616.5	277.8	338.66	1.820	
12,700.0	6,730.4	12,899.1	6,659.9	169.9	176.3	-83.53	682.5	5,954.5	616.4	272.1	344.29	1.790	
12,800.0	6,728.9	12,999.1	6,659.6	172.7	179.1	-83.64	682.5	6,054.5	616.2	266.3	349.91	1.761	
12,900.0	6,727.5	13,099.1	6,659.4	175.4	181.9	-83.75	682.5	6,154.5	616.1	260.6	355.54	1.733	
13,000.0	6,726.0	13,199.0	6,659.2	178.2	184.7	-83.86	682.5	6,254.5	616.0	254.8	361.17	1.705	
13,054.5	6,725.2	13,253.5	6,659.0	179.8	186.2	-83.92	682.5	6,309.0	615.9	251.7	364.24	1.691	
13,069.8	6,725.0	13,263.2	6,659.0	180.2	186.5	-83.93	682.5	6,318.7	615.9	251.0	364.94	1.688 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19P-432 - Wellbore #1 - Plan #1 (2-18-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	-89.99	0.0	-58.5	58.5				
100.0	100.0	99.0	99.0	0.1	0.1	-89.99	-89.99	0.0	-58.5	58.5	58.3	0.22	261.613	
200.0	200.0	199.0	199.0	0.3	0.3	-89.99	-89.99	0.0	-58.5	58.5	57.8	0.67	87.059	
300.0	300.0	299.0	299.0	0.6	0.6	-89.99	-89.99	0.0	-58.5	58.5	57.4	1.12	52.166	
400.0	400.0	399.0	399.0	0.8	0.8	-89.99	-89.99	0.0	-58.5	58.5	56.9	1.57	37.240	
500.0	500.0	499.0	499.0	1.0	1.0	-89.99	-89.99	0.0	-58.5	58.5	56.5	2.02	28.955	
600.0	600.0	599.0	599.0	1.2	1.2	-89.99	-89.99	0.0	-58.5	58.5	56.0	2.47	23.686	
700.0	700.0	699.0	699.0	1.5	1.5	-89.99	-89.99	0.0	-58.5	58.5	55.6	2.92	20.039	
800.0	800.0	799.0	799.0	1.7	1.7	-89.99	-89.99	0.0	-58.5	58.5	55.1	3.37	17.365	
900.0	900.0	899.0	899.0	1.9	1.9	-89.99	-89.99	0.0	-58.5	58.5	54.7	3.82	15.321	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	-89.99	-89.99	0.0	-58.5	58.5	54.2	4.27	13.708 CC, ES	
1,100.0	1,100.0	1,097.7	1,097.7	2.4	2.4	-88.77	-88.77	1.3	-59.6	59.6	54.9	4.71	12.650	
1,200.0	1,200.0	1,196.1	1,195.9	2.6	2.6	-85.33	-85.33	5.1	-62.8	63.1	58.0	5.16	12.240	
1,300.0	1,300.0	1,294.1	1,293.6	2.8	2.8	-80.42	-80.42	11.5	-68.3	69.4	63.8	5.61	12.383	
1,400.0	1,400.0	1,391.6	1,390.4	3.0	3.0	-74.94	-74.94	20.4	-75.8	78.9	72.9	6.07	13.010	
1,500.0	1,500.0	1,490.7	1,488.6	3.3	3.3	-70.16	-70.16	30.4	-84.2	90.1	83.6	6.54	13.786	
1,600.0	1,600.0	1,589.9	1,586.9	3.5	3.6	-66.46	-66.46	40.4	-92.7	101.8	94.8	7.02	14.504	
1,700.0	1,700.0	1,689.0	1,685.1	3.7	3.9	-63.52	-63.52	50.4	-101.2	113.9	106.4	7.52	15.153	
1,800.0	1,800.0	1,788.1	1,783.4	3.9	4.1	-61.15	-61.15	60.4	-109.6	126.1	118.1	8.02	15.735	
1,900.0	1,900.0	1,887.2	1,881.6	4.2	4.4	-59.20	-59.20	70.4	-118.1	138.6	130.1	8.53	16.257	
2,000.0	2,000.0	1,886.3	1,879.9	4.4	4.7	-57.57	-57.57	80.4	-126.6	151.2	142.1	9.04	16.723	
2,100.0	2,100.0	2,085.6	2,078.3	4.6	5.0	18.51	18.51	90.4	-135.1	162.2	153.0	9.22	17.601	
2,200.0	2,199.8	2,185.2	2,177.0	4.8	5.3	20.23	20.23	100.5	-143.6	170.1	160.4	9.65	17.632	
2,300.0	2,299.6	2,284.8	2,275.8	5.0	5.7	22.09	22.09	110.5	-152.1	176.2	166.1	10.09	17.467	
2,400.0	2,399.3	2,384.5	2,374.6	5.2	6.0	23.83	23.83	120.6	-160.6	182.5	171.9	10.53	17.324	
2,500.0	2,499.0	2,484.1	2,473.3	5.5	6.3	25.45	25.45	130.7	-169.1	188.9	177.9	10.98	17.201	
2,600.0	2,598.8	2,583.8	2,572.1	5.7	6.6	26.96	26.96	140.7	-177.6	195.5	184.0	11.43	17.094	
2,700.0	2,698.5	2,683.5	2,670.9	5.9	6.9	28.38	28.38	150.8	-186.2	202.1	190.3	11.89	17.002	
2,800.0	2,798.2	2,783.1	2,769.7	6.2	7.2	29.70	29.70	160.8	-194.7	209.0	196.6	12.35	16.921	
2,900.0	2,898.0	2,882.8	2,868.5	6.4	7.6	30.94	30.94	170.9	-203.2	215.9	203.1	12.81	16.850	
3,000.0	2,997.7	2,982.4	2,967.2	6.6	7.9	32.10	32.10	180.9	-211.7	222.9	209.6	13.28	16.787	
3,100.0	3,097.4	3,082.1	3,066.0	6.9	8.2	33.20	33.20	191.0	-220.2	230.0	216.2	13.75	16.731	
3,200.0	3,197.2	3,181.7	3,164.8	7.1	8.5	34.22	34.22	201.1	-228.7	237.1	222.9	14.22	16.680	
3,300.0	3,296.9	3,281.4	3,263.6	7.4	8.9	35.19	35.19	211.1	-237.2	244.4	229.7	14.69	16.635	
3,400.0	3,396.6	3,381.0	3,362.4	7.6	9.2	36.10	36.10	221.2	-245.8	251.7	236.5	15.17	16.593	
3,500.0	3,496.4	3,480.7	3,461.1	7.8	9.5	36.96	36.96	231.2	-254.3	259.1	243.4	15.65	16.555	
3,600.0	3,596.1	3,580.4	3,559.9	8.1	9.8	37.77	37.77	241.3	-262.8	266.5	250.3	16.13	16.521	
3,700.0	3,695.8	3,680.0	3,658.7	8.3	10.2	38.53	38.53	251.3	-271.3	273.9	257.3	16.61	16.489	
3,800.0	3,795.5	3,779.7	3,757.5	8.6	10.5	39.26	39.26	261.4	-279.8	281.5	264.4	17.10	16.460	
3,900.0	3,895.3	3,879.3	3,856.3	8.8	10.8	39.95	39.95	271.5	-288.3	289.0	271.4	17.59	16.433	
4,000.0	3,995.0	3,979.0	3,955.0	9.1	11.1	40.60	40.60	281.5	-296.9	296.6	278.5	18.08	16.408	
4,100.0	4,094.7	4,078.6	4,053.8	9.3	11.5	41.22	41.22	291.6	-305.4	304.3	285.7	18.57	16.384	
4,200.0	4,194.5	4,178.3	4,152.6	9.6	11.8	41.81	41.81	301.6	-313.9	311.9	292.9	19.06	16.362	
4,300.0	4,294.2	4,277.9	4,251.4	9.8	12.1	42.37	42.37	311.7	-322.4	319.6	300.1	19.56	16.341	
4,400.0	4,393.9	4,377.6	4,350.2	10.1	12.4	42.91	42.91	321.8	-330.9	327.4	307.3	20.06	16.322	
4,500.0	4,493.7	4,477.3	4,448.9	10.3	12.8	43.42	43.42	331.8	-339.4	335.1	314.6	20.55	16.304	
4,600.0	4,593.4	4,576.9	4,547.7	10.6	13.1	43.91	43.91	341.9	-348.0	342.9	321.8	21.05	16.287	
4,700.0	4,693.1	4,676.6	4,646.5	10.9	13.4	44.37	44.37	351.9	-356.5	350.7	329.2	21.55	16.270	
4,800.0	4,792.9	4,776.2	4,745.3	11.1	13.8	44.82	44.82	362.0	-365.0	358.5	336.5	22.06	16.255	
4,900.0	4,892.6	4,875.9	4,844.1	11.4	14.1	45.24	45.24	372.0	-373.5	366.4	343.8	22.56	16.240	
5,000.0	4,992.3	4,975.5	4,942.8	11.6	14.4	45.65	45.65	382.1	-382.0	374.3	351.2	23.06	16.226	

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 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19P-432 - Wellbore #1 - Plan #1 (2-18-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,100.0	5,092.1	5,075.2	5,041.6	11.9	14.7	46.04	392.2	-390.5	382.1	358.6	23.57	16.213		
5,200.0	5,191.8	5,174.8	5,140.4	12.1	15.1	46.42	402.2	-399.0	390.0	366.0	24.08	16.201		
5,300.0	5,291.5	5,274.5	5,239.2	12.4	15.4	46.78	412.3	-407.6	398.0	373.4	24.58	16.189		
5,400.0	5,391.3	5,374.1	5,338.0	12.6	15.7	47.13	422.3	-416.1	405.9	380.8	25.09	16.177		
5,500.0	5,491.0	5,476.4	5,439.3	12.9	16.1	47.47	432.6	-424.8	413.8	388.2	25.60	16.164		
5,600.0	5,590.7	5,572.6	5,534.9	13.2	16.3	47.94	442.0	-432.7	419.2	393.1	26.09	16.067		
5,700.0	5,690.6	5,672.2	5,631.2	13.4	16.6	48.39	447.8	-437.6	421.8	395.3	26.51	15.911		
5,800.0	5,790.5	5,771.8	5,728.8	13.6	16.8	48.56	450.0	-439.5	422.8	396.0	26.86	15.741		
5,900.0	5,890.5	5,871.6	5,828.5	13.7	16.9	-26.02	450.0	-439.5	422.8	393.0	29.87	14.154		
6,000.0	5,990.5	6,027.6	5,989.5	13.9	17.1	-26.02	450.0	-439.5	422.8	392.6	30.25	13.977		
6,100.0	6,090.5	6,136.2	6,098.1	14.1	17.3	-116.11	450.0	-438.7	423.2	395.1	28.01	15.105		
6,200.0	6,189.7	6,268.4	6,229.0	14.3	17.4	-116.00	450.0	-421.2	422.8	394.6	28.20	14.991		
6,300.0	6,286.3	6,399.8	6,354.2	14.3	17.3	-115.35	450.0	-381.8	420.6	392.3	28.30	14.864		
6,400.0	6,378.9	6,529.2	6,469.1	14.4	17.3	-114.16	450.0	-322.5	416.9	388.5	28.41	14.673		
6,500.0	6,465.7	6,655.9	6,570.3	14.5	17.1	-112.48	450.0	-246.6	411.8	383.1	28.70	14.351		
6,600.0	6,545.4	6,779.0	6,655.3	14.7	17.1	-110.34	450.0	-157.8	406.0	376.6	29.39	13.816		
6,700.0	6,616.5	6,898.1	6,723.0	15.1	17.1	-107.80	450.0	-59.9	399.8	369.2	30.66	13.041		
6,800.0	6,677.8	7,013.2	6,773.2	15.8	18.0	-104.92	450.0	43.5	393.9	361.2	32.68	12.051		
6,900.0	6,728.3	7,124.1	6,806.4	16.7	19.5	-101.75	450.0	149.2	388.6	353.1	35.41	10.973		
7,000.0	6,767.1	7,230.2	6,823.5	18.1	21.3	-98.42	450.0	253.9	384.3	345.6	38.75	9.919		
7,100.0	6,793.5	7,330.1	6,833.4	19.7	23.2	-96.11	450.0	353.3	382.2	339.8	42.40	9.013		
7,200.0	6,807.2	7,432.1	6,836.6	21.5	25.3	-94.57	450.0	455.2	381.2	334.8	46.41	8.214		
7,258.9	6,809.9	7,491.0	6,836.8	22.7	26.5	-94.19	450.0	514.1	381.0	332.1	48.86	7.797		
7,300.0	6,808.6	7,532.1	6,836.9	23.5	27.4	-94.41	450.0	555.2	381.1	330.5	50.57	7.535		
7,400.0	6,807.1	7,632.0	6,837.2	25.7	29.7	-94.67	450.0	655.2	381.2	326.3	54.96	6.936		
7,500.0	6,805.7	7,732.0	6,837.5	28.0	32.1	-94.93	450.0	755.1	381.4	321.8	59.55	6.404		
7,600.0	6,804.2	7,832.0	6,837.7	30.3	34.5	-95.19	450.0	855.1	381.5	317.2	64.29	5.935		
7,700.0	6,802.8	7,932.0	6,838.0	32.7	37.0	-95.45	450.0	955.1	381.7	312.5	69.15	5.520		
7,800.0	6,801.3	8,032.0	6,838.3	35.2	39.5	-95.70	450.0	1,055.1	381.9	307.8	74.10	5.153		
7,900.0	6,799.9	8,132.0	6,838.6	37.8	42.1	-95.96	450.0	1,155.1	382.0	302.9	79.13	4.828		
8,000.0	6,798.4	8,232.0	6,838.9	40.3	44.6	-96.22	450.0	1,255.1	382.2	298.0	84.22	4.538		
8,100.0	6,797.0	8,331.9	6,839.1	42.9	47.3	-96.48	450.0	1,355.1	382.4	293.0	89.36	4.279		
8,200.0	6,795.5	8,431.9	6,839.4	45.6	49.9	-96.73	450.0	1,455.0	382.6	288.1	94.54	4.047		
8,300.0	6,794.1	8,531.9	6,839.7	48.2	52.5	-96.99	450.0	1,555.0	382.8	283.1	99.75	3.838		
8,400.0	6,792.6	8,631.9	6,840.0	50.9	55.2	-97.25	450.0	1,655.0	383.0	278.0	104.98	3.649		
8,500.0	6,791.2	8,731.9	6,840.2	53.5	57.9	-97.50	450.0	1,755.0	383.2	273.0	110.23	3.477		
8,600.0	6,789.7	8,831.9	6,840.5	56.2	60.6	-97.76	450.0	1,855.0	383.5	268.0	115.50	3.320		
8,700.0	6,788.3	8,931.8	6,840.8	58.9	63.3	-98.01	450.0	1,955.0	383.7	262.9	120.79	3.177		
8,800.0	6,786.9	9,031.8	6,841.1	61.6	66.0	-98.27	450.0	2,054.9	384.0	257.9	126.08	3.045		
8,900.0	6,785.4	9,131.8	6,841.4	64.4	68.7	-98.52	450.0	2,154.9	384.2	252.8	131.38	2.924		
9,000.0	6,784.0	9,231.8	6,841.6	67.1	71.4	-98.78	450.0	2,254.9	384.5	247.8	136.68	2.813		
9,100.0	6,782.5	9,331.8	6,841.9	69.8	74.2	-99.03	450.0	2,354.9	384.7	242.7	141.99	2.710		
9,200.0	6,781.1	9,431.8	6,842.2	72.6	76.9	-99.29	450.0	2,454.9	385.0	237.7	147.30	2.614		
9,300.0	6,779.6	9,531.8	6,842.5	75.3	79.6	-99.54	450.0	2,554.9	385.3	232.7	152.61	2.525		
9,400.0	6,778.2	9,631.7	6,842.8	78.1	82.4	-99.79	450.0	2,654.9	385.6	227.7	157.92	2.442		
9,500.0	6,776.7	9,731.7	6,843.0	80.8	85.1	-100.05	450.0	2,754.8	385.9	222.7	163.22	2.364		
9,600.0	6,775.3	9,831.7	6,843.3	83.6	87.9	-100.30	450.0	2,854.8	386.2	217.7	168.53	2.292		
9,700.0	6,773.8	9,931.7	6,843.6	86.3	90.6	-100.55	450.0	2,954.8	386.5	212.7	173.82	2.224		
9,800.0	6,772.4	10,031.7	6,843.9	89.1	93.4	-100.80	450.0	3,054.8	386.8	207.7	179.11	2.160		
9,900.0	6,770.9	10,131.7	6,844.2	91.9	96.2	-101.05	450.0	3,154.8	387.1	202.7	184.40	2.099		
10,000.0	6,769.5	10,231.7	6,844.4	94.6	98.9	-101.30	450.0	3,254.8	387.5	197.8	189.68	2.043		

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 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	Offset TVD Reference:	Offset Datum

Offset Design		Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19P-432 - Wellbore #1 - Plan #1 (2-18-14)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,100.0	6,768.0	10,331.6	6,844.7		97.4	101.7	-101.55	450.0	3,354.7	387.8	192.9	194.95	1.989	
10,200.0	6,766.6	10,431.6	6,845.0	100.2	104.5	-101.80		450.0	3,454.7	388.2	188.0	200.21	1.939	
10,300.0	6,765.1	10,531.6	6,845.3	102.9	107.2	-102.05		450.0	3,554.7	388.5	183.1	205.47	1.891	
10,400.0	6,763.7	10,631.6	6,845.6	105.7	110.0	-102.30		450.0	3,654.7	388.9	178.2	210.71	1.846	
10,500.0	6,762.2	10,731.6	6,845.8	108.5	112.8	-102.55		450.0	3,754.7	389.3	173.3	215.95	1.803	
10,600.0	6,760.8	10,831.6	6,846.1	111.3	115.6	-102.80		450.0	3,854.7	389.6	168.5	221.18	1.762	
10,700.0	6,759.3	10,931.6	6,846.4	114.1	118.3	-103.05		450.0	3,954.7	390.0	163.6	226.39	1.723	
10,800.0	6,757.9	11,031.5	6,846.7	116.8	121.1	-103.29		450.0	4,054.6	390.4	158.8	231.60	1.686	
10,900.0	6,756.4	11,131.5	6,846.9	119.6	123.9	-103.54		450.0	4,154.6	390.8	154.0	236.79	1.651	
11,000.0	6,755.0	11,231.5	6,847.2	122.4	126.7	-103.79		450.0	4,254.6	391.2	149.3	241.97	1.617	
11,100.0	6,753.5	11,331.5	6,847.5	125.2	129.5	-104.03		450.0	4,354.6	391.7	144.5	247.14	1.585	
11,200.0	6,752.1	11,431.5	6,847.8	128.0	132.2	-104.28		450.0	4,454.6	392.1	139.8	252.29	1.554	
11,300.0	6,750.6	11,531.5	6,848.1	130.8	135.0	-104.52		450.0	4,554.6	392.5	135.1	257.44	1.525	
11,400.0	6,749.2	11,631.4	6,848.3	133.5	137.8	-104.76		450.0	4,654.6	392.9	130.4	262.57	1.497	Level 3
11,500.0	6,747.7	11,731.4	6,848.6	136.3	140.6	-105.01		450.0	4,754.5	393.4	125.7	267.68	1.470	Level 3
11,600.0	6,746.3	11,831.4	6,848.9	139.1	143.4	-105.25		450.0	4,854.5	393.8	121.1	272.79	1.444	Level 3
11,700.0	6,744.8	11,931.4	6,849.2	141.9	146.2	-105.49		450.0	4,954.5	394.3	116.4	277.87	1.419	Level 3
11,800.0	6,743.4	12,031.4	6,849.5	144.7	149.0	-105.73		450.0	5,054.5	394.8	111.8	282.95	1.395	Level 3
11,900.0	6,741.9	12,131.4	6,849.7	147.5	151.8	-105.98		450.0	5,154.5	395.2	107.2	288.01	1.372	Level 3
12,000.0	6,740.5	12,231.4	6,850.0	150.3	154.6	-106.22		450.0	5,254.5	395.7	102.7	293.05	1.350	Level 3
12,100.0	6,739.0	12,331.3	6,850.3	153.1	157.3	-106.46		450.0	5,354.4	396.2	98.1	298.08	1.329	Level 3
12,200.0	6,737.6	12,431.3	6,850.6	155.9	160.1	-106.70		450.0	5,454.4	396.7	93.6	303.10	1.309	Level 3
12,300.0	6,736.2	12,531.3	6,850.9	158.7	162.9	-106.93		450.0	5,554.4	397.2	89.1	308.10	1.289	Level 3
12,400.0	6,734.7	12,631.3	6,851.1	161.5	165.7	-107.17		450.0	5,654.4	397.7	84.6	313.08	1.270	Level 3
12,500.0	6,733.3	12,731.3	6,851.4	164.3	168.5	-107.41		450.0	5,754.4	398.2	80.2	318.05	1.252	Level 3
12,600.0	6,731.8	12,831.3	6,851.7	167.1	171.3	-107.65		450.0	5,854.4	398.7	75.7	323.00	1.234	Level 2
12,700.0	6,730.4	12,931.3	6,852.0	169.9	174.1	-107.88		450.0	5,954.4	399.3	71.3	327.94	1.217	Level 2
12,800.0	6,728.9	13,031.2	6,852.3	172.7	176.9	-108.12		450.0	6,054.3	399.8	66.9	332.86	1.201	Level 2
12,900.0	6,727.5	13,131.2	6,852.5	175.4	179.7	-108.35		450.0	6,154.3	400.3	62.6	337.76	1.185	Level 2
13,000.0	6,726.0	13,231.2	6,852.8	178.2	182.5	-108.59		450.0	6,254.3	400.9	58.2	342.65	1.170	Level 2
13,069.8	6,725.0	13,298.5	6,853.0	180.2	184.4	-108.75		450.0	6,321.6	401.3	55.3	345.99	1.160	Level 2, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	Offset TVD Reference:	Offset Datum

Offset Design		Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19Q-402 - Wellbore #1 - Plan #1 (2-18-14)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-27.9	27.9						
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-27.9	27.9	27.6	0.22	123.956			
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-27.9	27.9	27.2	0.67	41.319			
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	0.0	-27.9	27.9	26.7	1.12	24.791			
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-27.9	27.9	26.3	1.57	17.708			
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-27.9	27.9	25.8	2.02	13.773			
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-27.9	27.9	25.4	2.47	11.269			
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	0.0	-27.9	27.9	24.9	2.92	9.535			
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	0.0	-27.9	27.9	24.5	3.37	8.264			
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	0.0	-27.9	27.9	24.0	3.82	7.292			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	0.0	-27.9	27.9	23.6	4.27	6.524			
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.00	0.0	-27.9	27.9	23.1	4.72	5.903			
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.00	0.0	-27.9	27.9	22.7	5.17	5.389 CC			
1,300.0	1,300.0	1,299.2	1,299.2	2.8	2.8	-92.22	-1.1	-29.2	29.2	23.6	5.59	5.217			
1,400.0	1,400.0	1,398.2	1,398.1	3.0	3.0	-97.77	-4.5	-33.0	33.4	27.4	6.00	5.562			
1,500.0	1,500.0	1,497.3	1,496.8	3.3	3.2	-104.14	-9.9	-39.2	40.5	34.1	6.42	6.309			
1,600.0	1,600.0	1,597.0	1,596.1	3.5	3.4	-108.81	-15.6	-45.7	48.5	41.6	6.86	7.067			
1,700.0	1,700.0	1,696.6	1,695.3	3.7	3.6	-112.15	-21.3	-52.3	56.6	49.3	7.30	7.755			
1,800.0	1,800.0	1,796.2	1,794.6	3.9	3.8	-114.64	-27.0	-58.8	64.9	57.2	7.76	8.374			
1,900.0	1,900.0	1,895.8	1,893.8	4.2	4.1	-116.57	-32.7	-65.4	73.3	65.1	8.21	8.929			
2,000.0	2,000.0	1,995.4	1,993.1	4.4	4.3	-118.10	-38.4	-71.9	81.8	73.1	8.68	9.426			
2,100.0	2,100.0	2,095.1	2,092.4	4.6	4.5	-45.44	-44.1	-78.5	89.1	80.1	8.97	9.933			
2,200.0	2,199.8	2,194.9	2,191.7	4.8	4.8	-48.65	-49.8	-85.0	94.1	84.8	9.38	10.033			
2,300.0	2,299.6	2,294.6	2,291.0	5.0	5.0	-52.53	-55.5	-91.6	98.2	88.4	9.81	10.012			
2,400.0	2,399.3	2,394.3	2,390.4	5.2	5.3	-56.09	-61.2	-98.1	102.6	92.4	10.24	10.024			
2,500.0	2,499.0	2,494.0	2,489.7	5.5	5.6	-59.35	-66.9	-104.7	107.5	96.8	10.68	10.062			
2,600.0	2,598.8	2,593.7	2,589.0	5.7	5.8	-62.33	-72.6	-111.2	112.6	101.5	11.13	10.120			
2,700.0	2,698.5	2,693.4	2,688.3	5.9	6.1	-65.03	-78.3	-117.7	118.0	106.4	11.58	10.191			
2,800.0	2,798.2	2,793.1	2,787.7	6.2	6.3	-67.50	-84.1	-124.3	123.7	111.6	12.04	10.271			
2,900.0	2,898.0	2,892.8	2,887.0	6.4	6.6	-69.75	-89.8	-130.8	129.5	117.0	12.51	10.357			
3,000.0	2,997.7	2,992.5	2,986.3	6.6	6.9	-71.80	-95.5	-137.4	135.6	122.6	12.98	10.447			
3,100.0	3,097.4	3,092.2	3,085.6	6.9	7.1	-73.67	-101.2	-143.9	141.8	128.3	13.46	10.538			
3,200.0	3,197.2	3,191.9	3,185.0	7.1	7.4	-75.39	-106.9	-150.5	148.1	134.2	13.94	10.631			
3,300.0	3,296.9	3,291.6	3,284.3	7.4	7.7	-76.96	-112.6	-157.0	154.6	140.2	14.42	10.722			
3,400.0	3,396.6	3,391.3	3,383.6	7.6	8.0	-78.40	-118.3	-163.6	161.2	146.3	14.91	10.813			
3,500.0	3,496.4	3,491.0	3,482.9	7.8	8.2	-79.74	-124.0	-170.1	167.8	152.4	15.40	10.901			
3,600.0	3,596.1	3,590.7	3,582.3	8.1	8.5	-80.97	-129.7	-176.7	174.6	158.7	15.89	10.988			
3,700.0	3,695.8	3,690.4	3,681.6	8.3	8.8	-82.10	-135.4	-183.2	181.4	165.0	16.38	11.072			
3,800.0	3,795.5	3,790.1	3,780.9	8.6	9.0	-83.16	-141.1	-189.8	188.3	171.4	16.88	11.154			
3,900.0	3,895.3	3,889.8	3,880.2	8.8	9.3	-84.14	-146.8	-196.3	195.3	177.9	17.38	11.233			
4,000.0	3,995.0	3,989.5	3,979.6	9.1	9.6	-85.05	-152.6	-202.9	202.3	184.4	17.88	11.310			
4,100.0	4,094.7	4,089.2	4,078.9	9.3	9.9	-85.90	-158.3	-209.4	209.3	190.9	18.39	11.384			
4,200.0	4,194.5	4,188.9	4,178.2	9.6	10.1	-86.70	-164.0	-216.0	216.4	197.5	18.89	11.456			
4,300.0	4,294.2	4,288.7	4,277.5	9.8	10.4	-87.44	-169.7	-222.5	223.5	204.1	19.39	11.525			
4,400.0	4,393.9	4,388.4	4,376.9	10.1	10.7	-88.14	-175.4	-229.1	230.7	210.8	19.90	11.592			
4,500.0	4,493.7	4,488.1	4,476.2	10.3	11.0	-88.80	-181.1	-235.6	237.9	217.5	20.41	11.656			
4,600.0	4,593.4	4,587.8	4,575.5	10.6	11.3	-89.42	-186.8	-242.2	245.1	224.2	20.92	11.719			
4,700.0	4,693.1	4,687.5	4,674.8	10.9	11.5	-90.00	-192.5	-248.7	252.4	231.0	21.43	11.778			
4,800.0	4,792.9	4,787.2	4,774.2	11.1	11.8	-90.55	-198.2	-255.3	259.7	237.7	21.94	11.836			
4,900.0	4,892.6	4,886.9	4,873.5	11.4	12.1	-91.07	-203.9	-261.8	267.0	244.5	22.45	11.892			
5,000.0	4,992.3	4,986.6	4,972.8	11.6	12.4	-91.56	-209.6	-268.4	274.3	251.3	22.96	11.946			

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 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19Q-402 - Wellbore #1 - Plan #1 (2-18-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,092.1	5,086.3	5,072.1	11.9	12.6	-92.03	-215.3	-274.9	281.6	258.2	23.47	11.998		
5,200.0	5,191.8	5,186.0	5,171.5	12.1	12.9	-92.47	-221.1	-281.5	289.0	265.0	23.99	12.048		
5,300.0	5,291.5	5,285.7	5,270.8	12.4	13.2	-92.90	-226.8	-288.0	296.4	271.9	24.50	12.097		
5,400.0	5,391.3	5,385.4	5,370.1	12.6	13.5	-93.30	-232.5	-294.6	303.8	278.7	25.01	12.144		
5,500.0	5,491.0	5,485.1	5,469.4	12.9	13.8	-93.68	-238.2	-301.1	311.2	285.6	25.53	12.189		
5,600.0	5,590.7	5,584.8	5,568.8	13.2	14.0	-94.04	-243.9	-307.7	318.6	292.5	26.04	12.233		
5,700.0	5,690.6	5,684.5	5,668.1	13.4	14.3	-94.23	-249.6	-314.2	325.9	299.4	26.52	12.289		
5,800.0	5,790.5	5,786.0	5,769.2	13.6	14.6	-93.79	-255.4	-320.8	332.9	306.0	26.93	12.362		
5,900.0	5,890.5	5,886.1	5,879.1	13.7	14.8	-167.70	-259.8	-325.9	337.8	310.7	27.07	12.479		
6,000.0	5,990.5	6,006.6	5,989.5	13.9	15.0	-167.44	-261.5	-327.8	339.6	312.2	27.48	12.359		
6,100.0	6,090.5	6,107.6	6,090.5	14.1	15.2	102.76	-261.5	-327.9	340.0	311.9	28.07	12.112		
6,200.0	6,189.7	6,214.9	6,197.8	14.3	15.3	104.24	-261.5	-324.3	342.1	313.9	28.28	12.098		
6,300.0	6,286.3	6,327.7	6,308.8	14.3	15.4	105.64	-261.5	-305.3	344.4	316.0	28.37	12.139		
6,400.0	6,378.9	6,441.9	6,417.2	14.4	15.4	106.75	-261.5	-269.6	346.3	317.9	28.38	12.202		
6,500.0	6,465.7	6,557.3	6,520.0	14.5	15.4	107.54	-261.5	-217.5	347.7	319.3	28.41	12.237		
6,600.0	6,545.4	6,673.4	6,614.4	14.7	15.4	107.99	-261.5	-150.1	348.6	319.9	28.64	12.170		
6,700.0	6,616.5	6,789.9	6,697.8	15.1	15.5	108.10	-261.5	-68.9	348.8	319.5	29.27	11.918		
6,800.0	6,677.8	6,906.3	6,767.8	15.8	15.9	107.86	-261.5	24.0	348.3	317.8	30.51	11.417		
6,900.0	6,728.3	7,022.2	6,822.7	16.7	17.0	107.29	-261.5	125.9	347.3	314.7	32.54	10.672		
7,000.0	6,767.1	7,137.2	6,861.3	18.1	18.6	106.38	-261.5	234.1	345.6	310.3	35.36	9.773		
7,100.0	6,793.5	7,250.9	6,883.1	19.7	20.5	105.17	-261.5	345.6	343.6	304.7	38.92	8.829		
7,176.7	6,805.2	7,328.8	6,891.3	21.1	22.0	104.64	-261.5	423.1	342.7	300.9	41.79	8.199		
7,200.0	6,807.2	7,353.4	6,893.8	21.5	22.5	104.69	-261.5	447.6	342.7	300.1	42.68	8.030		
7,300.0	6,808.6	7,461.7	6,898.3	23.5	24.8	105.14	-261.5	555.7	343.5	296.7	46.73	7.351		
7,400.0	6,807.1	7,561.9	6,897.5	25.7	27.0	105.25	-261.5	655.9	343.6	292.7	50.95	6.745		
7,500.0	6,805.7	7,661.9	6,896.8	28.0	29.4	105.36	-261.5	755.9	343.8	288.4	55.36	6.210		
7,600.0	6,804.2	7,761.9	6,896.0	30.3	31.8	105.47	-261.5	855.9	344.0	284.1	59.94	5.739		
7,700.0	6,802.8	7,861.9	6,895.2	32.7	34.2	105.58	-261.5	955.9	344.2	279.5	64.63	5.325		
7,800.0	6,801.3	7,961.9	6,894.5	35.2	36.7	105.69	-261.5	1,055.9	344.4	274.9	69.43	4.960		
7,900.0	6,799.9	8,061.9	6,893.7	37.8	39.3	105.80	-261.5	1,155.9	344.5	270.2	74.30	4.637		
8,000.0	6,798.4	8,161.9	6,892.9	40.3	41.9	105.91	-261.5	1,255.9	344.7	265.5	79.24	4.351		
8,100.0	6,797.0	8,261.9	6,892.2	42.9	44.5	106.02	-261.5	1,355.9	344.9	260.7	84.22	4.095		
8,200.0	6,795.5	8,361.9	6,891.4	45.6	47.1	106.13	-261.5	1,455.9	345.1	255.9	89.25	3.867		
8,300.0	6,794.1	8,461.9	6,890.6	48.2	49.8	106.23	-261.5	1,555.9	345.3	251.0	94.31	3.661		
8,400.0	6,792.6	8,561.9	6,889.9	50.9	52.4	106.34	-261.5	1,655.9	345.5	246.1	99.39	3.476		
8,500.0	6,791.2	8,661.9	6,889.1	53.5	55.1	106.45	-261.5	1,755.9	345.7	241.2	104.50	3.308		
8,600.0	6,789.7	8,761.9	6,888.3	56.2	57.8	106.56	-261.5	1,855.9	345.9	236.2	109.63	3.155		
8,700.0	6,788.3	8,861.9	6,887.5	58.9	60.5	106.67	-261.5	1,955.9	346.1	231.3	114.77	3.015		
8,800.0	6,786.9	8,961.9	6,886.8	61.6	63.2	106.77	-261.5	2,055.9	346.3	226.3	119.92	2.887		
8,900.0	6,785.4	9,061.9	6,886.0	64.4	66.0	106.88	-261.5	2,155.9	346.5	221.4	125.09	2.770		
9,000.0	6,784.0	9,161.9	6,885.2	67.1	68.7	106.99	-261.5	2,255.9	346.7	216.4	130.26	2.661		
9,100.0	6,782.5	9,261.9	6,884.5	69.8	71.4	107.10	-261.5	2,355.9	346.9	211.4	135.43	2.561		
9,200.0	6,781.1	9,361.9	6,883.7	72.6	74.2	107.20	-261.5	2,455.8	347.1	206.4	140.62	2.468		
9,300.0	6,779.6	9,461.9	6,882.9	75.3	76.9	107.31	-261.5	2,555.8	347.3	201.5	145.80	2.382		
9,400.0	6,778.2	9,561.9	6,882.2	78.1	79.7	107.42	-261.5	2,655.8	347.5	196.5	150.99	2.301		
9,500.0	6,776.7	9,661.9	6,881.4	80.8	82.4	107.53	-261.5	2,755.8	347.7	191.5	156.18	2.226		
9,600.0	6,775.3	9,761.9	6,880.6	83.6	85.2	107.63	-261.5	2,855.8	347.9	186.5	161.37	2.156		
9,700.0	6,773.8	9,861.9	6,879.9	86.3	87.9	107.74	-261.5	2,955.8	348.1	181.5	166.56	2.090		
9,800.0	6,772.4	9,961.9	6,879.1	89.1	90.7	107.85	-261.5	3,055.8	348.3	176.5	171.75	2.028		
9,900.0	6,770.9	10,061.9	6,878.3	91.9	93.5	107.95	-261.5	3,155.8	348.5	171.5	176.94	1.970		
10,000.0	6,769.5	10,161.9	6,877.6	94.6	96.2	108.06	-261.5	3,255.8	348.7	166.6	182.13	1.915		

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 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	Offset TVD Reference:	Offset Datum

Offset Design Schneider 19Q-HZ Pad Sec.19-T5N-R64W - Schneider 19Q-402 - Wellbore #1 - Plan #1 (2-18-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,768.0	10,261.9	6,876.8	97.4	99.0	108.17		-261.5	3,355.8	348.9	161.6	187.32	1.863	
10,200.0	6,766.6	10,361.9	6,876.0	100.2	101.8	108.27		-261.5	3,455.8	349.1	156.6	192.50	1.814	
10,300.0	6,765.1	10,461.9	6,875.3	102.9	104.6	108.38		-261.5	3,555.8	349.3	151.7	197.68	1.767	
10,400.0	6,763.7	10,561.9	6,874.5	105.7	107.3	108.48		-261.5	3,655.8	349.6	146.7	202.86	1.723	
10,500.0	6,762.2	10,661.9	6,873.7	108.5	110.1	108.59		-261.5	3,755.8	349.8	141.7	208.03	1.681	
10,600.0	6,760.8	10,761.9	6,873.0	111.3	112.9	108.70		-261.5	3,855.8	350.0	136.8	213.20	1.642	
10,700.0	6,759.3	10,861.9	6,872.2	114.1	115.7	108.80		-261.5	3,955.8	350.2	131.8	218.37	1.604	
10,800.0	6,757.9	10,961.9	6,871.4	116.8	118.5	108.91		-261.5	4,055.8	350.4	126.9	223.53	1.568	
10,900.0	6,756.4	11,061.9	6,870.7	119.6	121.2	109.01		-261.5	4,155.8	350.6	122.0	228.69	1.533	
11,000.0	6,755.0	11,161.9	6,869.9	122.4	124.0	109.12		-261.5	4,255.8	350.9	117.0	233.84	1.500	
11,100.0	6,753.5	11,261.9	6,869.1	125.2	126.8	109.22		-261.5	4,355.7	351.1	112.1	238.99	1.469	Level 3
11,200.0	6,752.1	11,361.9	6,868.4	128.0	129.6	109.33		-261.5	4,455.7	351.3	107.2	244.14	1.439	Level 3
11,300.0	6,750.6	11,461.9	6,867.6	130.8	132.4	109.43		-261.5	4,555.7	351.5	102.3	249.28	1.410	Level 3
11,400.0	6,749.2	11,561.8	6,866.8	133.5	135.2	109.54		-261.5	4,655.7	351.8	97.4	254.41	1.383	Level 3
11,500.0	6,747.7	11,661.8	6,866.0	136.3	138.0	109.64		-261.5	4,755.7	352.0	92.5	259.54	1.356	Level 3
11,600.0	6,746.3	11,761.8	6,865.3	139.1	140.8	109.74		-261.5	4,855.7	352.2	87.6	264.66	1.331	Level 3
11,700.0	6,744.8	11,861.8	6,864.5	141.9	143.5	109.85		-261.5	4,955.7	352.5	82.7	269.78	1.306	Level 3
11,800.0	6,743.4	11,961.8	6,863.7	144.7	146.3	109.95		-261.5	5,055.7	352.7	77.8	274.89	1.283	Level 3
11,900.0	6,741.9	12,061.8	6,863.0	147.5	149.1	110.06		-261.5	5,155.7	352.9	72.9	280.00	1.260	Level 3
12,000.0	6,740.5	12,161.8	6,862.2	150.3	151.9	110.16		-261.5	5,255.7	353.2	68.1	285.10	1.239	Level 2
12,100.0	6,739.0	12,261.8	6,861.4	153.1	154.7	110.26		-261.5	5,355.7	353.4	63.2	290.19	1.218	Level 2
12,200.0	6,737.6	12,361.8	6,860.7	155.9	157.5	110.37		-261.5	5,455.7	353.6	58.3	295.28	1.198	Level 2
12,300.0	6,736.2	12,461.8	6,859.9	158.7	160.3	110.47		-261.5	5,555.7	353.9	53.5	300.36	1.178	Level 2
12,400.0	6,734.7	12,561.8	6,859.1	161.5	163.1	110.57		-261.5	5,655.7	354.1	48.7	305.44	1.159	Level 2
12,500.0	6,733.3	12,661.8	6,858.4	164.3	165.9	110.68		-261.5	5,755.7	354.3	43.8	310.51	1.141	Level 2
12,600.0	6,731.8	12,761.8	6,857.6	167.1	168.7	110.78		-261.5	5,855.7	354.6	39.0	315.57	1.124	Level 2
12,700.0	6,730.4	12,861.8	6,856.8	169.9	171.5	110.88		-261.5	5,955.7	354.8	34.2	320.63	1.107	Level 2
12,800.0	6,728.9	12,961.8	6,856.1	172.7	174.3	110.98		-261.5	6,055.7	355.1	29.4	325.68	1.090	Level 2
12,900.0	6,727.5	13,061.8	6,855.3	175.4	177.1	111.09		-261.5	6,155.7	355.3	24.6	330.72	1.074	Level 2
13,000.0	6,726.0	13,161.8	6,854.5	178.2	179.9	111.19		-261.5	6,255.6	355.6	19.8	335.76	1.059	Level 2
13,069.8	6,725.0	13,230.7	6,854.0	180.2	181.8	111.26		-261.5	6,324.5	355.7	16.5	339.25	1.049	Level 2, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schneider 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4668.0ft (RKB -15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Schneider 19Q-312

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 19Q-312
Project:	SEC.19-T5N-R64W	TVD Reference:	WELL @ 4668.0ft (RKB -15')
Reference Site:	Schneider 19Q-HZ Pad Sec.19-T5N-R64W	MD Reference:	WELL @ 4668.0ft (RKB -15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Schneider 19Q-312	Survey Calculation Method:	Minimum Curvature
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Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (2-18-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4668.0ft (RKB -15')

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