

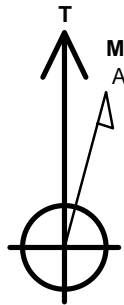
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Klein 19N-312**

Surface Location: Klein 19MN-HZ Pad Sec.19-T5N-R64W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 4628.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1386209.36 3252987.17 40.389990 -104.591760
 RKB - 13' WELL @ 4641.0ft (RKB - 13')

DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Shape |
|--------------------------------|--------|-------|---------|------------------------------------|
| 50' N/S Hardline (19N-312) | 1.0 | -77.8 | 5562.0 | Rectangle (Sides: L10069.2 W100.0) |
| SHL 689'FNL & 2342'FEL, SEC.19 | 1.0 | 0.0 | 0.0 | Point |
| BHL 844'FNL & 2306'FEL, Sec.21 | 6704.0 | -77.8 | 10596.6 | Point |



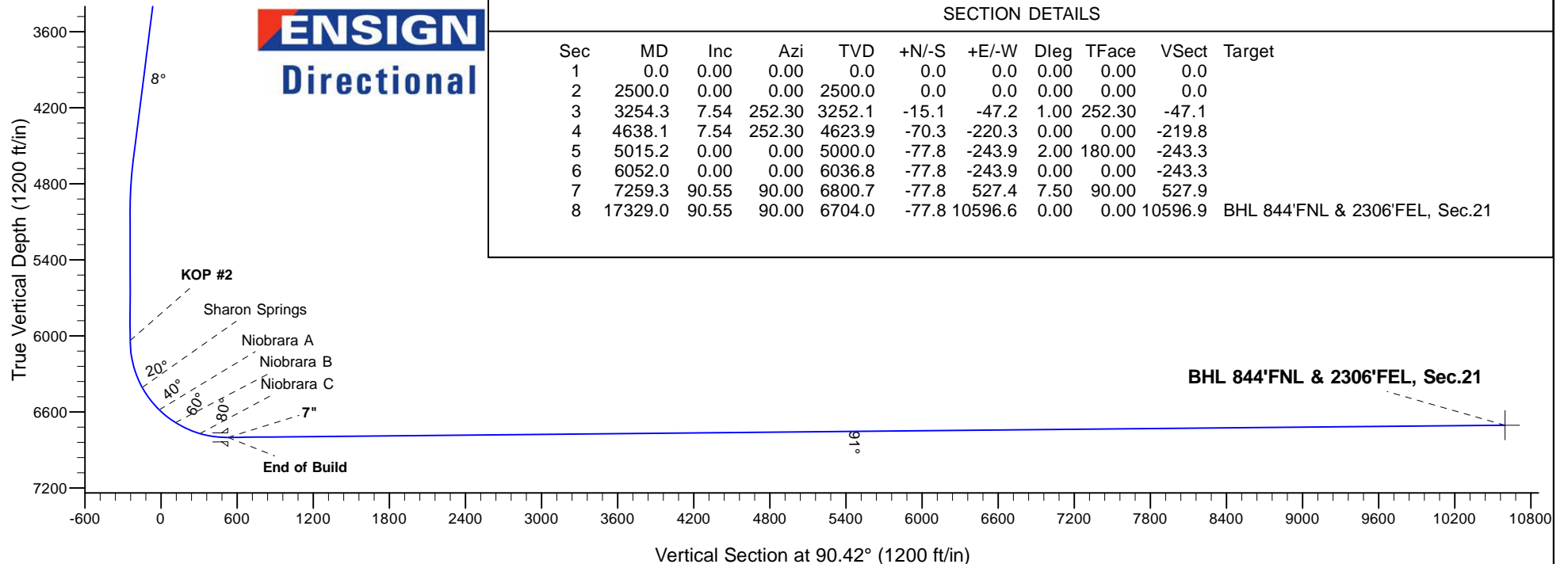
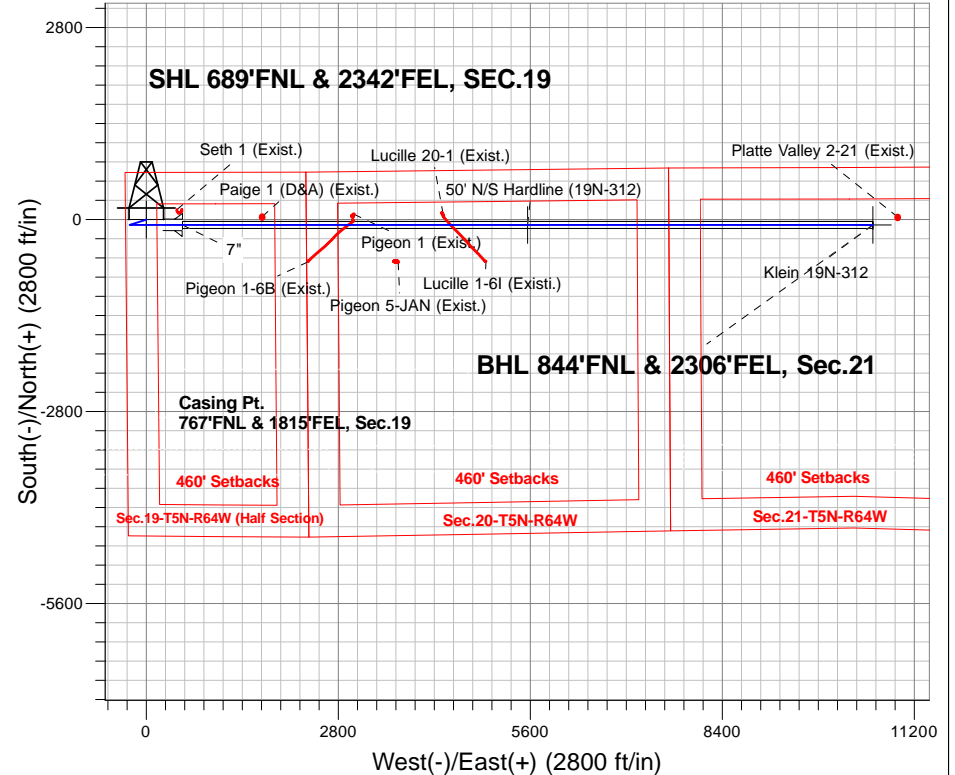
Azimuths to True North
 Magnetic North: 8.22°

Magnetic Field
 Strength: 52715.8snT
 Dip Angle: 66.93°
 Date: 7/14/2015
 Model: IGRF2010

ANNOTATIONS

| TVD | MD | Annotation |
|--------|--------|--------------|
| 2500.0 | 2500.0 | KOP #1 |
| 6036.8 | 6052.0 | KOP #2 |
| 6800.7 | 7259.3 | End of Build |

Klein 19MN-HZ Pad Sec.19-T5N-R64W
 Klein 19N-312
 Plan #3 (7-14-15)





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

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

Klein 19N-312

Wellbore #1

Plan: Plan #3 (7-14-15)

Standard Planning Report

15 July, 2015

| | | | |
|------------------|---|-------------------------------------|-----------------------------|
| Database: | US_EDM | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Project: | SEC.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | North Reference: | True |
| Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #3 (7-14-15) | | |

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

| Site | Klein 19MN-HZ Pad Sec.19-T5N-R64W | | | | |
|-----------------------|-----------------------------------|--------------|-------------------|-------------------|-------------|
| Site Position: | | Northing: | 1,386,208.48 usft | Latitude: | 40.389990 |
| From: | Lat/Long | Easting: | 3,252,898.04 usft | Longitude: | -104.592080 |
| Position Uncertainty: | 0.0 ft | Slot Radius: | 13-3/16 " | Grid Convergence: | 0.59 |

| | | | | | | |
|----------------------|---------------|---------|---------------------|-------------------|---------------|-------------|
| Well | Klein 19N-312 | | | | | |
| Well Position | +N/-S | 0.0 ft | Northing: | 1,386,209.36 usft | Latitude: | 40.389990 |
| | +E/-W | 89.1 ft | Easting: | 3,252,987.18 usft | Longitude: | -104.591760 |
| Position Uncertainty | | 0.0 ft | Wellhead Elevation: | | Ground Level: | 4,628.0 ft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Wellbore #1 | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 7/14/2015 | 8.22 | 66.93 | 52,716 |

| | | | | |
|--------------------------|------------------------------|-------------------|----------------------|----------------------|
| Design | Plan #3 (7-14-15) | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PROTOTYPE | Tie On Depth: | 0.0 |
| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
| | 0.0 | 0.0 | 0.0 | 90.42 |

| Plan Sections | | | | | | | | | | |
|----------------------|-----------------|-------------|---------------------|------------|------------|-------------------------|------------------------|-----------------------|---------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2,500.0 | 0.00 | 0.00 | 2,500.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3,254.3 | 7.54 | 252.30 | 3,252.1 | -15.1 | -47.2 | 1.00 | 1.00 | 0.00 | 252.30 | |
| 4,638.1 | 7.54 | 252.30 | 4,623.9 | -70.3 | -220.3 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,015.2 | 0.00 | 0.00 | 5,000.0 | -77.8 | -243.9 | 2.00 | -2.00 | 0.00 | 180.00 | |
| 6,052.0 | 0.00 | 0.00 | 6,036.8 | -77.8 | -243.9 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7,259.3 | 90.55 | 90.00 | 6,800.7 | -77.8 | 527.4 | 7.50 | 7.50 | 0.00 | 90.00 | |
| 17,329.0 | 90.55 | 90.00 | 6,704.0 | -77.8 | 10,596.6 | 0.00 | 0.00 | 0.00 | 0.00 | BHL 844'FNL & 2306' |

| | | | |
|-----------|---|------------------------------|-----------------------------|
| Database: | US_EDM | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Project: | SEC.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | North Reference: | True |
| Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #3 (7-14-15) | | |

| Planned Survey | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 100.0 | 0.00 | 0.00 | 100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 200.0 | 0.00 | 0.00 | 200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 300.0 | 0.00 | 0.00 | 300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 400.0 | 0.00 | 0.00 | 400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 500.0 | 0.00 | 0.00 | 500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 600.0 | 0.00 | 0.00 | 600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 700.0 | 0.00 | 0.00 | 700.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 800.0 | 0.00 | 0.00 | 800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 900.0 | 0.00 | 0.00 | 900.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1,000.0 | 0.00 | 0.00 | 1,000.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 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 |
| 2,100.0 | 0.00 | 0.00 | 2,100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,200.0 | 0.00 | 0.00 | 2,200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,300.0 | 0.00 | 0.00 | 2,300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,400.0 | 0.00 | 0.00 | 2,400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,500.0 | 0.00 | 0.00 | 2,500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| KOP #1 | | | | | | | | | |
| 2,600.0 | 1.00 | 252.30 | 2,600.0 | -0.3 | -0.8 | -0.8 | 1.00 | 1.00 | 0.00 |
| 2,700.0 | 2.00 | 252.30 | 2,700.0 | -1.1 | -3.3 | -3.3 | 1.00 | 1.00 | 0.00 |
| 2,800.0 | 3.00 | 252.30 | 2,799.9 | -2.4 | -7.5 | -7.5 | 1.00 | 1.00 | 0.00 |
| 2,900.0 | 4.00 | 252.30 | 2,899.7 | -4.2 | -13.3 | -13.3 | 1.00 | 1.00 | 0.00 |
| 3,000.0 | 5.00 | 252.30 | 2,999.4 | -6.6 | -20.8 | -20.7 | 1.00 | 1.00 | 0.00 |
| 3,100.0 | 6.00 | 252.30 | 3,098.9 | -9.5 | -29.9 | -29.8 | 1.00 | 1.00 | 0.00 |
| 3,200.0 | 7.00 | 252.30 | 3,198.3 | -13.0 | -40.7 | -40.6 | 1.00 | 1.00 | 0.00 |
| 3,254.3 | 7.54 | 252.30 | 3,252.1 | -15.1 | -47.2 | -47.1 | 1.00 | 1.00 | 0.00 |
| 3,300.0 | 7.54 | 252.30 | 3,297.4 | -16.9 | -52.9 | -52.8 | 0.00 | 0.00 | 0.00 |
| 3,400.0 | 7.54 | 252.30 | 3,396.6 | -20.9 | -65.5 | -65.3 | 0.00 | 0.00 | 0.00 |
| 3,500.0 | 7.54 | 252.30 | 3,495.7 | -24.9 | -78.0 | -77.8 | 0.00 | 0.00 | 0.00 |
| 3,600.0 | 7.54 | 252.30 | 3,594.8 | -28.9 | -90.5 | -90.2 | 0.00 | 0.00 | 0.00 |
| 3,700.0 | 7.54 | 252.30 | 3,694.0 | -32.9 | -103.0 | -102.7 | 0.00 | 0.00 | 0.00 |
| 3,800.0 | 7.54 | 252.30 | 3,793.1 | -36.9 | -115.5 | -115.2 | 0.00 | 0.00 | 0.00 |
| 3,900.0 | 7.54 | 252.30 | 3,892.2 | -40.8 | -128.0 | -127.7 | 0.00 | 0.00 | 0.00 |
| 4,000.0 | 7.54 | 252.30 | 3,991.4 | -44.8 | -140.5 | -140.2 | 0.00 | 0.00 | 0.00 |
| 4,100.0 | 7.54 | 252.30 | 4,090.5 | -48.8 | -153.0 | -152.6 | 0.00 | 0.00 | 0.00 |
| 4,200.0 | 7.54 | 252.30 | 4,189.6 | -52.8 | -165.5 | -165.1 | 0.00 | 0.00 | 0.00 |
| 4,300.0 | 7.54 | 252.30 | 4,288.8 | -56.8 | -178.0 | -177.6 | 0.00 | 0.00 | 0.00 |
| 4,400.0 | 7.54 | 252.30 | 4,387.9 | -60.8 | -190.5 | -190.1 | 0.00 | 0.00 | 0.00 |
| 4,500.0 | 7.54 | 252.30 | 4,487.0 | -64.8 | -203.0 | -202.5 | 0.00 | 0.00 | 0.00 |
| 4,600.0 | 7.54 | 252.30 | 4,586.2 | -68.8 | -215.5 | -215.0 | 0.00 | 0.00 | 0.00 |
| 4,638.1 | 7.54 | 252.30 | 4,623.9 | -70.3 | -220.3 | -219.8 | 0.00 | 0.00 | 0.00 |
| 4,700.0 | 6.30 | 252.30 | 4,685.4 | -72.6 | -227.4 | -226.9 | 2.00 | -2.00 | 0.00 |
| 4,800.0 | 4.30 | 252.30 | 4,785.0 | -75.4 | -236.2 | -235.6 | 2.00 | -2.00 | 0.00 |
| 4,900.0 | 2.30 | 252.30 | 4,884.8 | -77.1 | -241.7 | -241.1 | 2.00 | -2.00 | 0.00 |

| | | | |
|------------------|---|-------------------------------------|-----------------------------|
| Database: | US_EDM | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Project: | SEC.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | North Reference: | True |
| Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #3 (7-14-15) | | |

| Planned Survey | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 5,000.0 | 0.30 | 252.30 | 4,984.8 | -77.8 | -243.9 | -243.3 | 2.00 | -2.00 | 0.00 |
| 5,015.2 | 0.00 | 0.00 | 5,000.0 | -77.8 | -243.9 | -243.3 | 2.00 | -2.00 | 0.00 |
| 5,100.0 | 0.00 | 0.00 | 5,084.8 | -77.8 | -243.9 | -243.3 | 0.00 | 0.00 | 0.00 |
| 5,200.0 | 0.00 | 0.00 | 5,184.8 | -77.8 | -243.9 | -243.3 | 0.00 | 0.00 | 0.00 |
| 5,300.0 | 0.00 | 0.00 | 5,284.8 | -77.8 | -243.9 | -243.3 | 0.00 | 0.00 | 0.00 |
| 5,400.0 | 0.00 | 0.00 | 5,384.8 | -77.8 | -243.9 | -243.3 | 0.00 | 0.00 | 0.00 |
| 5,500.0 | 0.00 | 0.00 | 5,484.8 | -77.8 | -243.9 | -243.3 | 0.00 | 0.00 | 0.00 |
| 5,600.0 | 0.00 | 0.00 | 5,584.8 | -77.8 | -243.9 | -243.3 | 0.00 | 0.00 | 0.00 |
| 5,700.0 | 0.00 | 0.00 | 5,684.8 | -77.8 | -243.9 | -243.3 | 0.00 | 0.00 | 0.00 |
| 5,800.0 | 0.00 | 0.00 | 5,784.8 | -77.8 | -243.9 | -243.3 | 0.00 | 0.00 | 0.00 |
| 5,900.0 | 0.00 | 0.00 | 5,884.8 | -77.8 | -243.9 | -243.3 | 0.00 | 0.00 | 0.00 |
| 6,000.0 | 0.00 | 0.00 | 5,984.8 | -77.8 | -243.9 | -243.3 | 0.00 | 0.00 | 0.00 |
| 6,052.0 | 0.00 | 0.00 | 6,036.8 | -77.8 | -243.9 | -243.3 | 0.00 | 0.00 | 0.00 |
| KOP #2 | | | | | | | | | |
| 6,100.0 | 3.60 | 90.00 | 6,084.7 | -77.8 | -242.4 | -241.8 | 7.50 | 7.50 | 0.00 |
| 6,200.0 | 11.10 | 90.00 | 6,183.8 | -77.8 | -229.6 | -229.0 | 7.50 | 7.50 | 0.00 |
| 6,300.0 | 18.60 | 90.00 | 6,280.4 | -77.8 | -204.0 | -203.4 | 7.50 | 7.50 | 0.00 |
| 6,400.0 | 26.10 | 90.00 | 6,372.8 | -77.8 | -166.0 | -165.4 | 7.50 | 7.50 | 0.00 |
| 6,500.0 | 33.60 | 90.00 | 6,459.5 | -77.8 | -116.3 | -115.7 | 7.50 | 7.50 | 0.00 |
| 6,600.0 | 41.10 | 90.00 | 6,539.0 | -77.8 | -55.6 | -55.1 | 7.50 | 7.50 | 0.00 |
| 6,700.0 | 48.60 | 90.00 | 6,609.8 | -77.8 | 14.8 | 15.4 | 7.50 | 7.50 | 0.00 |
| 6,800.0 | 56.10 | 90.00 | 6,670.8 | -77.8 | 94.0 | 94.5 | 7.50 | 7.50 | 0.00 |
| 6,900.0 | 63.60 | 90.00 | 6,721.0 | -77.8 | 180.4 | 180.9 | 7.50 | 7.50 | 0.00 |
| 7,000.0 | 71.10 | 90.00 | 6,759.5 | -77.8 | 272.6 | 273.2 | 7.50 | 7.50 | 0.00 |
| 7,100.0 | 78.60 | 90.00 | 6,785.6 | -77.8 | 369.1 | 369.6 | 7.50 | 7.50 | 0.00 |
| 7,200.0 | 86.10 | 90.00 | 6,798.9 | -77.8 | 468.1 | 468.7 | 7.50 | 7.50 | 0.00 |
| 7,259.3 | 90.55 | 90.00 | 6,800.7 | -77.8 | 527.4 | 527.9 | 7.50 | 7.50 | 0.00 |
| End of Build - 7" | | | | | | | | | |
| 7,300.0 | 90.55 | 90.00 | 6,800.3 | -77.8 | 568.1 | 568.6 | 0.00 | 0.00 | 0.00 |
| 7,400.0 | 90.55 | 90.00 | 6,799.3 | -77.8 | 668.0 | 668.6 | 0.00 | 0.00 | 0.00 |
| 7,500.0 | 90.55 | 90.00 | 6,798.3 | -77.8 | 768.0 | 768.6 | 0.00 | 0.00 | 0.00 |
| 7,600.0 | 90.55 | 90.00 | 6,797.4 | -77.8 | 868.0 | 868.6 | 0.00 | 0.00 | 0.00 |
| 7,700.0 | 90.55 | 90.00 | 6,796.4 | -77.8 | 968.0 | 968.6 | 0.00 | 0.00 | 0.00 |
| 7,800.0 | 90.55 | 90.00 | 6,795.5 | -77.8 | 1,068.0 | 1,068.6 | 0.00 | 0.00 | 0.00 |
| 7,900.0 | 90.55 | 90.00 | 6,794.5 | -77.8 | 1,168.0 | 1,168.6 | 0.00 | 0.00 | 0.00 |
| 8,000.0 | 90.55 | 90.00 | 6,793.6 | -77.8 | 1,268.0 | 1,268.6 | 0.00 | 0.00 | 0.00 |
| 8,100.0 | 90.55 | 90.00 | 6,792.6 | -77.8 | 1,368.0 | 1,368.5 | 0.00 | 0.00 | 0.00 |
| 8,200.0 | 90.55 | 90.00 | 6,791.6 | -77.8 | 1,468.0 | 1,468.5 | 0.00 | 0.00 | 0.00 |
| 8,300.0 | 90.55 | 90.00 | 6,790.7 | -77.8 | 1,568.0 | 1,568.5 | 0.00 | 0.00 | 0.00 |
| 8,400.0 | 90.55 | 90.00 | 6,789.7 | -77.8 | 1,668.0 | 1,668.5 | 0.00 | 0.00 | 0.00 |
| 8,500.0 | 90.55 | 90.00 | 6,788.8 | -77.8 | 1,768.0 | 1,768.5 | 0.00 | 0.00 | 0.00 |
| 8,600.0 | 90.55 | 90.00 | 6,787.8 | -77.8 | 1,868.0 | 1,868.5 | 0.00 | 0.00 | 0.00 |
| 8,700.0 | 90.55 | 90.00 | 6,786.8 | -77.8 | 1,968.0 | 1,968.5 | 0.00 | 0.00 | 0.00 |
| 8,800.0 | 90.55 | 90.00 | 6,785.9 | -77.8 | 2,068.0 | 2,068.5 | 0.00 | 0.00 | 0.00 |
| 8,900.0 | 90.55 | 90.00 | 6,784.9 | -77.8 | 2,168.0 | 2,168.5 | 0.00 | 0.00 | 0.00 |
| 9,000.0 | 90.55 | 90.00 | 6,784.0 | -77.8 | 2,268.0 | 2,268.5 | 0.00 | 0.00 | 0.00 |
| 9,100.0 | 90.55 | 90.00 | 6,783.0 | -77.8 | 2,368.0 | 2,368.5 | 0.00 | 0.00 | 0.00 |
| 9,200.0 | 90.55 | 90.00 | 6,782.0 | -77.8 | 2,468.0 | 2,468.5 | 0.00 | 0.00 | 0.00 |
| 9,300.0 | 90.55 | 90.00 | 6,781.1 | -77.8 | 2,568.0 | 2,568.5 | 0.00 | 0.00 | 0.00 |
| 9,400.0 | 90.55 | 90.00 | 6,780.1 | -77.8 | 2,668.0 | 2,668.5 | 0.00 | 0.00 | 0.00 |
| 9,500.0 | 90.55 | 90.00 | 6,779.2 | -77.8 | 2,767.9 | 2,768.4 | 0.00 | 0.00 | 0.00 |
| 9,600.0 | 90.55 | 90.00 | 6,778.2 | -77.8 | 2,867.9 | 2,868.4 | 0.00 | 0.00 | 0.00 |
| 9,700.0 | 90.55 | 90.00 | 6,777.2 | -77.8 | 2,967.9 | 2,968.4 | 0.00 | 0.00 | 0.00 |

| | | | |
|------------------|---|-------------------------------------|-----------------------------|
| Database: | US_EDM | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Project: | SEC.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | North Reference: | True |
| Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #3 (7-14-15) | | |

| Planned Survey | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 9,800.0 | 90.55 | 90.00 | 6,776.3 | -77.8 | 3,067.9 | 3,068.4 | 0.00 | 0.00 | 0.00 |
| 9,900.0 | 90.55 | 90.00 | 6,775.3 | -77.8 | 3,167.9 | 3,168.4 | 0.00 | 0.00 | 0.00 |
| 10,000.0 | 90.55 | 90.00 | 6,774.4 | -77.8 | 3,267.9 | 3,268.4 | 0.00 | 0.00 | 0.00 |
| 10,100.0 | 90.55 | 90.00 | 6,773.4 | -77.8 | 3,367.9 | 3,368.4 | 0.00 | 0.00 | 0.00 |
| 10,200.0 | 90.55 | 90.00 | 6,772.4 | -77.8 | 3,467.9 | 3,468.4 | 0.00 | 0.00 | 0.00 |
| 10,300.0 | 90.55 | 90.00 | 6,771.5 | -77.8 | 3,567.9 | 3,568.4 | 0.00 | 0.00 | 0.00 |
| 10,400.0 | 90.55 | 90.00 | 6,770.5 | -77.8 | 3,667.9 | 3,668.4 | 0.00 | 0.00 | 0.00 |
| 10,500.0 | 90.55 | 90.00 | 6,769.6 | -77.8 | 3,767.9 | 3,768.4 | 0.00 | 0.00 | 0.00 |
| 10,600.0 | 90.55 | 90.00 | 6,768.6 | -77.8 | 3,867.9 | 3,868.4 | 0.00 | 0.00 | 0.00 |
| 10,700.0 | 90.55 | 90.00 | 6,767.6 | -77.8 | 3,967.9 | 3,968.4 | 0.00 | 0.00 | 0.00 |
| 10,800.0 | 90.55 | 90.00 | 6,766.7 | -77.8 | 4,067.9 | 4,068.4 | 0.00 | 0.00 | 0.00 |
| 10,900.0 | 90.55 | 90.00 | 6,765.7 | -77.8 | 4,167.9 | 4,168.3 | 0.00 | 0.00 | 0.00 |
| 11,000.0 | 90.55 | 90.00 | 6,764.8 | -77.8 | 4,267.9 | 4,268.3 | 0.00 | 0.00 | 0.00 |
| 11,100.0 | 90.55 | 90.00 | 6,763.8 | -77.8 | 4,367.9 | 4,368.3 | 0.00 | 0.00 | 0.00 |
| 11,200.0 | 90.55 | 90.00 | 6,762.8 | -77.8 | 4,467.9 | 4,468.3 | 0.00 | 0.00 | 0.00 |
| 11,300.0 | 90.55 | 90.00 | 6,761.9 | -77.8 | 4,567.9 | 4,568.3 | 0.00 | 0.00 | 0.00 |
| 11,400.0 | 90.55 | 90.00 | 6,760.9 | -77.8 | 4,667.9 | 4,668.3 | 0.00 | 0.00 | 0.00 |
| 11,500.0 | 90.55 | 90.00 | 6,760.0 | -77.8 | 4,767.9 | 4,768.3 | 0.00 | 0.00 | 0.00 |
| 11,600.0 | 90.55 | 90.00 | 6,759.0 | -77.8 | 4,867.9 | 4,868.3 | 0.00 | 0.00 | 0.00 |
| 11,700.0 | 90.55 | 90.00 | 6,758.0 | -77.8 | 4,967.8 | 4,968.3 | 0.00 | 0.00 | 0.00 |
| 11,800.0 | 90.55 | 90.00 | 6,757.1 | -77.8 | 5,067.8 | 5,068.3 | 0.00 | 0.00 | 0.00 |
| 11,900.0 | 90.55 | 90.00 | 6,756.1 | -77.8 | 5,167.8 | 5,168.3 | 0.00 | 0.00 | 0.00 |
| 12,000.0 | 90.55 | 90.00 | 6,755.2 | -77.8 | 5,267.8 | 5,268.3 | 0.00 | 0.00 | 0.00 |
| 12,100.0 | 90.55 | 90.00 | 6,754.2 | -77.8 | 5,367.8 | 5,368.3 | 0.00 | 0.00 | 0.00 |
| 12,200.0 | 90.55 | 90.00 | 6,753.2 | -77.8 | 5,467.8 | 5,468.2 | 0.00 | 0.00 | 0.00 |
| 12,300.0 | 90.55 | 90.00 | 6,752.3 | -77.8 | 5,567.8 | 5,568.2 | 0.00 | 0.00 | 0.00 |
| 12,400.0 | 90.55 | 90.00 | 6,751.3 | -77.8 | 5,667.8 | 5,668.2 | 0.00 | 0.00 | 0.00 |
| 12,500.0 | 90.55 | 90.00 | 6,750.4 | -77.8 | 5,767.8 | 5,768.2 | 0.00 | 0.00 | 0.00 |
| 12,600.0 | 90.55 | 90.00 | 6,749.4 | -77.8 | 5,867.8 | 5,868.2 | 0.00 | 0.00 | 0.00 |
| 12,700.0 | 90.55 | 90.00 | 6,748.4 | -77.8 | 5,967.8 | 5,968.2 | 0.00 | 0.00 | 0.00 |
| 12,800.0 | 90.55 | 90.00 | 6,747.5 | -77.8 | 6,067.8 | 6,068.2 | 0.00 | 0.00 | 0.00 |
| 12,900.0 | 90.55 | 90.00 | 6,746.5 | -77.8 | 6,167.8 | 6,168.2 | 0.00 | 0.00 | 0.00 |
| 13,000.0 | 90.55 | 90.00 | 6,745.6 | -77.8 | 6,267.8 | 6,268.2 | 0.00 | 0.00 | 0.00 |
| 13,100.0 | 90.55 | 90.00 | 6,744.6 | -77.8 | 6,367.8 | 6,368.2 | 0.00 | 0.00 | 0.00 |
| 13,200.0 | 90.55 | 90.00 | 6,743.6 | -77.8 | 6,467.8 | 6,468.2 | 0.00 | 0.00 | 0.00 |
| 13,300.0 | 90.55 | 90.00 | 6,742.7 | -77.8 | 6,567.8 | 6,568.2 | 0.00 | 0.00 | 0.00 |
| 13,400.0 | 90.55 | 90.00 | 6,741.7 | -77.8 | 6,667.8 | 6,668.2 | 0.00 | 0.00 | 0.00 |
| 13,500.0 | 90.55 | 90.00 | 6,740.8 | -77.8 | 6,767.8 | 6,768.2 | 0.00 | 0.00 | 0.00 |
| 13,600.0 | 90.55 | 90.00 | 6,739.8 | -77.8 | 6,867.8 | 6,868.1 | 0.00 | 0.00 | 0.00 |
| 13,700.0 | 90.55 | 90.00 | 6,738.8 | -77.8 | 6,967.8 | 6,968.1 | 0.00 | 0.00 | 0.00 |
| 13,800.0 | 90.55 | 90.00 | 6,737.9 | -77.8 | 7,067.8 | 7,068.1 | 0.00 | 0.00 | 0.00 |
| 13,900.0 | 90.55 | 90.00 | 6,736.9 | -77.8 | 7,167.7 | 7,168.1 | 0.00 | 0.00 | 0.00 |
| 14,000.0 | 90.55 | 90.00 | 6,736.0 | -77.8 | 7,267.7 | 7,268.1 | 0.00 | 0.00 | 0.00 |
| 14,100.0 | 90.55 | 90.00 | 6,735.0 | -77.8 | 7,367.7 | 7,368.1 | 0.00 | 0.00 | 0.00 |
| 14,200.0 | 90.55 | 90.00 | 6,734.0 | -77.8 | 7,467.7 | 7,468.1 | 0.00 | 0.00 | 0.00 |
| 14,300.0 | 90.55 | 90.00 | 6,733.1 | -77.8 | 7,567.7 | 7,568.1 | 0.00 | 0.00 | 0.00 |
| 14,400.0 | 90.55 | 90.00 | 6,732.1 | -77.8 | 7,667.7 | 7,668.1 | 0.00 | 0.00 | 0.00 |
| 14,500.0 | 90.55 | 90.00 | 6,731.2 | -77.8 | 7,767.7 | 7,768.1 | 0.00 | 0.00 | 0.00 |
| 14,600.0 | 90.55 | 90.00 | 6,730.2 | -77.8 | 7,867.7 | 7,868.1 | 0.00 | 0.00 | 0.00 |
| 14,700.0 | 90.55 | 90.00 | 6,729.2 | -77.8 | 7,967.7 | 7,968.1 | 0.00 | 0.00 | 0.00 |
| 14,800.0 | 90.55 | 90.00 | 6,728.3 | -77.8 | 8,067.7 | 8,068.1 | 0.00 | 0.00 | 0.00 |
| 14,900.0 | 90.55 | 90.00 | 6,727.3 | -77.8 | 8,167.7 | 8,168.1 | 0.00 | 0.00 | 0.00 |
| 15,000.0 | 90.55 | 90.00 | 6,726.4 | -77.8 | 8,267.7 | 8,268.0 | 0.00 | 0.00 | 0.00 |

| | | | |
|------------------|---|-------------------------------------|-----------------------------|
| Database: | US_EDM | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Project: | SEC.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | North Reference: | True |
| Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #3 (7-14-15) | | |

| Planned Survey | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 15,100.0 | 90.55 | 90.00 | 6,725.4 | -77.8 | 8,367.7 | 8,368.0 | 0.00 | 0.00 | 0.00 |
| 15,200.0 | 90.55 | 90.00 | 6,724.4 | -77.8 | 8,467.7 | 8,468.0 | 0.00 | 0.00 | 0.00 |
| 15,300.0 | 90.55 | 90.00 | 6,723.5 | -77.8 | 8,567.7 | 8,568.0 | 0.00 | 0.00 | 0.00 |
| 15,400.0 | 90.55 | 90.00 | 6,722.5 | -77.8 | 8,667.7 | 8,668.0 | 0.00 | 0.00 | 0.00 |
| 15,500.0 | 90.55 | 90.00 | 6,721.6 | -77.8 | 8,767.7 | 8,768.0 | 0.00 | 0.00 | 0.00 |
| 15,600.0 | 90.55 | 90.00 | 6,720.6 | -77.8 | 8,867.7 | 8,868.0 | 0.00 | 0.00 | 0.00 |
| 15,700.0 | 90.55 | 90.00 | 6,719.6 | -77.8 | 8,967.7 | 8,968.0 | 0.00 | 0.00 | 0.00 |
| 15,800.0 | 90.55 | 90.00 | 6,718.7 | -77.8 | 9,067.7 | 9,068.0 | 0.00 | 0.00 | 0.00 |
| 15,900.0 | 90.55 | 90.00 | 6,717.7 | -77.8 | 9,167.7 | 9,168.0 | 0.00 | 0.00 | 0.00 |
| 16,000.0 | 90.55 | 90.00 | 6,716.8 | -77.8 | 9,267.6 | 9,268.0 | 0.00 | 0.00 | 0.00 |
| 16,100.0 | 90.55 | 90.00 | 6,715.8 | -77.8 | 9,367.6 | 9,368.0 | 0.00 | 0.00 | 0.00 |
| 16,200.0 | 90.55 | 90.00 | 6,714.8 | -77.8 | 9,467.6 | 9,468.0 | 0.00 | 0.00 | 0.00 |
| 16,300.0 | 90.55 | 90.00 | 6,713.9 | -77.8 | 9,567.6 | 9,567.9 | 0.00 | 0.00 | 0.00 |
| 16,400.0 | 90.55 | 90.00 | 6,712.9 | -77.8 | 9,667.6 | 9,667.9 | 0.00 | 0.00 | 0.00 |
| 16,500.0 | 90.55 | 90.00 | 6,712.0 | -77.8 | 9,767.6 | 9,767.9 | 0.00 | 0.00 | 0.00 |
| 16,600.0 | 90.55 | 90.00 | 6,711.0 | -77.8 | 9,867.6 | 9,867.9 | 0.00 | 0.00 | 0.00 |
| 16,700.0 | 90.55 | 90.00 | 6,710.0 | -77.8 | 9,967.6 | 9,967.9 | 0.00 | 0.00 | 0.00 |
| 16,800.0 | 90.55 | 90.00 | 6,709.1 | -77.8 | 10,067.6 | 10,067.9 | 0.00 | 0.00 | 0.00 |
| 16,900.0 | 90.55 | 90.00 | 6,708.1 | -77.8 | 10,167.6 | 10,167.9 | 0.00 | 0.00 | 0.00 |
| 17,000.0 | 90.55 | 90.00 | 6,707.2 | -77.8 | 10,267.6 | 10,267.9 | 0.00 | 0.00 | 0.00 |
| 17,100.0 | 90.55 | 90.00 | 6,706.2 | -77.8 | 10,367.6 | 10,367.9 | 0.00 | 0.00 | 0.00 |
| 17,200.0 | 90.55 | 90.00 | 6,705.2 | -77.8 | 10,467.6 | 10,467.9 | 0.00 | 0.00 | 0.00 |
| 17,300.0 | 90.55 | 90.00 | 6,704.3 | -77.8 | 10,567.6 | 10,567.9 | 0.00 | 0.00 | 0.00 |
| 17,329.0 | 90.55 | 90.00 | 6,704.0 | -77.8 | 10,596.6 | 10,596.9 | 0.00 | 0.00 | 0.00 |

| Design Targets | | | | | | | | | |
|---|---------------|--------------|----------|------------|------------|-----------------|----------------|-----------|-------------|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
| - hit/miss target | | | | | | | | | |
| - Shape | | | | | | | | | |
| SHL 689'FNL & 2342'FE | 0.00 | 0.00 | 1.0 | 0.0 | 0.0 | 1,386,209.39 | 3,252,987.18 | 40.389990 | -104.591760 |
| - plan hits target center | | | | | | | | | |
| - Point | | | | | | | | | |
| 50' N/S Hardline (19N-3' | 0.00 | 0.00 | 1.0 | -77.8 | 5,562.0 | 1,386,188.53 | 3,258,549.45 | 40.389775 | -104.571794 |
| - plan misses target center by 5562.5ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) | | | | | | | | | |
| - Rectangle (sides W100.0 H10,069.2 D0.0) | | | | | | | | | |
| BHL 844'FNL & 2306'FE | 0.00 | 0.00 | 6,704.0 | -77.8 | 10,596.6 | 1,386,240.05 | 3,263,583.55 | 40.389770 | -104.553720 |
| - plan hits target center | | | | | | | | | |
| - Point | | | | | | | | | |

| Casing Points | | | | | |
|---------------------|---------------------|------|---------------------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (") | Hole Diameter (") | |
| 7,259.3 | 6,800.7 | 7" | 7 | 7-1/2 | |

| | | | |
|------------------|---|-------------------------------------|-----------------------------|
| Database: | US_EDM | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Project: | SEC.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | North Reference: | True |
| Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #3 (7-14-15) | | |

| Formations | | | | | |
|---------------------|---------------------|----------------|-----------|---------|-------------------|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) |
| 3,554.8 | 3,550.0 | Parkman | | 0.00 | |
| 4,311.3 | 4,300.0 | Sussex | | 0.00 | |
| 4,513.1 | 4,500.0 | Shannon | | 0.00 | |
| 6,438.5 | 6,407.0 | Sharon Springs | | 0.00 | |
| 6,660.6 | 6,583.0 | Niobrara A | | 0.00 | |
| 6,824.2 | 6,684.0 | Niobrara B | | 0.00 | |
| 7,034.7 | 6,770.0 | Niobrara C | | 0.00 | |

| Plan Annotations | | | | |
|---------------------|---------------------|-------------------|------------|--------------|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | Comment |
| | | +N/-S (ft) | +E/-W (ft) | |
| 2,500.0 | 2,500.0 | 0.0 | 0.0 | KOP #1 |
| 6,052.0 | 6,036.8 | -77.8 | -243.9 | KOP #2 |
| 7,259.3 | 6,800.7 | -77.8 | 527.4 | End of Build |



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.19-T5N-R64W

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

Klein 19N-312

Wellbore #1

Plan #3 (7-14-15)

Anticollision Report

30 July, 2015



| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| | | | |
|-------------------------------------|---|-----------------------|---------------------|
| Reference | Plan #3 (7-14-15) | | |
| Filter type: | NO GLOBAL FILTER: Using user defined selection & filtering criteria | | |
| Interpolation Method: | Stations | Error Model: | ISCWSA |
| Depth Range: | Unlimited | Scan Method: | Closest Approach 3D |
| Results Limited by: | Maximum center-center distance of 1,000.0 ft | Error Surface: | Elliptical Conic |
| Warning Levels Evaluated at: | 2.00 Sigma | Casing Method: | Not applied |

| | | | | |
|----------------------------|-----------------------|---------------------------------|------------------|--------------------|
| Survey Tool Program | Date 7/30/2015 | | | |
| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description |
| 0.0 | 17,329.0 | Plan #3 (7-14-15) (Wellbore #1) | MWD | MWD - Standard |

| Summary | | | | | | |
|---|-------------------------------|----------------------------|-------------------------------|--------------------------------|-------------------|---------------------|
| Site Name | Reference Measured Depth (ft) | Offset Measured Depth (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Separation Factor | Warning |
| Offset Well - Wellbore - Design | | | | | | |
| Klein (Existing) Sec.19-T5N-R64W | | | | | | |
| Lucille 1-6I (Existi.) - Wellbore #1 - Wellbore #1 | 11,681.1 | 6,867.7 | 529.6 | 373.0 | 3.382 | CC |
| Lucille 1-6I (Existi.) - Wellbore #1 - Wellbore #1 | 11,700.0 | 6,867.9 | 529.9 | 372.8 | 3.373 | ES, SF |
| Lucille 20-1 (Exist.) - Wellbore #1 - Wellbore #1 | 11,056.7 | 6,749.4 | 166.5 | 30.4 | 1.223 | Level 2, CC, ES, SF |
| Paige 1 (D&A) (Exist.) - Wellbore #1 - Wellbore #1 | 8,421.2 | 6,763.5 | 121.6 | -65.3 | 0.651 | Level 1, CC, ES, SF |
| Pigeon 1 (Exist.) - Wellbore #1 - Wellbore #1 | 9,752.8 | 6,754.5 | 151.0 | 50.7 | 1.505 | CC, ES, SF |
| Pigeon 1-6B (Exist.) - Wellbore #1 - Wellbore #1 | 9,092.8 | 6,872.8 | 528.2 | 442.7 | 6.173 | CC |
| Pigeon 1-6B (Exist.) - Wellbore #1 - Wellbore #1 | 9,100.0 | 6,872.8 | 528.3 | 442.5 | 6.160 | ES |
| Pigeon 1-6B (Exist.) - Wellbore #1 - Wellbore #1 | 9,200.0 | 6,872.7 | 539.0 | 450.5 | 6.090 | SF |
| Pigeon 5-JAN (Exist.) - Wellbore #1 - Wellbore #1 | 10,400.5 | 6,741.1 | 533.1 | 415.3 | 4.527 | CC, ES |
| Pigeon 5-JAN (Exist.) - Wellbore #1 - Wellbore #1 | 10,500.0 | 6,742.1 | 542.3 | 421.8 | 4.499 | SF |
| Platte Valley 2-21 (Exist.) - Wellbore #1 - Wellbore #1 | 17,329.0 | 6,671.0 | 377.8 | -55.4 | 0.872 | Level 1, CC, ES, SF |
| Seth 1 (Exist.) - Wellbore #1 - Wellbore #1 | 7,177.6 | 6,783.9 | 223.6 | 189.0 | 6.464 | CC, ES |
| Seth 1 (Exist.) - Wellbore #1 - Wellbore #1 | 7,200.0 | 6,785.7 | 224.7 | 189.6 | 6.415 | SF |
| Klein 19MN-HZ Pad Sec.19-T5N-R64W | | | | | | |
| Klein 19M-232 - Wellbore #1 - Plan #3 (7-14-15) | 1,200.0 | 1,200.0 | 61.3 | 56.1 | 11.855 | CC |
| Klein 19M-232 - Wellbore #1 - Plan #3 (7-14-15) | 17,329.0 | 17,258.8 | 423.5 | -166.4 | 0.718 | Level 1, ES, SF |
| Klein 19M-402 - Wellbore #1 - Plan #3 (7-13-15) | 1,000.0 | 1,000.0 | 89.1 | 84.9 | 20.873 | CC |
| Klein 19M-402 - Wellbore #1 - Plan #3 (7-13-15) | 1,100.0 | 1,099.6 | 89.4 | 84.6 | 18.935 | ES |
| Klein 19M-402 - Wellbore #1 - Plan #3 (7-13-15) | 17,329.0 | 17,445.4 | 747.9 | 153.7 | 1.259 | Level 3, SF |
| Klein 19N-202 - Wellbore #1 - Plan #3 (7-14-15) | 1,500.0 | 1,500.0 | 30.6 | 24.1 | 4.701 | CC |
| Klein 19N-202 - Wellbore #1 - Plan #3 (7-14-15) | 17,329.0 | 17,265.4 | 341.7 | -241.5 | 0.586 | Level 1, ES, SF |

| Offset Design Klein (Existing) Sec.19-T5N-R64W - Lucille 1-6I (Existi.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|-----------------------------------|-------------------------------|--------------------------------|-------------------------|-------------------|---------------------------|--------|
| Survey Program: 641-NS-GYRO-MS | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | 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 | |
| 10,900.0 | 6,765.7 | 6,861.1 | 6,734.8 | 120.0 | 15.8 | 89.85 | -607.5 | 4,948.9 | 943.7 | 808.9 | 134.81 | 7.000 | | |
| 11,000.0 | 6,764.8 | 6,861.9 | 6,735.6 | 122.8 | 15.8 | 89.93 | -607.5 | 4,948.9 | 862.8 | 725.2 | 137.59 | 6.270 | | |
| 11,100.0 | 6,763.8 | 6,862.7 | 6,736.4 | 125.5 | 15.8 | 90.02 | -607.5 | 4,948.9 | 786.2 | 645.9 | 140.38 | 5.601 | | |
| 11,200.0 | 6,762.8 | 6,863.5 | 6,737.2 | 128.3 | 15.8 | 90.11 | -607.5 | 4,948.9 | 715.5 | 572.3 | 143.17 | 4.998 | | |
| 11,300.0 | 6,761.9 | 6,864.4 | 6,738.0 | 131.1 | 15.8 | 90.20 | -607.5 | 4,949.0 | 652.5 | 506.5 | 145.96 | 4.470 | | |
| 11,400.0 | 6,760.9 | 6,865.2 | 6,738.9 | 133.9 | 15.8 | 90.29 | -607.5 | 4,949.0 | 599.6 | 450.8 | 148.74 | 4.031 | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein (Existing) Sec.19-T5N-R64W - Lucille 1-6I (Existi.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------|---------------|---------------|-----------------|--------|-----------------|------------------------|---------------|-----------------|------------------|--------------------|--------------|--------------------|--------|
| Survey Program: 641-NS-GYRO-MS | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | |
| Measured | Vertical | Measured | Vertical | Reference | Offset | Highside | Offset Wellbore Centre | | Between | Between | Minimum | Separation | Warning | |
| Depth (ft) | Depth (ft) | Depth (ft) | Depth (ft) | (ft) | (ft) | Toolface (°) | +N/-S (ft) | +E/-W (ft) | Centres (ft) | Ellipses (ft) | Separation (ft) | Factor | | |
| 11,500.0 | 6,760.0 | 6,867.0 | 6,740.7 | 136.7 | 15.8 | 90.48 | -607.4 | 4,949.0 | 559.7 | 408.2 | 151.53 | 3.694 | | |
| 11,600.0 | 6,759.0 | 6,867.0 | 6,740.7 | 139.5 | 15.8 | 90.48 | -607.4 | 4,949.0 | 535.8 | 381.5 | 154.32 | 3.472 | | |
| 11,681.1 | 6,758.2 | 6,867.7 | 6,741.3 | 141.8 | 15.8 | 90.56 | -607.4 | 4,949.0 | 529.6 | 373.0 | 156.58 | 3.382 CC | | |
| 11,700.0 | 6,758.0 | 6,867.9 | 6,741.5 | 142.3 | 15.8 | 90.57 | -607.4 | 4,949.0 | 529.9 | 372.8 | 157.11 | 3.373 ES, SF | | |
| 11,800.0 | 6,757.1 | 6,868.8 | 6,742.4 | 145.1 | 15.8 | 90.67 | -607.4 | 4,949.0 | 542.8 | 382.9 | 159.90 | 3.395 | | |
| 11,900.0 | 6,756.1 | 6,869.7 | 6,743.3 | 147.9 | 15.8 | 90.77 | -607.4 | 4,949.1 | 573.1 | 410.4 | 162.69 | 3.522 | | |
| 12,000.0 | 6,755.2 | 6,870.5 | 6,744.2 | 150.7 | 15.8 | 90.86 | -607.4 | 4,949.1 | 618.2 | 452.7 | 165.48 | 3.736 | | |
| 12,100.0 | 6,754.2 | 6,871.4 | 6,745.1 | 153.5 | 15.8 | 90.96 | -607.4 | 4,949.1 | 675.2 | 507.0 | 168.27 | 4.013 | | |
| 12,200.0 | 6,753.2 | 6,872.3 | 6,746.0 | 156.3 | 15.8 | 91.05 | -607.4 | 4,949.1 | 741.4 | 570.4 | 171.06 | 4.334 | | |
| 12,300.0 | 6,752.3 | 6,873.2 | 6,746.8 | 159.1 | 15.8 | 91.15 | -607.4 | 4,949.1 | 814.5 | 640.7 | 173.85 | 4.685 | | |
| 12,400.0 | 6,751.3 | 6,874.0 | 6,747.7 | 161.9 | 15.8 | 91.24 | -607.4 | 4,949.1 | 892.9 | 716.2 | 176.64 | 5.055 | | |
| 12,500.0 | 6,750.4 | 6,874.9 | 6,748.5 | 164.7 | 15.8 | 91.33 | -607.4 | 4,949.2 | 975.2 | 795.8 | 179.43 | 5.435 | | |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein (Existing) Sec.19-T5N-R64W - Lucille 20-1 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|---------------------|--------|
| Survey Program: 100-NS-GYRO-MS | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| 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 | 6,773.4 | 6,741.7 | 6,740.1 | 97.7 | 11.8 | -88.93 | 88.8 | 4,324.5 | 971.0 | 861.5 | 109.48 | 8.869 | | |
| 10,200.0 | 6,772.4 | 6,742.4 | 6,740.8 | 100.5 | 11.8 | -89.18 | 88.7 | 4,324.5 | 872.7 | 760.4 | 112.26 | 7.773 | | |
| 10,300.0 | 6,771.5 | 6,743.2 | 6,741.6 | 103.3 | 11.8 | -89.44 | 88.7 | 4,324.5 | 774.7 | 659.7 | 115.05 | 6.734 | | |
| 10,400.0 | 6,770.5 | 6,744.0 | 6,742.4 | 106.1 | 11.8 | -89.71 | 88.7 | 4,324.5 | 677.4 | 559.6 | 117.83 | 5.749 | | |
| 10,500.0 | 6,769.6 | 6,744.7 | 6,743.2 | 108.8 | 11.8 | -89.98 | 88.7 | 4,324.5 | 581.0 | 460.4 | 120.61 | 4.817 | | |
| 10,600.0 | 6,768.6 | 6,745.5 | 6,744.0 | 111.6 | 11.8 | -90.26 | 88.7 | 4,324.5 | 486.1 | 362.7 | 123.40 | 3.939 | | |
| 10,700.0 | 6,767.6 | 6,746.4 | 6,744.8 | 114.4 | 11.8 | -90.54 | 88.6 | 4,324.5 | 393.6 | 267.4 | 126.18 | 3.119 | | |
| 10,800.0 | 6,766.7 | 6,747.2 | 6,745.6 | 117.2 | 11.8 | -90.82 | 88.6 | 4,324.6 | 305.9 | 177.0 | 128.95 | 2.372 | | |
| 10,900.0 | 6,765.7 | 6,748.0 | 6,746.4 | 120.0 | 11.8 | -91.12 | 88.6 | 4,324.6 | 228.6 | 96.9 | 131.73 | 1.735 | | |
| 11,000.0 | 6,764.8 | 6,748.9 | 6,747.3 | 122.8 | 11.8 | -91.41 | 88.6 | 4,324.6 | 175.8 | 41.3 | 134.50 | 1.307 | Level 3 | |
| 11,056.7 | 6,764.2 | 6,749.4 | 6,747.8 | 124.3 | 11.8 | -91.58 | 88.6 | 4,324.6 | 166.5 | 30.4 | 136.07 | 1.223 | Level 2, CC, ES, SF | |
| 11,100.0 | 6,763.8 | 6,749.8 | 6,748.2 | 125.5 | 11.8 | -91.71 | 88.5 | 4,324.6 | 172.0 | 34.7 | 137.27 | 1.253 | Level 3 | |
| 11,200.0 | 6,762.8 | 6,750.7 | 6,749.1 | 128.3 | 11.8 | -92.02 | 88.5 | 4,324.6 | 219.7 | 79.6 | 140.04 | 1.569 | | |
| 11,300.0 | 6,761.9 | 6,751.6 | 6,750.0 | 131.1 | 11.8 | -92.34 | 88.5 | 4,324.6 | 294.8 | 152.0 | 142.80 | 2.064 | | |
| 11,400.0 | 6,760.9 | 6,752.5 | 6,750.9 | 133.9 | 11.8 | -92.66 | 88.5 | 4,324.7 | 381.5 | 236.0 | 145.55 | 2.621 | | |
| 11,500.0 | 6,760.0 | 6,753.5 | 6,751.9 | 136.7 | 11.8 | -92.99 | 88.4 | 4,324.7 | 473.5 | 325.2 | 148.30 | 3.193 | | |
| 11,600.0 | 6,759.0 | 6,754.4 | 6,752.8 | 139.5 | 11.8 | -93.32 | 88.4 | 4,324.7 | 568.2 | 417.2 | 151.05 | 3.762 | | |
| 11,700.0 | 6,758.0 | 6,755.4 | 6,753.8 | 142.3 | 11.8 | -93.66 | 88.4 | 4,324.7 | 664.5 | 510.7 | 153.79 | 4.321 | | |
| 11,800.0 | 6,757.1 | 6,756.4 | 6,754.8 | 145.1 | 11.8 | -94.01 | 88.4 | 4,324.7 | 761.7 | 605.2 | 156.52 | 4.867 | | |
| 11,900.0 | 6,756.1 | 6,757.5 | 6,755.9 | 147.9 | 11.8 | -94.36 | 88.3 | 4,324.8 | 859.6 | 700.3 | 159.24 | 5.398 | | |
| 12,000.0 | 6,755.2 | 6,758.5 | 6,756.9 | 150.7 | 11.8 | -94.72 | 88.3 | 4,324.8 | 957.9 | 795.9 | 161.95 | 5.915 | | |

| Offset Design | | | | | | | | | | | | | Klein (Existing) Sec.19-T5N-R64W - Paige 1 (D&A) (Exist.) - Wellbore #1 - Wellbore #1 | | Offset Site Error: 0.0 ft | |
|------------------------------|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|---|--|---------------------------|--|
| Survey Program: 7003-UNKNOWN | | | | | | | | | | | | | Offset Well Error: 0.0 ft | | | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | | |
| 7,500.0 | 6,798.3 | 6,772.3 | 6,772.3 | 28.1 | 135.4 | -94.16 | 43.8 | 1,689.2 | 929.2 | 766.0 | 163.14 | 5.696 | | | | |
| 7,600.0 | 6,797.4 | 6,771.4 | 6,771.4 | 30.5 | 135.4 | -93.71 | 43.8 | 1,689.2 | 830.1 | 664.5 | 165.58 | 5.013 | | | | |
| 7,700.0 | 6,796.4 | 6,770.4 | 6,770.4 | 32.9 | 135.4 | -93.26 | 43.8 | 1,689.2 | 731.4 | 563.3 | 168.09 | 4.351 | | | | |
| 7,800.0 | 6,795.5 | 6,769.5 | 6,769.5 | 35.4 | 135.4 | -92.81 | 43.8 | 1,689.2 | 633.0 | 462.3 | 170.64 | 3.709 | | | | |
| 7,900.0 | 6,794.5 | 6,768.5 | 6,768.5 | 38.0 | 135.4 | -92.36 | 43.8 | 1,689.2 | 535.2 | 362.0 | 173.22 | 3.090 | | | | |
| 8,000.0 | 6,793.6 | 6,767.6 | 6,767.6 | 40.6 | 135.4 | -91.90 | 43.8 | 1,689.2 | 438.4 | 262.6 | 175.83 | 2.493 | | | | |
| 8,100.0 | 6,792.6 | 6,766.6 | 6,766.6 | 43.2 | 135.3 | -91.45 | 43.8 | 1,689.2 | 343.5 | 165.0 | 178.46 | 1.925 | | | | |
| 8,200.0 | 6,791.6 | 6,765.6 | 6,765.6 | 45.8 | 135.3 | -91.00 | 43.8 | 1,689.2 | 252.4 | 71.3 | 181.10 | 1.394 | Level 3 | | | |
| 8,300.0 | 6,790.7 | 6,764.7 | 6,764.7 | 48.5 | 135.3 | -90.55 | 43.8 | 1,689.2 | 171.7 | -12.0 | 183.75 | 0.934 | Level 1 | | | |
| 8,400.0 | 6,789.7 | 6,763.7 | 6,763.7 | 51.1 | 135.3 | -90.10 | 43.8 | 1,689.2 | 123.5 | -62.9 | 186.41 | 0.662 | Level 1 | | | |
| 8,421.2 | 6,789.5 | 6,763.5 | 6,763.5 | 51.7 | 135.3 | -90.00 | 43.8 | 1,689.2 | 121.6 | -65.3 | 186.98 | 0.651 | Level 1, CC, ES, SF | | | |
| 8,500.0 | 6,788.8 | 6,762.8 | 6,762.8 | 53.8 | 135.3 | -89.64 | 43.8 | 1,689.2 | 144.9 | -44.1 | 189.07 | 0.767 | Level 1 | | | |
| 8,600.0 | 6,787.8 | 6,761.8 | 6,761.8 | 56.5 | 135.2 | -89.19 | 43.8 | 1,689.2 | 216.2 | 24.5 | 191.73 | 1.128 | Level 2 | | | |
| 8,700.0 | 6,786.8 | 6,760.8 | 6,760.8 | 59.2 | 135.2 | -88.74 | 43.8 | 1,689.2 | 304.2 | 109.8 | 194.39 | 1.565 | | | | |
| 8,800.0 | 6,785.9 | 6,759.9 | 6,759.9 | 61.9 | 135.2 | -88.29 | 43.8 | 1,689.2 | 397.8 | 200.8 | 197.05 | 2.019 | | | | |
| 8,900.0 | 6,784.9 | 6,758.9 | 6,758.9 | 64.7 | 135.2 | -87.84 | 43.8 | 1,689.2 | 494.0 | 294.3 | 199.70 | 2.474 | | | | |
| 9,000.0 | 6,784.0 | 6,758.0 | 6,758.0 | 67.4 | 135.2 | -87.38 | 43.8 | 1,689.2 | 591.4 | 389.1 | 202.34 | 2.923 | | | | |
| 9,100.0 | 6,783.0 | 6,757.0 | 6,757.0 | 70.1 | 135.1 | -86.93 | 43.8 | 1,689.2 | 689.6 | 484.6 | 204.98 | 3.364 | | | | |
| 9,200.0 | 6,782.0 | 6,756.0 | 6,756.0 | 72.9 | 135.1 | -86.48 | 43.8 | 1,689.2 | 788.2 | 580.6 | 207.61 | 3.797 | | | | |
| 9,300.0 | 6,781.1 | 6,755.1 | 6,755.1 | 75.6 | 135.1 | -86.03 | 43.8 | 1,689.2 | 887.1 | 676.9 | 210.23 | 4.220 | | | | |
| 9,400.0 | 6,780.1 | 6,754.1 | 6,754.1 | 78.4 | 135.1 | -85.58 | 43.8 | 1,689.2 | 986.3 | 773.4 | 212.84 | 4.634 | | | | |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein (Existing) Sec.19-T5N-R64W - Pigeon 1 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|--------------------|---------|
| Survey Program: 100-NS-GYRO-MS | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | |
| 8,800.0 | 6,785.9 | 6,731.8 | 6,730.9 | 61.9 | 12.2 | -79.88 | 72.5 | 3,020.0 | 964.4 | 891.3 | 73.12 | 13.190 | |
| 8,900.0 | 6,784.9 | 6,734.4 | 6,733.5 | 64.7 | 12.3 | -80.85 | 72.6 | 3,020.0 | 865.8 | 789.8 | 76.01 | 11.391 | |
| 9,000.0 | 6,784.0 | 6,737.0 | 6,736.1 | 67.4 | 12.3 | -81.81 | 72.6 | 3,020.1 | 767.6 | 688.7 | 78.90 | 9.729 | |
| 9,100.0 | 6,783.0 | 6,739.5 | 6,738.6 | 70.1 | 12.3 | -82.75 | 72.7 | 3,020.2 | 669.9 | 588.1 | 81.78 | 8.191 | |
| 9,200.0 | 6,782.0 | 6,741.9 | 6,741.0 | 72.9 | 12.3 | -83.67 | 72.8 | 3,020.3 | 572.9 | 488.3 | 84.66 | 6.767 | |
| 9,300.0 | 6,781.1 | 6,744.3 | 6,743.4 | 75.6 | 12.3 | -84.57 | 72.8 | 3,020.4 | 477.2 | 389.7 | 87.53 | 5.452 | |
| 9,400.0 | 6,780.1 | 6,746.7 | 6,745.7 | 78.4 | 12.3 | -85.46 | 72.9 | 3,020.4 | 383.7 | 293.3 | 90.39 | 4.245 | |
| 9,500.0 | 6,779.2 | 6,749.0 | 6,748.0 | 81.1 | 12.3 | -86.32 | 73.0 | 3,020.5 | 294.4 | 201.2 | 93.23 | 3.158 | |
| 9,600.0 | 6,778.2 | 6,751.2 | 6,750.3 | 83.9 | 12.3 | -87.18 | 73.0 | 3,020.6 | 214.8 | 118.7 | 96.06 | 2.236 | |
| 9,700.0 | 6,777.2 | 6,753.4 | 6,752.5 | 86.7 | 12.3 | -88.01 | 73.1 | 3,020.6 | 160.0 | 61.1 | 98.88 | 1.618 | |
| 9,752.8 | 6,776.7 | 6,754.5 | 6,753.6 | 88.1 | 12.3 | -88.44 | 73.1 | 3,020.7 | 151.0 | 50.7 | 100.36 | 1.505 CC, ES, SF | |
| 9,800.0 | 6,776.3 | 6,755.6 | 6,754.6 | 89.4 | 12.3 | -88.83 | 73.2 | 3,020.7 | 158.2 | 56.6 | 101.69 | 1.556 | |
| 9,900.0 | 6,775.3 | 6,757.7 | 6,756.7 | 92.2 | 12.3 | -89.63 | 73.2 | 3,020.8 | 210.9 | 106.4 | 104.47 | 2.019 | |
| 10,000.0 | 6,774.4 | 6,759.7 | 6,758.8 | 95.0 | 12.3 | -90.41 | 73.3 | 3,020.8 | 289.7 | 182.4 | 107.25 | 2.701 | |
| 10,100.0 | 6,773.4 | 6,761.8 | 6,760.8 | 97.7 | 12.3 | -91.18 | 73.3 | 3,020.9 | 378.6 | 268.6 | 110.00 | 3.442 | |
| 10,200.0 | 6,772.4 | 6,763.8 | 6,762.8 | 100.5 | 12.3 | -91.94 | 73.4 | 3,021.0 | 471.9 | 359.2 | 112.74 | 4.186 | |
| 10,300.0 | 6,771.5 | 6,765.7 | 6,764.8 | 103.3 | 12.3 | -92.67 | 73.4 | 3,021.0 | 567.6 | 452.1 | 115.46 | 4.916 | |
| 10,400.0 | 6,770.5 | 6,767.6 | 6,766.7 | 106.1 | 12.3 | -93.39 | 73.5 | 3,021.1 | 664.5 | 546.3 | 118.17 | 5.623 | |
| 10,500.0 | 6,769.6 | 6,769.5 | 6,768.6 | 108.8 | 12.3 | -94.10 | 73.5 | 3,021.1 | 762.2 | 641.3 | 120.85 | 6.307 | |
| 10,600.0 | 6,768.6 | 6,771.3 | 6,770.4 | 111.6 | 12.3 | -94.79 | 73.6 | 3,021.2 | 860.4 | 736.9 | 123.52 | 6.966 | |
| 10,700.0 | 6,767.6 | 6,773.2 | 6,772.2 | 114.4 | 12.3 | -95.47 | 73.6 | 3,021.2 | 959.0 | 832.8 | 126.17 | 7.601 | |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein (Existing) Sec.19-T5N-R64W - Pigeon 1-6B (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Survey Program: 487-NS-GYRO-MS | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 8,300.0 | 6,790.7 | 6,873.9 | 6,750.8 | 48.5 | 16.5 | 88.56 | -605.9 | 2,360.6 | 952.6 | 888.5 | 64.11 | 14.859 | | |
| 8,400.0 | 6,789.7 | 6,873.7 | 6,750.7 | 51.1 | 16.5 | 88.55 | -605.9 | 2,360.6 | 871.2 | 804.4 | 66.78 | 13.046 | | |
| 8,500.0 | 6,788.8 | 6,873.6 | 6,750.6 | 53.8 | 16.5 | 88.54 | -605.9 | 2,360.6 | 794.0 | 724.5 | 69.46 | 11.430 | | |
| 8,600.0 | 6,787.8 | 6,873.5 | 6,750.4 | 56.5 | 16.5 | 88.52 | -605.9 | 2,360.6 | 722.4 | 650.2 | 72.16 | 10.011 | | |
| 8,700.0 | 6,786.8 | 6,873.4 | 6,750.3 | 59.2 | 16.5 | 88.51 | -605.9 | 2,360.6 | 658.3 | 583.4 | 74.86 | 8.793 | | |
| 8,800.0 | 6,785.9 | 6,873.2 | 6,750.2 | 61.9 | 16.5 | 88.49 | -605.9 | 2,360.6 | 603.9 | 526.4 | 77.58 | 7.785 | | |
| 8,900.0 | 6,784.9 | 6,873.1 | 6,750.0 | 64.7 | 16.5 | 88.48 | -605.9 | 2,360.6 | 562.3 | 482.0 | 80.30 | 7.003 | | |
| 9,000.0 | 6,784.0 | 6,873.0 | 6,749.9 | 67.4 | 16.5 | 88.47 | -605.9 | 2,360.6 | 536.3 | 453.3 | 83.03 | 6.459 | | |
| 9,092.8 | 6,783.1 | 6,872.8 | 6,749.8 | 69.9 | 16.5 | 88.45 | -605.9 | 2,360.6 | 528.2 | 442.7 | 85.57 | 6.173 CC | | |
| 9,100.0 | 6,783.0 | 6,872.8 | 6,749.8 | 70.1 | 16.5 | 88.45 | -605.9 | 2,360.6 | 528.3 | 442.5 | 85.76 | 6.160 ES | | |
| 9,200.0 | 6,782.0 | 6,872.7 | 6,749.6 | 72.9 | 16.5 | 88.44 | -605.9 | 2,360.6 | 539.0 | 450.5 | 88.51 | 6.090 SF | | |
| 9,300.0 | 6,781.1 | 6,872.6 | 6,749.5 | 75.6 | 16.4 | 88.42 | -605.9 | 2,360.6 | 567.4 | 476.2 | 91.25 | 6.218 | | |
| 9,400.0 | 6,780.1 | 6,872.4 | 6,749.4 | 78.4 | 16.4 | 88.41 | -605.9 | 2,360.6 | 611.1 | 517.1 | 94.00 | 6.501 | | |
| 9,500.0 | 6,779.2 | 6,872.3 | 6,749.2 | 81.1 | 16.4 | 88.39 | -605.9 | 2,360.6 | 667.0 | 570.2 | 96.76 | 6.893 | | |
| 9,600.0 | 6,778.2 | 6,872.1 | 6,749.1 | 83.9 | 16.4 | 88.38 | -605.9 | 2,360.6 | 732.3 | 632.8 | 99.51 | 7.359 | | |
| 9,700.0 | 6,777.2 | 6,872.0 | 6,749.0 | 86.7 | 16.4 | 88.36 | -605.9 | 2,360.6 | 804.8 | 702.5 | 102.27 | 7.869 | | |
| 9,800.0 | 6,776.3 | 6,871.9 | 6,748.8 | 89.4 | 16.4 | 88.35 | -605.8 | 2,360.6 | 882.7 | 777.7 | 105.04 | 8.404 | | |
| 9,900.0 | 6,775.3 | 6,871.7 | 6,748.7 | 92.2 | 16.4 | 88.33 | -605.8 | 2,360.6 | 964.7 | 856.9 | 107.80 | 8.948 | | |

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|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein (Existing) Sec.19-T5N-R64W - Pigeon 5-JAN (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|---------------------------|---------|
| Survey Program: 100-NS-GYRO-MS | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | |
| 9,600.0 | 6,778.2 | 6,733.3 | 6,732.0 | 83.9 | 11.7 | 88.01 | -610.7 | 3,668.2 | 961.8 | 866.2 | 95.54 | 10.067 | |
| 9,700.0 | 6,777.2 | 6,734.3 | 6,733.0 | 86.7 | 11.7 | 88.12 | -610.7 | 3,668.2 | 880.3 | 782.0 | 98.31 | 8.954 | |
| 9,800.0 | 6,776.3 | 6,735.3 | 6,734.0 | 89.4 | 11.7 | 88.23 | -610.7 | 3,668.2 | 803.0 | 701.9 | 101.08 | 7.944 | |
| 9,900.0 | 6,775.3 | 6,736.3 | 6,735.0 | 92.2 | 11.7 | 88.33 | -610.7 | 3,668.2 | 731.2 | 627.4 | 103.85 | 7.041 | |
| 10,000.0 | 6,774.4 | 6,737.3 | 6,736.0 | 95.0 | 11.7 | 88.44 | -610.8 | 3,668.3 | 666.8 | 560.2 | 106.63 | 6.253 | |
| 10,100.0 | 6,773.4 | 6,738.2 | 6,736.9 | 97.7 | 11.7 | 88.54 | -610.8 | 3,668.3 | 612.0 | 502.6 | 109.40 | 5.594 | |
| 10,200.0 | 6,772.4 | 6,739.2 | 6,737.9 | 100.5 | 11.7 | 88.65 | -610.8 | 3,668.3 | 569.6 | 457.4 | 112.19 | 5.077 | |
| 10,300.0 | 6,771.5 | 6,740.2 | 6,738.9 | 103.3 | 11.7 | 88.75 | -610.8 | 3,668.3 | 542.5 | 427.5 | 114.97 | 4.719 | |
| 10,400.0 | 6,770.5 | 6,741.1 | 6,739.8 | 106.1 | 11.7 | 88.85 | -610.8 | 3,668.3 | 533.1 | 415.4 | 117.75 | 4.527 | |
| 10,400.5 | 6,770.5 | 6,741.1 | 6,739.8 | 106.1 | 11.7 | 88.85 | -610.8 | 3,668.3 | 533.1 | 415.3 | 117.77 | 4.527 CC, ES | |
| 10,500.0 | 6,769.6 | 6,742.1 | 6,740.8 | 108.8 | 11.7 | 88.95 | -610.9 | 3,668.3 | 542.3 | 421.8 | 120.54 | 4.499 SF | |
| 10,600.0 | 6,768.6 | 6,743.0 | 6,741.7 | 111.6 | 11.7 | 89.06 | -610.9 | 3,668.4 | 569.2 | 445.9 | 123.32 | 4.616 | |
| 10,700.0 | 6,767.6 | 6,744.0 | 6,742.7 | 114.4 | 11.7 | 89.16 | -610.9 | 3,668.4 | 611.5 | 485.3 | 126.11 | 4.849 | |
| 10,800.0 | 6,766.7 | 6,744.9 | 6,743.6 | 117.2 | 11.7 | 89.26 | -610.9 | 3,668.4 | 666.2 | 537.3 | 128.90 | 5.168 | |
| 10,900.0 | 6,765.7 | 6,745.9 | 6,744.5 | 120.0 | 11.7 | 89.36 | -610.9 | 3,668.4 | 730.5 | 598.8 | 131.69 | 5.547 | |
| 11,000.0 | 6,764.8 | 6,746.8 | 6,745.5 | 122.8 | 11.7 | 89.46 | -611.0 | 3,668.4 | 802.2 | 667.7 | 134.48 | 5.965 | |
| 11,100.0 | 6,763.8 | 6,747.7 | 6,746.4 | 125.5 | 11.7 | 89.56 | -611.0 | 3,668.5 | 879.4 | 742.2 | 137.27 | 6.407 | |
| 11,200.0 | 6,762.8 | 6,748.6 | 6,747.3 | 128.3 | 11.7 | 89.66 | -611.0 | 3,668.5 | 960.9 | 820.8 | 140.06 | 6.861 | |

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|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | Klein (Existing) Sec.19-T5N-R64W - Platte Valley 2-21 (Exist.) - Wellbore #1 - Wellbore #1 | | | Offset Site Error: | | 0.0 ft | |
|-----------------|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--|---------------------------|--|--------------------|--|--------|--|
| Survey Program: | | | | | | | | | | | 6900-UNKNOWN | | | Offset Well Error: | | 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | | | |
| 16,700.0 | 6,710.0 | 6,677.0 | 6,677.0 | 282.3 | 133.5 | -94.65 | 38.9 | 10,955.9 | 995.1 | 580.6 | 414.55 | 2.401 | | | | | |
| 16,800.0 | 6,709.1 | 6,676.1 | 6,676.1 | 285.2 | 133.5 | -94.18 | 38.9 | 10,955.9 | 895.9 | 478.3 | 417.58 | 2.145 | | | | | |
| 16,900.0 | 6,708.1 | 6,675.1 | 6,675.1 | 288.0 | 133.5 | -93.71 | 38.9 | 10,955.9 | 796.9 | 376.3 | 420.59 | 1.895 | | | | | |
| 17,000.0 | 6,707.2 | 6,674.2 | 6,674.2 | 290.8 | 133.5 | -93.24 | 38.9 | 10,955.9 | 698.1 | 274.5 | 423.57 | 1.648 | | | | | |
| 17,100.0 | 6,706.2 | 6,673.2 | 6,673.2 | 293.6 | 133.5 | -92.77 | 38.9 | 10,955.9 | 599.7 | 173.2 | 426.53 | 1.406 Level 3 | | | | | |
| 17,200.0 | 6,705.2 | 6,672.2 | 6,672.2 | 296.4 | 133.4 | -92.30 | 38.9 | 10,955.9 | 502.0 | 72.6 | 429.47 | 1.169 Level 2 | | | | | |
| 17,300.0 | 6,704.3 | 6,671.3 | 6,671.3 | 299.2 | 133.4 | -91.83 | 38.9 | 10,955.9 | 405.5 | -26.9 | 432.38 | 0.938 Level 1 | | | | | |
| 17,329.0 | 6,704.0 | 6,671.0 | 6,671.0 | 300.0 | 133.4 | -91.69 | 38.9 | 10,955.9 | 377.8 | -55.4 | 433.22 | 0.872 Level 1, CC, ES, SF | | | | | |

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|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein (Existing) Sec.19-T5N-R64W - Seth 1 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 100-NS-GYRO-MS | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 73.83 | 149.4 | 515.3 | 536.7 | | | | |
| 100.0 | 100.0 | 83.1 | 83.1 | 0.1 | 0.1 | 73.87 | 149.1 | 515.6 | 536.8 | 536.6 | 0.22 | 2,408.428 | |
| 200.0 | 200.0 | 186.2 | 186.2 | 0.3 | 0.4 | 73.98 | 148.3 | 516.3 | 537.1 | 536.4 | 0.69 | 781.127 | |
| 300.0 | 300.0 | 287.8 | 287.7 | 0.6 | 0.6 | 74.11 | 147.0 | 516.4 | 536.9 | 535.7 | 1.17 | 459.823 | |
| 400.0 | 400.0 | 389.4 | 389.3 | 0.8 | 0.9 | 74.25 | 145.6 | 516.3 | 536.4 | 534.8 | 1.65 | 325.611 | |
| 468.0 | 468.0 | 454.0 | 454.0 | 0.9 | 1.0 | 74.33 | 144.8 | 516.3 | 536.2 | 534.2 | 1.96 | 273.299 | |
| 500.0 | 500.0 | 484.1 | 484.0 | 1.0 | 1.1 | 74.37 | 144.5 | 516.4 | 536.2 | 534.1 | 2.11 | 254.272 | |
| 600.0 | 600.0 | 583.3 | 583.2 | 1.2 | 1.4 | 74.52 | 143.2 | 517.3 | 536.8 | 534.2 | 2.59 | 207.445 | |
| 700.0 | 700.0 | 687.0 | 686.9 | 1.5 | 1.6 | 74.75 | 141.2 | 518.1 | 537.0 | 533.9 | 3.08 | 174.122 | |
| 745.4 | 745.4 | 731.5 | 731.4 | 1.6 | 1.7 | 74.85 | 140.3 | 518.3 | 536.9 | 533.6 | 3.30 | 162.604 | |
| 800.0 | 800.0 | 783.6 | 783.5 | 1.7 | 1.9 | 74.96 | 139.4 | 518.6 | 537.0 | 533.5 | 3.56 | 150.828 | |
| 900.0 | 900.0 | 888.5 | 888.4 | 1.9 | 2.1 | 75.14 | 137.7 | 519.2 | 537.2 | 533.1 | 4.06 | 132.459 | |
| 994.7 | 994.7 | 980.9 | 980.7 | 2.1 | 2.4 | 75.33 | 136.0 | 519.4 | 536.9 | 532.4 | 4.51 | 119.071 | |
| 1,000.0 | 1,000.0 | 985.9 | 985.8 | 2.1 | 2.4 | 75.34 | 135.9 | 519.4 | 536.9 | 532.4 | 4.53 | 118.413 | |
| 1,100.0 | 1,100.0 | 1,091.2 | 1,091.1 | 2.4 | 2.7 | 75.53 | 134.0 | 519.5 | 536.6 | 531.5 | 5.03 | 106.747 | |
| 1,200.0 | 1,200.0 | 1,186.7 | 1,186.6 | 2.6 | 2.9 | 75.69 | 132.4 | 519.3 | 536.0 | 530.5 | 5.49 | 97.553 | |
| 1,300.0 | 1,300.0 | 1,291.9 | 1,291.7 | 2.8 | 3.2 | 75.81 | 131.3 | 519.1 | 535.5 | 529.5 | 5.96 | 89.794 | |
| 1,400.0 | 1,400.0 | 1,386.6 | 1,386.4 | 3.0 | 3.4 | 75.88 | 130.5 | 518.7 | 534.8 | 528.4 | 6.41 | 83.477 | |
| 1,500.0 | 1,500.0 | 1,488.5 | 1,488.3 | 3.3 | 3.6 | 75.98 | 129.6 | 518.8 | 534.7 | 527.8 | 6.89 | 77.571 | |
| 1,600.0 | 1,600.0 | 1,586.8 | 1,586.7 | 3.5 | 3.9 | 76.08 | 128.6 | 518.7 | 534.4 | 527.0 | 7.37 | 72.460 | |
| 1,700.0 | 1,700.0 | 1,693.2 | 1,693.0 | 3.7 | 4.1 | 76.15 | 127.8 | 518.2 | 533.8 | 525.9 | 7.85 | 68.024 | |
| 1,800.0 | 1,800.0 | 1,788.3 | 1,788.1 | 3.9 | 4.4 | 76.23 | 126.8 | 517.5 | 532.8 | 524.5 | 8.29 | 64.274 | |
| 1,900.0 | 1,900.0 | 1,894.7 | 1,894.5 | 4.2 | 4.6 | 76.35 | 125.5 | 516.9 | 532.0 | 523.2 | 8.76 | 60.702 | |
| 2,000.0 | 2,000.0 | 1,990.4 | 1,990.2 | 4.4 | 4.8 | 76.48 | 124.1 | 516.0 | 530.7 | 521.5 | 9.21 | 57.608 | |
| 2,100.0 | 2,100.0 | 2,094.1 | 2,093.8 | 4.6 | 5.1 | 76.68 | 122.0 | 515.4 | 529.7 | 520.0 | 9.70 | 54.599 | |
| 2,200.0 | 2,200.0 | 2,195.8 | 2,195.5 | 4.8 | 5.4 | 76.91 | 119.5 | 514.2 | 528.0 | 517.8 | 10.18 | 51.865 | |
| 2,300.0 | 2,300.0 | 2,296.8 | 2,296.5 | 5.1 | 5.6 | 77.08 | 117.6 | 512.7 | 526.1 | 515.5 | 10.63 | 49.473 | |
| 2,400.0 | 2,400.0 | 2,397.0 | 2,396.6 | 5.3 | 5.8 | 77.22 | 115.9 | 511.0 | 524.1 | 513.0 | 11.08 | 47.285 | |
| 2,500.0 | 2,500.0 | 2,500.0 | 2,499.6 | 5.5 | 6.0 | 77.40 | 113.8 | 509.0 | 521.7 | 510.2 | 11.55 | 45.183 | |
| 2,594.3 | 2,594.3 | 2,589.2 | 2,588.8 | 5.7 | 6.2 | -174.83 | 112.7 | 507.2 | 520.4 | 508.5 | 11.92 | 43.660 | |
| 2,600.0 | 2,600.0 | 2,594.6 | 2,594.2 | 5.7 | 6.2 | -174.83 | 112.7 | 507.1 | 520.4 | 508.5 | 11.94 | 43.580 | |
| 2,700.0 | 2,700.0 | 2,694.6 | 2,694.2 | 5.9 | 6.4 | -174.82 | 112.0 | 505.7 | 521.5 | 509.1 | 12.32 | 42.315 | |
| 2,800.0 | 2,799.9 | 2,791.9 | 2,791.5 | 6.1 | 6.6 | -174.83 | 111.5 | 504.5 | 524.5 | 511.8 | 12.69 | 41.330 | |
| 2,900.0 | 2,899.7 | 2,894.3 | 2,893.9 | 6.3 | 6.8 | -174.91 | 111.4 | 503.2 | 529.3 | 516.2 | 13.04 | 40.577 | |
| 3,000.0 | 2,999.4 | 2,993.6 | 2,993.1 | 6.5 | 7.0 | -174.95 | 110.8 | 501.7 | 535.6 | 522.2 | 13.43 | 39.888 | |
| 3,100.0 | 3,098.9 | 3,088.4 | 3,087.9 | 6.7 | 7.2 | -174.97 | 110.1 | 500.9 | 544.1 | 530.3 | 13.84 | 39.321 | |
| 3,200.0 | 3,198.3 | 3,189.7 | 3,189.3 | 6.9 | 7.4 | -175.05 | 109.7 | 500.3 | 554.8 | 540.5 | 14.23 | 38.981 | |
| 3,254.3 | 3,252.1 | 3,245.8 | 3,245.4 | 7.1 | 7.6 | -175.11 | 109.7 | 499.7 | 561.0 | 546.6 | 14.44 | 38.855 | |
| 3,300.0 | 3,297.4 | 3,293.2 | 3,292.7 | 7.2 | 7.6 | -175.15 | 109.4 | 499.0 | 566.3 | 551.7 | 14.63 | 38.723 | |
| 3,400.0 | 3,396.6 | 3,394.9 | 3,394.4 | 7.4 | 7.9 | -175.17 | 108.0 | 497.4 | 577.6 | 562.5 | 15.07 | 38.314 | |
| 3,500.0 | 3,495.7 | 3,501.6 | 3,501.1 | 7.7 | 8.1 | -175.18 | 106.3 | 494.9 | 588.0 | 572.5 | 15.54 | 37.842 | |
| 3,600.0 | 3,594.8 | 3,600.0 | 3,599.4 | 7.9 | 8.4 | -175.16 | 104.4 | 491.9 | 597.7 | 581.7 | 15.98 | 37.398 | |
| 3,700.0 | 3,694.0 | 3,696.5 | 3,695.9 | 8.2 | 8.6 | -175.14 | 102.4 | 489.3 | 607.8 | 591.3 | 16.43 | 36.987 | |
| 3,800.0 | 3,793.1 | 3,796.8 | 3,796.1 | 8.5 | 8.9 | -175.18 | 101.1 | 486.9 | 618.2 | 601.3 | 16.88 | 36.622 | |
| 3,900.0 | 3,892.2 | 3,898.4 | 3,897.7 | 8.7 | 9.1 | -175.23 | 99.9 | 484.1 | 628.4 | 611.0 | 17.33 | 36.258 | |
| 4,000.0 | 3,991.4 | 3,991.3 | 3,990.5 | 9.0 | 9.3 | -175.26 | 98.7 | 481.9 | 638.9 | 621.1 | 17.77 | 35.955 | |
| 4,100.0 | 4,090.5 | 4,085.6 | 4,084.8 | 9.3 | 9.5 | -175.32 | 98.0 | 480.5 | 650.3 | 632.1 | 18.21 | 35.708 | |
| 4,200.0 | 4,189.6 | 4,188.7 | 4,187.9 | 9.6 | 9.8 | -175.40 | 97.5 | 479.0 | 662.0 | 643.3 | 18.67 | 35.463 | |
| 4,300.0 | 4,288.8 | 4,283.9 | 4,283.1 | 9.9 | 10.0 | -175.47 | 97.0 | 477.6 | 673.4 | 654.3 | 19.11 | 35.239 | |
| 4,400.0 | 4,387.9 | 4,386.6 | 4,385.8 | 10.2 | 10.3 | -175.48 | 95.8 | 476.4 | 685.2 | 665.6 | 19.60 | 34.965 | |
| 4,500.0 | 4,487.0 | 4,482.7 | 4,481.9 | 10.5 | 10.5 | -175.50 | 94.7 | 475.1 | 696.7 | 676.6 | 20.06 | 34.733 | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Klein (Existing) Sec.19-T5N-R64W - Seth 1 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|---------------------|---------------------|--|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|--------|
| Survey Program: | | 100-NS-GYRO-MS | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | |
| 4,600.0 | 4,586.2 | 4,586.2 | 4,585.4 | 10.8 | 10.8 | -175.57 | 94.1 | 473.7 | 708.3 | 687.8 | 20.53 | 34.504 | | | |
| 4,638.1 | 4,623.9 | 4,624.6 | 4,623.7 | 10.9 | 10.8 | -175.60 | 93.9 | 473.0 | 712.6 | 691.9 | 20.70 | 34.426 | | | |
| 4,700.0 | 4,685.4 | 4,685.5 | 4,684.7 | 11.1 | 11.0 | -175.67 | 93.8 | 471.8 | 718.8 | 697.8 | 21.00 | 34.232 | | | |
| 4,800.0 | 4,785.0 | 4,785.0 | 4,784.1 | 11.3 | 11.2 | -175.76 | 93.8 | 469.9 | 726.2 | 704.8 | 21.45 | 33.850 | | | |
| 4,900.0 | 4,884.8 | 4,878.3 | 4,877.4 | 11.5 | 11.4 | -175.81 | 93.6 | 468.6 | 730.6 | 708.7 | 21.86 | 33.423 | | | |
| 5,000.0 | 4,984.8 | 4,979.0 | 4,978.1 | 11.7 | 11.5 | -175.88 | 94.1 | 467.6 | 732.0 | 709.8 | 22.21 | 32.965 | | | |
| 5,015.2 | 5,000.0 | 4,994.7 | 4,993.8 | 11.7 | 11.5 | 76.40 | 94.3 | 467.4 | 731.9 | 708.7 | 23.24 | 31.500 | | | |
| 5,100.0 | 5,084.8 | 5,078.8 | 5,077.9 | 11.9 | 11.6 | 76.31 | 95.2 | 466.3 | 731.0 | 707.5 | 23.50 | 31.105 | | | |
| 5,200.0 | 5,184.8 | 5,179.9 | 5,179.0 | 12.1 | 11.8 | 76.16 | 96.7 | 464.9 | 730.0 | 706.2 | 23.82 | 30.646 | | | |
| 5,300.0 | 5,284.8 | 5,282.5 | 5,281.5 | 12.3 | 11.9 | 75.90 | 99.7 | 462.8 | 728.7 | 704.6 | 24.13 | 30.199 | | | |
| 5,400.0 | 5,384.8 | 5,385.1 | 5,384.0 | 12.5 | 12.0 | 75.50 | 104.2 | 459.9 | 727.1 | 702.6 | 24.44 | 29.751 | | | |
| 5,500.0 | 5,484.8 | 5,491.3 | 5,490.0 | 12.7 | 12.1 | 75.01 | 109.5 | 456.1 | 724.9 | 700.1 | 24.76 | 29.272 | | | |
| 5,600.0 | 5,584.8 | 5,584.1 | 5,582.6 | 12.9 | 12.2 | 74.60 | 114.0 | 452.7 | 722.7 | 697.6 | 25.08 | 28.817 | | | |
| 5,700.0 | 5,684.8 | 5,677.9 | 5,676.3 | 13.1 | 12.3 | 74.23 | 118.2 | 450.4 | 721.5 | 696.1 | 25.38 | 28.423 | | | |
| 5,800.0 | 5,784.8 | 5,777.4 | 5,775.7 | 13.3 | 12.4 | 73.93 | 121.7 | 448.8 | 720.8 | 695.1 | 25.70 | 28.050 | | | |
| 5,874.9 | 5,859.6 | 5,847.4 | 5,845.6 | 13.4 | 12.5 | 73.79 | 123.2 | 448.0 | 720.5 | 694.6 | 25.92 | 27.797 | | | |
| 5,900.0 | 5,884.8 | 5,870.0 | 5,868.3 | 13.5 | 12.5 | 73.76 | 123.7 | 447.9 | 720.5 | 694.5 | 25.99 | 27.721 | | | |
| 6,000.0 | 5,984.8 | 5,967.5 | 5,965.7 | 13.7 | 12.6 | 73.60 | 125.8 | 448.0 | 721.2 | 695.0 | 26.27 | 27.453 | | | |
| 6,052.0 | 6,036.8 | 6,021.3 | 6,019.5 | 13.8 | 12.6 | 73.49 | 127.2 | 447.9 | 721.5 | 695.1 | 26.42 | 27.309 | | | |
| 6,100.0 | 6,084.7 | 6,073.1 | 6,071.3 | 13.9 | 12.7 | -16.68 | 128.5 | 447.6 | 720.2 | 694.6 | 25.62 | 28.111 | | | |
| 6,150.0 | 6,134.5 | 6,123.1 | 6,121.3 | 13.9 | 12.7 | -16.99 | 129.6 | 447.2 | 715.5 | 689.9 | 25.57 | 27.978 | | | |
| 6,200.0 | 6,183.8 | 6,169.0 | 6,167.2 | 14.0 | 12.8 | -17.42 | 130.6 | 446.9 | 707.9 | 682.5 | 25.43 | 27.841 | | | |
| 6,250.0 | 6,232.6 | 6,215.4 | 6,213.6 | 14.1 | 12.8 | -18.01 | 131.6 | 446.9 | 697.5 | 672.3 | 25.18 | 27.695 | | | |
| 6,300.0 | 6,280.4 | 6,262.9 | 6,261.0 | 14.1 | 12.9 | -18.82 | 132.9 | 446.8 | 684.1 | 659.3 | 24.85 | 27.528 | | | |
| 6,350.0 | 6,327.3 | 6,310.0 | 6,308.1 | 14.1 | 12.9 | -19.86 | 134.4 | 446.7 | 667.9 | 643.5 | 24.45 | 27.318 | | | |
| 6,400.0 | 6,372.8 | 6,358.6 | 6,356.7 | 14.2 | 13.0 | -21.22 | 136.0 | 446.5 | 648.8 | 624.8 | 24.00 | 27.033 | | | |
| 6,450.0 | 6,417.0 | 6,404.9 | 6,402.9 | 14.2 | 13.0 | -22.87 | 137.5 | 446.0 | 626.7 | 603.2 | 23.51 | 26.655 | | | |
| 6,500.0 | 6,459.5 | 6,444.9 | 6,442.9 | 14.3 | 13.1 | -24.76 | 138.6 | 445.7 | 602.2 | 579.2 | 23.02 | 26.164 | | | |
| 6,550.0 | 6,500.2 | 6,483.4 | 6,481.4 | 14.4 | 13.1 | -27.04 | 139.8 | 445.5 | 575.5 | 552.9 | 22.56 | 25.505 | | | |
| 6,600.0 | 6,539.0 | 6,520.6 | 6,518.6 | 14.5 | 13.1 | -29.81 | 140.8 | 445.5 | 546.8 | 524.5 | 22.22 | 24.610 | | | |
| 6,650.0 | 6,575.5 | 6,556.3 | 6,554.3 | 14.7 | 13.2 | -33.15 | 141.8 | 445.5 | 516.2 | 494.1 | 22.07 | 23.394 | | | |
| 6,700.0 | 6,609.8 | 6,589.9 | 6,587.9 | 15.0 | 13.2 | -37.16 | 142.6 | 445.7 | 484.0 | 461.8 | 22.21 | 21.794 | | | |
| 6,750.0 | 6,641.6 | 6,622.8 | 6,620.8 | 15.3 | 13.2 | -42.05 | 143.3 | 445.9 | 450.6 | 427.8 | 22.78 | 19.781 | | | |
| 6,800.0 | 6,670.8 | 6,653.6 | 6,651.5 | 15.7 | 13.3 | -47.84 | 143.9 | 446.1 | 416.1 | 392.3 | 23.83 | 17.464 | | | |
| 6,850.0 | 6,697.3 | 6,681.2 | 6,679.2 | 16.1 | 13.3 | -54.40 | 144.4 | 446.1 | 381.3 | 356.0 | 25.31 | 15.066 | | | |
| 6,900.0 | 6,721.0 | 6,705.8 | 6,703.8 | 16.7 | 13.3 | -61.47 | 144.9 | 446.1 | 346.7 | 319.7 | 27.06 | 12.812 | | | |
| 6,950.0 | 6,741.8 | 6,727.3 | 6,725.3 | 17.3 | 13.3 | -68.66 | 145.2 | 446.1 | 313.4 | 284.6 | 28.87 | 10.857 | | | |
| 7,000.0 | 6,759.5 | 6,745.6 | 6,743.6 | 18.0 | 13.4 | -75.43 | 145.4 | 446.0 | 282.7 | 252.2 | 30.50 | 9.267 | | | |
| 7,050.0 | 6,774.1 | 6,760.6 | 6,758.6 | 18.8 | 13.4 | -81.26 | 145.5 | 446.0 | 256.3 | 224.4 | 31.88 | 8.039 | | | |
| 7,100.0 | 6,785.6 | 6,772.3 | 6,770.3 | 19.7 | 13.4 | -85.78 | 145.6 | 445.9 | 236.3 | 203.3 | 33.02 | 7.158 | | | |
| 7,150.0 | 6,793.9 | 6,780.7 | 6,778.7 | 20.6 | 13.4 | -88.75 | 145.7 | 445.9 | 225.2 | 191.2 | 34.03 | 6.618 | | | |
| 7,177.6 | 6,797.1 | 6,783.9 | 6,781.8 | 21.1 | 13.4 | -89.68 | 145.7 | 445.9 | 223.6 | 189.0 | 34.58 | 6.464 CC, ES | | | |
| 7,200.0 | 6,798.9 | 6,785.7 | 6,783.7 | 21.6 | 13.4 | -90.06 | 145.7 | 445.9 | 224.7 | 189.6 | 35.02 | 6.415 SF | | | |
| 7,250.0 | 6,800.7 | 6,787.3 | 6,785.3 | 22.6 | 13.4 | -89.69 | 145.7 | 445.9 | 234.9 | 198.9 | 36.03 | 6.521 | | | |
| 7,259.3 | 6,800.7 | 6,787.2 | 6,785.2 | 22.8 | 13.4 | -89.43 | 145.7 | 445.9 | 238.0 | 201.7 | 36.22 | 6.571 | | | |
| 7,300.0 | 6,800.3 | 6,786.7 | 6,784.6 | 23.6 | 13.4 | -89.28 | 145.7 | 445.9 | 254.8 | 217.7 | 37.06 | 6.874 | | | |
| 7,400.0 | 6,799.3 | 6,785.3 | 6,783.3 | 25.8 | 13.4 | -88.93 | 145.7 | 445.9 | 315.2 | 275.9 | 39.24 | 8.032 | | | |
| 7,500.0 | 6,798.3 | 6,783.9 | 6,781.9 | 28.1 | 13.4 | -88.58 | 145.7 | 445.9 | 392.1 | 350.6 | 41.53 | 9.442 | | | |
| 7,600.0 | 6,797.4 | 6,782.6 | 6,780.5 | 30.5 | 13.4 | -88.23 | 145.7 | 445.9 | 477.7 | 433.8 | 43.90 | 10.881 | | | |
| 7,700.0 | 6,796.4 | 6,781.2 | 6,779.2 | 32.9 | 13.4 | -87.88 | 145.7 | 445.9 | 568.0 | 521.6 | 46.34 | 12.257 | | | |
| 7,800.0 | 6,795.5 | 6,779.9 | 6,777.8 | 35.4 | 13.4 | -87.54 | 145.7 | 445.9 | 661.1 | 612.2 | 48.83 | 13.539 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| | | | | | | | | | | | | | | |
|---|----------------------------|----------------------------|----------------------------|------------------------|--------------------|------------------------------|--|-------------------|-----------------------------|------------------------------|--------------------------------|--------------------------|---------------------------|--------|
| Offset Design Klein (Existing) Sec.19-T5N-R64W - Seth 1 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
| Survey Program: 100-NS-GYRO-MS | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 7,900.0 | 6,794.5 | 6,778.5 | 6,776.5 | 38.0 | 13.4 | -87.20 | 145.7 | 445.9 | 755.9 | 704.6 | 51.35 | 14.720 | | |
| 8,000.0 | 6,793.6 | 6,777.2 | 6,775.2 | 40.6 | 13.4 | -86.86 | 145.7 | 445.9 | 852.0 | 798.0 | 53.91 | 15.802 | | |
| 8,100.0 | 6,792.6 | 6,775.9 | 6,773.8 | 43.2 | 13.4 | -86.52 | 145.7 | 445.9 | 948.8 | 892.3 | 56.50 | 16.794 | | |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-232 - Wellbore #1 - Plan #3 (7-14-15) | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|----------------|-------------|--|--------------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Semi Major Axis Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -89.99 | 0.0 | -61.3 | 61.3 | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -89.99 | 0.0 | -61.3 | 61.3 | 61.1 | 0.22 | 272.656 | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -89.99 | 0.0 | -61.3 | 61.3 | 60.6 | 0.67 | 90.885 | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.6 | 0.6 | -89.99 | 0.0 | -61.3 | 61.3 | 60.2 | 1.12 | 54.531 | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -89.99 | 0.0 | -61.3 | 61.3 | 59.7 | 1.57 | 38.951 | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | -89.99 | 0.0 | -61.3 | 61.3 | 59.3 | 2.02 | 30.295 | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | -89.99 | 0.0 | -61.3 | 61.3 | 58.8 | 2.47 | 24.787 | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.5 | 1.5 | -89.99 | 0.0 | -61.3 | 61.3 | 58.4 | 2.92 | 20.974 | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | -89.99 | 0.0 | -61.3 | 61.3 | 57.9 | 3.37 | 18.177 | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | -89.99 | 0.0 | -61.3 | 61.3 | 57.5 | 3.82 | 16.039 | |
| 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 2.1 | 2.1 | -89.99 | 0.0 | -61.3 | 61.3 | 57.0 | 4.27 | 14.350 | |
| 1,100.0 | 1,100.0 | 1,100.0 | 1,100.0 | 2.4 | 2.4 | -89.99 | 0.0 | -61.3 | 61.3 | 56.6 | 4.72 | 12.984 | |
| 1,200.0 | 1,200.0 | 1,200.0 | 1,200.0 | 2.6 | 2.6 | -89.99 | 0.0 | -61.3 | 61.3 | 56.1 | 5.17 | 11.855 CC | |
| 1,300.0 | 1,300.0 | 1,299.5 | 1,299.5 | 2.8 | 2.8 | -89.29 | 0.8 | -61.7 | 61.7 | 56.1 | 5.62 | 10.988 | |
| 1,400.0 | 1,400.0 | 1,398.9 | 1,398.8 | 3.0 | 3.0 | -87.25 | 3.0 | -63.0 | 63.0 | 57.0 | 6.06 | 10.400 | |
| 1,500.0 | 1,500.0 | 1,498.2 | 1,498.0 | 3.3 | 3.3 | -84.05 | 6.8 | -65.1 | 65.4 | 58.9 | 6.51 | 10.053 | |
| 1,600.0 | 1,600.0 | 1,597.3 | 1,597.0 | 3.5 | 3.5 | -79.96 | 12.0 | -68.0 | 69.1 | 62.2 | 6.96 | 9.930 | |
| 1,700.0 | 1,700.0 | 1,696.2 | 1,695.5 | 3.7 | 3.7 | -75.34 | 18.8 | -71.7 | 74.3 | 66.9 | 7.41 | 10.020 | |
| 1,800.0 | 1,800.0 | 1,794.7 | 1,793.7 | 3.9 | 3.9 | -70.55 | 26.9 | -76.3 | 81.2 | 73.3 | 7.87 | 10.307 | |
| 1,900.0 | 1,900.0 | 1,893.8 | 1,892.2 | 4.2 | 4.2 | -66.00 | 36.3 | -81.5 | 89.6 | 81.2 | 8.35 | 10.732 | |
| 2,000.0 | 2,000.0 | 1,993.2 | 1,991.0 | 4.4 | 4.4 | -62.21 | 45.7 | -86.8 | 98.5 | 89.7 | 8.82 | 11.163 | |
| 2,100.0 | 2,100.0 | 2,092.6 | 2,089.8 | 4.6 | 4.7 | -59.06 | 55.2 | -92.0 | 107.8 | 98.5 | 9.31 | 11.580 | |
| 2,200.0 | 2,200.0 | 2,192.1 | 2,188.6 | 4.8 | 5.0 | -56.41 | 64.6 | -97.3 | 117.4 | 107.6 | 9.80 | 11.979 | |
| 2,300.0 | 2,300.0 | 2,291.5 | 2,287.5 | 5.1 | 5.2 | -54.17 | 74.1 | -102.6 | 127.1 | 116.9 | 10.29 | 12.356 | |
| 2,400.0 | 2,400.0 | 2,390.9 | 2,386.3 | 5.3 | 5.5 | -52.24 | 83.5 | -107.8 | 137.1 | 126.3 | 10.79 | 12.710 | |
| 2,500.0 | 2,500.0 | 2,490.3 | 2,485.1 | 5.5 | 5.8 | -50.58 | 93.0 | -113.1 | 147.2 | 135.9 | 11.28 | 13.041 | |
| 2,600.0 | 2,600.0 | 2,589.7 | 2,583.9 | 5.7 | 6.1 | 58.75 | 102.4 | -118.4 | 156.9 | 145.4 | 11.46 | 13.686 | |
| 2,700.0 | 2,700.0 | 2,689.1 | 2,682.8 | 5.9 | 6.3 | 60.72 | 111.9 | -123.6 | 165.9 | 154.0 | 11.88 | 13.962 | |
| 2,800.0 | 2,799.9 | 2,788.5 | 2,781.6 | 6.1 | 6.6 | 62.98 | 121.3 | -128.9 | 174.3 | 162.0 | 12.30 | 14.167 | |
| 2,900.0 | 2,899.7 | 2,887.9 | 2,880.3 | 6.3 | 6.9 | 65.52 | 130.7 | -134.2 | 182.2 | 169.5 | 12.73 | 14.318 | |
| 3,000.0 | 2,999.4 | 2,987.1 | 2,979.0 | 6.5 | 7.2 | 68.33 | 140.2 | -139.4 | 189.8 | 176.7 | 13.16 | 14.429 | |
| 3,100.0 | 3,098.9 | 3,086.3 | 3,077.6 | 6.7 | 7.5 | 71.38 | 149.6 | -144.7 | 197.4 | 183.8 | 13.60 | 14.514 | |
| 3,200.0 | 3,198.3 | 3,185.3 | 3,176.0 | 6.9 | 7.7 | 74.65 | 159.0 | -149.9 | 205.0 | 190.9 | 14.05 | 14.586 | |
| 3,254.3 | 3,252.1 | 3,239.0 | 3,229.4 | 7.1 | 7.9 | 76.51 | 164.1 | -152.8 | 209.2 | 194.9 | 14.30 | 14.623 | |
| 3,300.0 | 3,297.4 | 3,284.2 | 3,274.3 | 7.2 | 8.0 | 78.11 | 168.4 | -155.2 | 212.9 | 198.3 | 14.52 | 14.659 | |
| 3,400.0 | 3,396.6 | 3,383.0 | 3,372.5 | 7.4 | 8.3 | 81.41 | 177.8 | -160.4 | 221.5 | 206.5 | 15.01 | 14.761 | |
| 3,500.0 | 3,495.7 | 3,481.8 | 3,470.8 | 7.7 | 8.6 | 84.47 | 187.2 | -165.6 | 230.8 | 215.3 | 15.50 | 14.890 | |
| 3,600.0 | 3,594.8 | 3,580.7 | 3,569.0 | 7.9 | 8.9 | 87.28 | 196.6 | -170.9 | 240.7 | 224.7 | 16.01 | 15.038 | |
| 3,700.0 | 3,694.0 | 3,679.5 | 3,667.2 | 8.2 | 9.2 | 89.87 | 205.9 | -176.1 | 251.2 | 234.7 | 16.52 | 15.202 | |
| 3,800.0 | 3,793.1 | 3,778.3 | 3,765.5 | 8.5 | 9.5 | 92.24 | 215.3 | -181.3 | 262.1 | 245.1 | 17.05 | 15.376 | |
| 3,900.0 | 3,892.2 | 3,877.1 | 3,863.7 | 8.7 | 9.8 | 94.43 | 224.7 | -186.6 | 273.4 | 255.9 | 17.58 | 15.558 | |
| 4,000.0 | 3,991.4 | 3,976.0 | 3,962.0 | 9.0 | 10.0 | 96.44 | 234.1 | -191.8 | 285.2 | 267.0 | 18.11 | 15.745 | |
| 4,100.0 | 4,090.5 | 4,074.8 | 4,060.2 | 9.3 | 10.3 | 98.29 | 243.5 | -197.0 | 297.2 | 278.5 | 18.65 | 15.934 | |
| 4,200.0 | 4,189.6 | 4,173.6 | 4,158.5 | 9.6 | 10.6 | 100.00 | 252.9 | -202.3 | 309.5 | 290.3 | 19.19 | 16.124 | |
| 4,300.0 | 4,288.8 | 4,272.5 | 4,256.7 | 9.9 | 10.9 | 101.58 | 262.3 | -207.5 | 322.1 | 302.3 | 19.74 | 16.314 | |
| 4,400.0 | 4,387.9 | 4,371.3 | 4,354.9 | 10.2 | 11.2 | 103.04 | 271.7 | -212.7 | 334.8 | 314.6 | 20.29 | 16.502 | |
| 4,500.0 | 4,487.0 | 4,470.1 | 4,453.2 | 10.5 | 11.5 | 104.39 | 281.1 | -218.0 | 347.8 | 327.0 | 20.84 | 16.688 | |
| 4,600.0 | 4,586.2 | 4,569.0 | 4,551.4 | 10.8 | 11.8 | 105.64 | 290.5 | -223.2 | 361.0 | 339.6 | 21.40 | 16.872 | |
| 4,638.1 | 4,623.9 | 4,606.6 | 4,588.8 | 10.9 | 11.9 | 106.09 | 294.0 | -225.2 | 366.1 | 344.4 | 21.61 | 16.941 | |
| 4,700.0 | 4,685.4 | 4,667.9 | 4,649.7 | 11.1 | 12.1 | 106.86 | 299.9 | -228.4 | 374.1 | 352.2 | 21.94 | 17.051 | |
| 4,800.0 | 4,785.0 | 4,767.0 | 4,748.3 | 11.3 | 12.4 | 107.64 | 309.3 | -233.7 | 386.4 | 364.0 | 22.44 | 17.220 | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-232 - Wellbore #1 - Plan #3 (7-14-15) | | | | | | | | | | | | | Offset Site Error: 0.0 ft | |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|---------------------------|--|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 4,900.0 | 4,884.8 | 4,866.4 | 4,847.1 | 11.5 | 12.7 | 107.87 | 318.7 | -239.0 | 397.7 | 374.7 | 22.91 | 17.355 | | |
| 5,000.0 | 4,984.8 | 4,974.0 | 4,954.2 | 11.7 | 13.0 | 107.62 | 328.3 | -244.3 | 407.3 | 383.9 | 23.36 | 17.437 | | |
| 5,015.2 | 5,000.0 | 4,991.4 | 4,971.5 | 11.7 | 13.0 | -0.15 | 329.5 | -245.0 | 408.4 | 385.0 | 23.37 | 17.477 | | |
| 5,100.0 | 5,084.8 | 5,088.2 | 5,068.0 | 11.9 | 13.2 | -0.56 | 334.9 | -248.0 | 413.1 | 389.3 | 23.73 | 17.404 | | |
| 5,200.0 | 5,184.8 | 5,202.7 | 5,182.5 | 12.1 | 13.4 | -0.76 | 337.5 | -249.4 | 415.3 | 391.2 | 24.15 | 17.201 | | |
| 5,300.0 | 5,284.8 | 5,304.9 | 5,284.8 | 12.3 | 13.6 | -0.76 | 337.5 | -249.4 | 415.4 | 390.9 | 24.54 | 16.930 | | |
| 5,400.0 | 5,384.8 | 5,404.9 | 5,384.8 | 12.5 | 13.7 | -0.76 | 337.5 | -249.4 | 415.4 | 390.4 | 24.94 | 16.654 | | |
| 5,500.0 | 5,484.8 | 5,504.9 | 5,484.8 | 12.7 | 13.9 | -0.76 | 337.5 | -249.4 | 415.4 | 390.0 | 25.35 | 16.386 | | |
| 5,600.0 | 5,584.8 | 5,604.9 | 5,584.8 | 12.9 | 14.1 | -0.76 | 337.5 | -249.4 | 415.4 | 389.6 | 25.76 | 16.126 | | |
| 5,700.0 | 5,684.8 | 5,704.9 | 5,684.8 | 13.1 | 14.3 | -0.76 | 337.5 | -249.4 | 415.4 | 389.2 | 26.17 | 15.873 | | |
| 5,800.0 | 5,784.8 | 5,804.9 | 5,784.8 | 13.3 | 14.5 | -0.76 | 337.5 | -249.4 | 415.4 | 388.8 | 26.58 | 15.627 | | |
| 5,900.0 | 5,884.8 | 5,904.9 | 5,884.8 | 13.5 | 14.7 | -0.76 | 337.5 | -249.4 | 415.4 | 388.4 | 27.00 | 15.388 | | |
| 6,000.0 | 5,984.8 | 6,005.1 | 5,984.9 | 13.7 | 14.9 | -0.70 | 337.5 | -249.0 | 415.4 | 388.0 | 27.40 | 15.157 | | |
| 6,052.0 | 6,036.8 | 6,057.2 | 6,036.9 | 13.8 | 15.0 | -0.22 | 337.5 | -245.5 | 415.4 | 387.8 | 27.60 | 15.050 | | |
| 6,067.4 | 6,052.2 | 6,072.6 | 6,052.2 | 13.8 | 15.0 | -90.00 | 337.5 | -243.7 | 415.4 | 387.7 | 27.68 | 15.005 | | |
| 6,100.0 | 6,084.7 | 6,104.9 | 6,084.2 | 13.9 | 15.0 | -89.54 | 337.5 | -239.1 | 415.4 | 387.6 | 27.79 | 14.945 | | |
| 6,150.0 | 6,134.5 | 6,154.3 | 6,132.6 | 13.9 | 15.1 | -88.85 | 337.5 | -229.5 | 415.4 | 387.5 | 27.94 | 14.871 | | |
| 6,200.0 | 6,183.8 | 6,203.3 | 6,180.0 | 14.0 | 15.1 | -88.16 | 337.5 | -216.8 | 415.6 | 387.5 | 28.06 | 14.809 | | |
| 6,250.0 | 6,232.6 | 6,252.1 | 6,226.1 | 14.1 | 15.2 | -87.49 | 337.5 | -201.2 | 415.8 | 387.6 | 28.17 | 14.757 | | |
| 6,300.0 | 6,280.4 | 6,300.0 | 6,270.5 | 14.1 | 15.2 | -86.83 | 337.5 | -183.1 | 416.0 | 387.7 | 28.28 | 14.712 | | |
| 6,350.0 | 6,327.3 | 6,348.7 | 6,314.3 | 14.1 | 15.2 | -86.18 | 337.5 | -161.8 | 416.3 | 387.9 | 28.38 | 14.666 | | |
| 6,400.0 | 6,372.8 | 6,396.6 | 6,356.0 | 14.2 | 15.2 | -85.55 | 337.5 | -138.2 | 416.6 | 388.1 | 28.50 | 14.616 | | |
| 6,450.0 | 6,417.0 | 6,444.2 | 6,395.9 | 14.2 | 15.3 | -84.94 | 337.5 | -112.2 | 417.0 | 388.3 | 28.65 | 14.554 | | |
| 6,500.0 | 6,459.5 | 6,491.6 | 6,433.9 | 14.3 | 15.3 | -84.35 | 337.5 | -83.9 | 417.4 | 388.6 | 28.84 | 14.472 | | |
| 6,550.0 | 6,500.2 | 6,538.8 | 6,469.9 | 14.4 | 15.3 | -83.79 | 337.5 | -53.5 | 417.8 | 388.7 | 29.09 | 14.364 | | |
| 6,600.0 | 6,539.0 | 6,585.7 | 6,503.8 | 14.5 | 15.3 | -83.25 | 337.5 | -21.1 | 418.3 | 388.9 | 29.41 | 14.221 | | |
| 6,650.0 | 6,575.5 | 6,632.4 | 6,535.5 | 14.7 | 15.4 | -82.75 | 337.5 | 13.2 | 418.7 | 388.9 | 29.84 | 14.034 | | |
| 6,700.0 | 6,609.8 | 6,679.0 | 6,565.0 | 15.0 | 15.6 | -82.27 | 337.5 | 49.3 | 419.2 | 388.8 | 30.36 | 13.806 | | |
| 6,750.0 | 6,641.6 | 6,725.3 | 6,592.1 | 15.3 | 16.0 | -81.83 | 337.5 | 86.9 | 419.6 | 388.6 | 31.01 | 13.530 | | |
| 6,800.0 | 6,670.8 | 6,771.5 | 6,616.8 | 15.7 | 16.5 | -81.42 | 337.5 | 125.9 | 420.1 | 388.3 | 31.81 | 13.207 | | |
| 6,850.0 | 6,697.3 | 6,817.6 | 6,639.0 | 16.1 | 17.0 | -81.04 | 337.5 | 166.2 | 420.5 | 387.8 | 32.74 | 12.842 | | |
| 6,900.0 | 6,721.0 | 6,863.5 | 6,658.7 | 16.7 | 17.6 | -80.70 | 337.5 | 207.7 | 420.9 | 387.1 | 33.83 | 12.442 | | |
| 6,950.0 | 6,741.8 | 6,909.3 | 6,675.8 | 17.3 | 18.2 | -80.40 | 337.5 | 250.2 | 421.3 | 386.2 | 35.06 | 12.015 | | |
| 7,000.0 | 6,759.5 | 6,955.0 | 6,690.3 | 18.0 | 18.9 | -80.14 | 337.5 | 293.5 | 421.6 | 385.2 | 36.44 | 11.570 | | |
| 7,050.0 | 6,774.1 | 7,000.0 | 6,702.1 | 18.8 | 19.7 | -79.91 | 337.5 | 336.9 | 421.9 | 383.9 | 37.94 | 11.120 | | |
| 7,100.0 | 6,785.6 | 7,046.1 | 6,711.4 | 19.7 | 20.5 | -79.72 | 337.5 | 382.1 | 422.1 | 382.5 | 39.59 | 10.663 | | |
| 7,150.0 | 6,793.9 | 7,091.6 | 6,718.0 | 20.6 | 21.4 | -79.58 | 337.5 | 427.1 | 422.3 | 381.0 | 41.33 | 10.218 | | |
| 7,200.0 | 6,798.9 | 7,137.0 | 6,721.8 | 21.6 | 22.3 | -79.47 | 337.5 | 472.4 | 422.5 | 379.3 | 43.17 | 9.787 | | |
| 7,250.0 | 6,800.7 | 7,182.4 | 6,723.0 | 22.6 | 23.2 | -79.40 | 337.5 | 517.7 | 422.6 | 377.5 | 45.07 | 9.375 | | |
| 7,259.3 | 6,800.7 | 7,191.3 | 6,722.9 | 22.8 | 23.4 | -79.40 | 337.5 | 526.6 | 422.6 | 377.1 | 45.44 | 9.299 | | |
| 7,300.0 | 6,800.3 | 7,232.0 | 6,722.5 | 23.6 | 24.2 | -79.39 | 337.5 | 567.3 | 422.6 | 375.4 | 47.14 | 8.965 | | |
| 7,400.0 | 6,799.3 | 7,332.0 | 6,721.5 | 25.8 | 26.4 | -79.39 | 337.5 | 667.3 | 422.6 | 371.1 | 51.44 | 8.214 | | |
| 7,500.0 | 6,798.3 | 7,432.0 | 6,720.5 | 28.1 | 28.7 | -79.38 | 337.5 | 767.3 | 422.6 | 366.6 | 55.97 | 7.550 | | |
| 7,600.0 | 6,797.4 | 7,532.0 | 6,719.5 | 30.5 | 31.1 | -79.37 | 337.5 | 867.2 | 422.6 | 361.9 | 60.66 | 6.967 | | |
| 7,700.0 | 6,796.4 | 7,632.0 | 6,718.5 | 32.9 | 33.6 | -79.37 | 337.5 | 967.2 | 422.6 | 357.1 | 65.48 | 6.454 | | |
| 7,800.0 | 6,795.5 | 7,732.0 | 6,717.4 | 35.4 | 36.1 | -79.36 | 337.5 | 1,067.2 | 422.6 | 352.2 | 70.41 | 6.002 | | |
| 7,900.0 | 6,794.5 | 7,832.0 | 6,716.4 | 38.0 | 38.6 | -79.35 | 337.5 | 1,167.2 | 422.6 | 347.2 | 75.42 | 5.604 | | |
| 8,000.0 | 6,793.6 | 7,932.0 | 6,715.4 | 40.6 | 41.2 | -79.35 | 337.5 | 1,267.2 | 422.6 | 342.1 | 80.50 | 5.250 | | |
| 8,100.0 | 6,792.6 | 8,032.0 | 6,714.4 | 43.2 | 43.8 | -79.34 | 337.5 | 1,367.2 | 422.6 | 337.0 | 85.63 | 4.936 | | |
| 8,200.0 | 6,791.6 | 8,132.0 | 6,713.4 | 45.8 | 46.4 | -79.33 | 337.5 | 1,467.2 | 422.7 | 331.8 | 90.81 | 4.654 | | |
| 8,300.0 | 6,790.7 | 8,232.0 | 6,712.4 | 48.5 | 49.1 | -79.32 | 337.5 | 1,567.2 | 422.7 | 326.6 | 96.03 | 4.401 | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-232 - Wellbore #1 - Plan #3 (7-14-15) | | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|----------------|---|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|---------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 8,400.0 | 6,789.7 | 8,332.0 | 6,711.4 | 51.1 | 51.7 | -79.32 | 337.5 | 1,667.2 | 422.7 | 321.4 | 101.28 | 4.173 | | | |
| 8,500.0 | 6,788.8 | 8,432.0 | 6,710.4 | 53.8 | 54.4 | -79.31 | 337.5 | 1,767.2 | 422.7 | 316.1 | 106.56 | 3.967 | | | |
| 8,600.0 | 6,787.8 | 8,532.0 | 6,709.3 | 56.5 | 57.1 | -79.30 | 337.5 | 1,867.2 | 422.7 | 310.8 | 111.87 | 3.779 | | | |
| 8,700.0 | 6,786.8 | 8,632.0 | 6,708.3 | 59.2 | 59.8 | -79.30 | 337.5 | 1,967.2 | 422.7 | 305.5 | 117.19 | 3.607 | | | |
| 8,800.0 | 6,785.9 | 8,732.0 | 6,707.3 | 61.9 | 62.5 | -79.29 | 337.5 | 2,067.2 | 422.7 | 300.2 | 122.53 | 3.450 | | | |
| 8,900.0 | 6,784.9 | 8,832.0 | 6,706.3 | 64.7 | 65.2 | -79.28 | 337.5 | 2,167.2 | 422.7 | 294.8 | 127.89 | 3.305 | | | |
| 9,000.0 | 6,784.0 | 8,932.0 | 6,705.3 | 67.4 | 68.0 | -79.28 | 337.5 | 2,267.2 | 422.7 | 289.5 | 133.26 | 3.172 | | | |
| 9,100.0 | 6,783.0 | 9,032.0 | 6,704.3 | 70.1 | 70.7 | -79.27 | 337.5 | 2,367.2 | 422.7 | 284.1 | 138.64 | 3.049 | | | |
| 9,200.0 | 6,782.0 | 9,132.0 | 6,703.3 | 72.9 | 73.4 | -79.26 | 337.5 | 2,467.2 | 422.7 | 278.7 | 144.04 | 2.935 | | | |
| 9,300.0 | 6,781.1 | 9,232.0 | 6,702.3 | 75.6 | 76.2 | -79.25 | 337.5 | 2,567.2 | 422.8 | 273.3 | 149.44 | 2.829 | | | |
| 9,400.0 | 6,780.1 | 9,332.0 | 6,701.2 | 78.4 | 78.9 | -79.25 | 337.5 | 2,667.2 | 422.8 | 267.9 | 154.85 | 2.730 | | | |
| 9,500.0 | 6,779.2 | 9,432.0 | 6,700.2 | 81.1 | 81.7 | -79.24 | 337.5 | 2,767.2 | 422.8 | 262.5 | 160.27 | 2.638 | | | |
| 9,600.0 | 6,778.2 | 9,532.0 | 6,699.2 | 83.9 | 84.4 | -79.23 | 337.5 | 2,867.1 | 422.8 | 257.1 | 165.70 | 2.552 | | | |
| 9,700.0 | 6,777.2 | 9,632.0 | 6,698.2 | 86.7 | 87.2 | -79.23 | 337.5 | 2,967.1 | 422.8 | 251.7 | 171.13 | 2.471 | | | |
| 9,800.0 | 6,776.3 | 9,732.0 | 6,697.2 | 89.4 | 90.0 | -79.22 | 337.5 | 3,067.1 | 422.8 | 246.2 | 176.57 | 2.395 | | | |
| 9,900.0 | 6,775.3 | 9,832.0 | 6,696.2 | 92.2 | 92.7 | -79.21 | 337.5 | 3,167.1 | 422.8 | 240.8 | 182.01 | 2.323 | | | |
| 10,000.0 | 6,774.4 | 9,932.0 | 6,695.2 | 95.0 | 95.5 | -79.21 | 337.5 | 3,267.1 | 422.8 | 235.4 | 187.46 | 2.256 | | | |
| 10,100.0 | 6,773.4 | 10,032.0 | 6,694.2 | 97.7 | 98.3 | -79.20 | 337.5 | 3,367.1 | 422.8 | 229.9 | 192.91 | 2.192 | | | |
| 10,200.0 | 6,772.4 | 10,132.0 | 6,693.1 | 100.5 | 101.0 | -79.19 | 337.5 | 3,467.1 | 422.8 | 224.5 | 198.36 | 2.132 | | | |
| 10,300.0 | 6,771.5 | 10,232.0 | 6,692.1 | 103.3 | 103.8 | -79.18 | 337.5 | 3,567.1 | 422.9 | 219.0 | 203.82 | 2.075 | | | |
| 10,400.0 | 6,770.5 | 10,332.0 | 6,691.1 | 106.1 | 106.6 | -79.18 | 337.5 | 3,667.1 | 422.9 | 213.6 | 209.28 | 2.021 | | | |
| 10,500.0 | 6,769.6 | 10,432.0 | 6,690.1 | 108.8 | 109.4 | -79.17 | 337.5 | 3,767.1 | 422.9 | 208.1 | 214.75 | 1.969 | | | |
| 10,600.0 | 6,768.6 | 10,532.0 | 6,689.1 | 111.6 | 112.2 | -79.16 | 337.5 | 3,867.1 | 422.9 | 202.7 | 220.22 | 1.920 | | | |
| 10,700.0 | 6,767.6 | 10,632.0 | 6,688.1 | 114.4 | 114.9 | -79.16 | 337.5 | 3,967.1 | 422.9 | 197.2 | 225.69 | 1.874 | | | |
| 10,800.0 | 6,766.7 | 10,732.0 | 6,687.1 | 117.2 | 117.7 | -79.15 | 337.5 | 4,067.1 | 422.9 | 191.7 | 231.16 | 1.829 | | | |
| 10,900.0 | 6,765.7 | 10,832.0 | 6,686.1 | 120.0 | 120.5 | -79.14 | 337.5 | 4,167.1 | 422.9 | 186.3 | 236.63 | 1.787 | | | |
| 11,000.0 | 6,764.8 | 10,932.0 | 6,685.0 | 122.8 | 123.3 | -79.14 | 337.5 | 4,267.1 | 422.9 | 180.8 | 242.11 | 1.747 | | | |
| 11,100.0 | 6,763.8 | 11,032.0 | 6,684.0 | 125.5 | 126.1 | -79.13 | 337.5 | 4,367.1 | 422.9 | 175.3 | 247.59 | 1.708 | | | |
| 11,200.0 | 6,762.8 | 11,132.0 | 6,683.0 | 128.3 | 128.9 | -79.12 | 337.5 | 4,467.1 | 422.9 | 169.9 | 253.07 | 1.671 | | | |
| 11,300.0 | 6,761.9 | 11,232.0 | 6,682.0 | 131.1 | 131.7 | -79.11 | 337.5 | 4,567.1 | 422.9 | 164.4 | 258.55 | 1.636 | | | |
| 11,400.0 | 6,760.9 | 11,332.0 | 6,681.0 | 133.9 | 134.4 | -79.11 | 337.5 | 4,667.1 | 423.0 | 158.9 | 264.03 | 1.602 | | | |
| 11,500.0 | 6,760.0 | 11,432.0 | 6,680.0 | 136.7 | 137.2 | -79.10 | 337.5 | 4,767.0 | 423.0 | 153.4 | 269.52 | 1.569 | | | |
| 11,600.0 | 6,759.0 | 11,532.0 | 6,679.0 | 139.5 | 140.0 | -79.09 | 337.5 | 4,867.0 | 423.0 | 148.0 | 275.00 | 1.538 | | | |
| 11,700.0 | 6,758.0 | 11,632.0 | 6,678.0 | 142.3 | 142.8 | -79.09 | 337.5 | 4,967.0 | 423.0 | 142.5 | 280.49 | 1.508 | | | |
| 11,800.0 | 6,757.1 | 11,732.0 | 6,676.9 | 145.1 | 145.6 | -79.08 | 337.5 | 5,067.0 | 423.0 | 137.0 | 285.98 | 1.479 Level 3 | | | |
| 11,900.0 | 6,756.1 | 11,832.0 | 6,675.9 | 147.9 | 148.4 | -79.07 | 337.5 | 5,167.0 | 423.0 | 131.5 | 291.46 | 1.451 Level 3 | | | |
| 12,000.0 | 6,755.2 | 11,932.0 | 6,674.9 | 150.7 | 151.2 | -79.07 | 337.5 | 5,267.0 | 423.0 | 126.1 | 296.95 | 1.425 Level 3 | | | |
| 12,100.0 | 6,754.2 | 12,032.0 | 6,673.9 | 153.5 | 154.0 | -79.06 | 337.5 | 5,367.0 | 423.0 | 120.6 | 302.44 | 1.399 Level 3 | | | |
| 12,200.0 | 6,753.2 | 12,132.0 | 6,672.9 | 156.3 | 156.8 | -79.05 | 337.5 | 5,467.0 | 423.0 | 115.1 | 307.94 | 1.374 Level 3 | | | |
| 12,300.0 | 6,752.3 | 12,232.0 | 6,671.9 | 159.1 | 159.6 | -79.05 | 337.5 | 5,567.0 | 423.0 | 109.6 | 313.43 | 1.350 Level 3 | | | |
| 12,400.0 | 6,751.3 | 12,332.0 | 6,670.9 | 161.9 | 162.4 | -79.04 | 337.5 | 5,667.0 | 423.1 | 104.1 | 318.92 | 1.327 Level 3 | | | |
| 12,500.0 | 6,750.4 | 12,432.0 | 6,669.9 | 164.7 | 165.2 | -79.03 | 337.5 | 5,767.0 | 423.1 | 98.6 | 324.41 | 1.304 Level 3 | | | |
| 12,600.0 | 6,749.4 | 12,532.0 | 6,668.8 | 167.4 | 168.0 | -79.02 | 337.5 | 5,867.0 | 423.1 | 93.2 | 329.91 | 1.282 Level 3 | | | |
| 12,700.0 | 6,748.4 | 12,632.0 | 6,667.8 | 170.2 | 170.8 | -79.02 | 337.5 | 5,967.0 | 423.1 | 87.7 | 335.40 | 1.261 Level 3 | | | |
| 12,800.0 | 6,747.5 | 12,732.0 | 6,666.8 | 173.0 | 173.6 | -79.01 | 337.5 | 6,067.0 | 423.1 | 82.2 | 340.90 | 1.241 Level 2 | | | |
| 12,900.0 | 6,746.5 | 12,832.0 | 6,665.8 | 175.8 | 176.4 | -79.00 | 337.5 | 6,167.0 | 423.1 | 76.7 | 346.39 | 1.221 Level 2 | | | |
| 13,000.0 | 6,745.6 | 12,932.0 | 6,664.8 | 178.6 | 179.2 | -79.00 | 337.5 | 6,267.0 | 423.1 | 71.2 | 351.89 | 1.202 Level 2 | | | |
| 13,100.0 | 6,744.6 | 13,032.0 | 6,663.8 | 181.4 | 182.0 | -78.99 | 337.5 | 6,367.0 | 423.1 | 65.7 | 357.39 | 1.184 Level 2 | | | |
| 13,200.0 | 6,743.6 | 13,132.0 | 6,662.8 | 184.2 | 184.8 | -78.98 | 337.5 | 6,467.0 | 423.1 | 60.2 | 362.88 | 1.166 Level 2 | | | |
| 13,300.0 | 6,742.7 | 13,232.0 | 6,661.8 | 187.0 | 187.6 | -78.98 | 337.5 | 6,567.0 | 423.1 | 54.8 | 368.38 | 1.149 Level 2 | | | |
| 13,400.0 | 6,741.7 | 13,332.0 | 6,660.8 | 189.8 | 190.4 | -78.97 | 337.5 | 6,667.0 | 423.1 | 49.3 | 373.88 | 1.132 Level 2 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|-----------------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | |
| 13,500.0 | 6,740.8 | 13,432.0 | 6,659.7 | 192.6 | 193.2 | -78.96 | 337.5 | 6,766.9 | 423.2 | 43.8 | 379.38 | 1.115 | Level 2 |
| 13,600.0 | 6,739.8 | 13,532.0 | 6,658.7 | 195.4 | 196.0 | -78.95 | 337.5 | 6,866.9 | 423.2 | 38.3 | 384.87 | 1.099 | Level 2 |
| 13,700.0 | 6,738.8 | 13,632.0 | 6,657.7 | 198.2 | 198.8 | -78.95 | 337.5 | 6,966.9 | 423.2 | 32.8 | 390.37 | 1.084 | Level 2 |
| 13,800.0 | 6,737.9 | 13,732.0 | 6,656.7 | 201.0 | 201.6 | -78.94 | 337.5 | 7,066.9 | 423.2 | 27.3 | 395.87 | 1.069 | Level 2 |
| 13,900.0 | 6,736.9 | 13,832.0 | 6,655.7 | 203.8 | 204.4 | -78.93 | 337.5 | 7,166.9 | 423.2 | 21.8 | 401.37 | 1.054 | Level 2 |
| 14,000.0 | 6,736.0 | 13,932.0 | 6,654.7 | 206.6 | 207.2 | -78.93 | 337.5 | 7,266.9 | 423.2 | 16.3 | 406.87 | 1.040 | Level 2 |
| 14,100.0 | 6,735.0 | 14,032.0 | 6,653.7 | 209.4 | 210.0 | -78.92 | 337.5 | 7,366.9 | 423.2 | 10.8 | 412.37 | 1.026 | Level 2 |
| 14,200.0 | 6,734.0 | 14,132.0 | 6,652.7 | 212.2 | 212.8 | -78.91 | 337.5 | 7,466.9 | 423.2 | 5.4 | 417.87 | 1.013 | Level 2 |
| 14,300.0 | 6,733.1 | 14,232.0 | 6,651.6 | 215.1 | 215.6 | -78.91 | 337.5 | 7,566.9 | 423.2 | -0.1 | 423.37 | 1.000 | Level 1 |
| 14,400.0 | 6,732.1 | 14,332.0 | 6,650.6 | 217.9 | 218.4 | -78.90 | 337.5 | 7,666.9 | 423.2 | -5.6 | 428.87 | 0.987 | Level 1 |
| 14,500.0 | 6,731.2 | 14,432.0 | 6,649.6 | 220.7 | 221.2 | -78.89 | 337.5 | 7,766.9 | 423.3 | -11.1 | 434.37 | 0.974 | Level 1 |
| 14,600.0 | 6,730.2 | 14,532.0 | 6,648.6 | 223.5 | 224.0 | -78.88 | 337.5 | 7,866.9 | 423.3 | -16.6 | 439.87 | 0.962 | Level 1 |
| 14,700.0 | 6,729.2 | 14,632.0 | 6,647.6 | 226.3 | 226.8 | -78.88 | 337.5 | 7,966.9 | 423.3 | -22.1 | 445.37 | 0.950 | Level 1 |
| 14,800.0 | 6,728.3 | 14,732.0 | 6,646.6 | 229.1 | 229.6 | -78.87 | 337.5 | 8,066.9 | 423.3 | -27.6 | 450.87 | 0.939 | Level 1 |
| 14,900.0 | 6,727.3 | 14,832.0 | 6,645.6 | 231.9 | 232.4 | -78.86 | 337.5 | 8,166.9 | 423.3 | -33.1 | 456.37 | 0.928 | Level 1 |
| 15,000.0 | 6,726.4 | 14,932.0 | 6,644.6 | 234.7 | 235.2 | -78.86 | 337.5 | 8,266.9 | 423.3 | -38.6 | 461.87 | 0.917 | Level 1 |
| 15,100.0 | 6,725.4 | 15,032.0 | 6,643.5 | 237.5 | 238.0 | -78.85 | 337.5 | 8,366.9 | 423.3 | -44.1 | 467.37 | 0.906 | Level 1 |
| 15,200.0 | 6,724.4 | 15,132.0 | 6,642.5 | 240.3 | 240.8 | -78.84 | 337.5 | 8,466.9 | 423.3 | -49.5 | 472.87 | 0.895 | Level 1 |
| 15,300.0 | 6,723.5 | 15,232.0 | 6,641.5 | 243.1 | 243.6 | -78.84 | 337.5 | 8,566.9 | 423.3 | -55.0 | 478.37 | 0.885 | Level 1 |
| 15,400.0 | 6,722.5 | 15,332.0 | 6,640.5 | 245.9 | 246.4 | -78.83 | 337.5 | 8,666.8 | 423.3 | -60.5 | 483.87 | 0.875 | Level 1 |
| 15,500.0 | 6,721.6 | 15,432.0 | 6,639.5 | 248.7 | 249.2 | -78.82 | 337.5 | 8,766.8 | 423.4 | -66.0 | 489.37 | 0.865 | Level 1 |
| 15,600.0 | 6,720.6 | 15,532.0 | 6,638.5 | 251.5 | 252.0 | -78.82 | 337.5 | 8,866.8 | 423.4 | -71.5 | 494.87 | 0.856 | Level 1 |
| 15,700.0 | 6,719.6 | 15,632.0 | 6,637.5 | 254.3 | 254.8 | -78.81 | 337.5 | 8,966.8 | 423.4 | -77.0 | 500.37 | 0.846 | Level 1 |
| 15,800.0 | 6,718.7 | 15,732.0 | 6,636.5 | 257.1 | 257.6 | -78.80 | 337.5 | 9,066.8 | 423.4 | -82.5 | 505.87 | 0.837 | Level 1 |
| 15,900.0 | 6,717.7 | 15,832.0 | 6,635.4 | 259.9 | 260.4 | -78.79 | 337.5 | 9,166.8 | 423.4 | -88.0 | 511.37 | 0.828 | Level 1 |
| 16,000.0 | 6,716.8 | 15,932.0 | 6,634.4 | 262.7 | 263.2 | -78.79 | 337.5 | 9,266.8 | 423.4 | -93.5 | 516.87 | 0.819 | Level 1 |
| 16,100.0 | 6,715.8 | 16,032.0 | 6,633.4 | 265.5 | 266.0 | -78.78 | 337.5 | 9,366.8 | 423.4 | -99.0 | 522.37 | 0.811 | Level 1 |
| 16,200.0 | 6,714.8 | 16,132.0 | 6,632.4 | 268.3 | 268.8 | -78.77 | 337.5 | 9,466.8 | 423.4 | -104.4 | 527.87 | 0.802 | Level 1 |
| 16,300.0 | 6,713.9 | 16,232.0 | 6,631.4 | 271.1 | 271.6 | -78.77 | 337.5 | 9,566.8 | 423.4 | -109.9 | 533.37 | 0.794 | Level 1 |
| 16,400.0 | 6,712.9 | 16,332.0 | 6,630.4 | 273.9 | 274.4 | -78.76 | 337.5 | 9,666.8 | 423.4 | -115.4 | 538.87 | 0.786 | Level 1 |
| 16,500.0 | 6,712.0 | 16,432.0 | 6,629.4 | 276.7 | 277.2 | -78.75 | 337.5 | 9,766.8 | 423.4 | -120.9 | 544.37 | 0.778 | Level 1 |
| 16,600.0 | 6,711.0 | 16,532.0 | 6,628.4 | 279.5 | 280.0 | -78.75 | 337.5 | 9,866.8 | 423.5 | -126.4 | 549.87 | 0.770 | Level 1 |
| 16,700.0 | 6,710.0 | 16,632.0 | 6,627.3 | 282.3 | 282.8 | -78.74 | 337.5 | 9,966.8 | 423.5 | -131.9 | 555.37 | 0.763 | Level 1 |
| 16,800.0 | 6,709.1 | 16,732.0 | 6,626.3 | 285.2 | 285.7 | -78.73 | 337.5 | 10,066.8 | 423.5 | -137.4 | 560.87 | 0.755 | Level 1 |
| 16,900.0 | 6,708.1 | 16,832.0 | 6,625.3 | 288.0 | 288.5 | -78.72 | 337.5 | 10,166.8 | 423.5 | -142.9 | 566.37 | 0.748 | Level 1 |
| 17,000.0 | 6,707.2 | 16,932.0 | 6,624.3 | 290.8 | 291.3 | -78.72 | 337.5 | 10,266.8 | 423.5 | -148.4 | 571.87 | 0.741 | Level 1 |
| 17,100.0 | 6,706.2 | 17,032.0 | 6,623.3 | 293.6 | 294.1 | -78.71 | 337.5 | 10,366.8 | 423.5 | -153.9 | 577.37 | 0.734 | Level 1 |
| 17,200.0 | 6,705.2 | 17,132.0 | 6,622.3 | 296.4 | 296.9 | -78.70 | 337.5 | 10,466.8 | 423.5 | -159.3 | 582.87 | 0.727 | Level 1 |
| 17,300.0 | 6,704.3 | 17,232.0 | 6,621.3 | 299.2 | 299.7 | -78.70 | 337.5 | 10,566.8 | 423.5 | -164.8 | 588.36 | 0.720 | Level 1 |
| 17,312.7 | 6,704.2 | 17,244.6 | 6,621.1 | 299.5 | 300.0 | -78.70 | 337.5 | 10,579.4 | 423.5 | -165.5 | 589.06 | 0.719 | Level 1 |
| 17,329.0 | 6,704.0 | 17,258.8 | 6,621.0 | 300.0 | 300.4 | -78.70 | 337.5 | 10,593.6 | 423.5 | -166.4 | 589.90 | 0.718 | Level 1, ES, SF |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-402 - Wellbore #1 - Plan #3 (7-13-15) | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|----------------|-------------|--|--------------------------------------|------------|----------------------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Semi Major Axis Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Distance Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -90.00 | 0.0 | -89.1 | 89.1 | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -90.00 | 0.0 | -89.1 | 89.1 | 88.9 | 0.22 | 396.591 | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -90.00 | 0.0 | -89.1 | 89.1 | 88.5 | 0.67 | 132.197 | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.6 | 0.6 | -90.00 | 0.0 | -89.1 | 89.1 | 88.0 | 1.12 | 79.318 | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -90.00 | 0.0 | -89.1 | 89.1 | 87.6 | 1.57 | 56.656 | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | -90.00 | 0.0 | -89.1 | 89.1 | 87.1 | 2.02 | 44.066 | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | -90.00 | 0.0 | -89.1 | 89.1 | 86.7 | 2.47 | 36.054 | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.5 | 1.5 | -90.00 | 0.0 | -89.1 | 89.1 | 86.2 | 2.92 | 30.507 | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | -90.00 | 0.0 | -89.1 | 89.1 | 85.8 | 3.37 | 26.439 | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | -90.00 | 0.0 | -89.1 | 89.1 | 85.3 | 3.82 | 23.329 | |
| 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 2.1 | 2.1 | -90.00 | 0.0 | -89.1 | 89.1 | 84.9 | 4.27 | 20.873 CC | |
| 1,100.0 | 1,100.0 | 1,099.6 | 1,099.6 | 2.4 | 2.4 | -89.46 | 0.8 | -89.3 | 89.4 | 84.6 | 4.72 | 18.935 ES | |
| 1,200.0 | 1,200.0 | 1,199.2 | 1,199.1 | 2.6 | 2.6 | -87.86 | 3.4 | -90.0 | 90.0 | 84.9 | 5.17 | 17.423 | |
| 1,300.0 | 1,300.0 | 1,298.6 | 1,298.5 | 2.8 | 2.8 | -85.25 | 7.6 | -91.0 | 91.3 | 85.7 | 5.62 | 16.259 | |
| 1,400.0 | 1,400.0 | 1,397.9 | 1,397.6 | 3.0 | 3.0 | -81.74 | 13.4 | -92.4 | 93.4 | 87.4 | 6.07 | 15.400 | |
| 1,500.0 | 1,500.0 | 1,496.9 | 1,496.3 | 3.3 | 3.3 | -77.50 | 20.9 | -94.3 | 96.7 | 90.1 | 6.52 | 14.820 | |
| 1,600.0 | 1,600.0 | 1,595.6 | 1,594.5 | 3.5 | 3.5 | -72.72 | 30.0 | -96.5 | 101.3 | 94.3 | 6.98 | 14.503 | |
| 1,700.0 | 1,700.0 | 1,694.0 | 1,692.3 | 3.7 | 3.8 | -67.66 | 40.8 | -99.2 | 107.5 | 100.1 | 7.45 | 14.430 | |
| 1,800.0 | 1,800.0 | 1,791.9 | 1,789.4 | 3.9 | 4.0 | -62.57 | 53.1 | -102.2 | 115.7 | 107.7 | 7.93 | 14.580 | |
| 1,900.0 | 1,900.0 | 1,889.4 | 1,885.9 | 4.2 | 4.3 | -57.65 | 66.9 | -105.6 | 125.8 | 117.4 | 8.43 | 14.926 | |
| 2,000.0 | 2,000.0 | 1,987.7 | 1,982.9 | 4.4 | 4.6 | -53.11 | 82.1 | -109.4 | 137.8 | 128.9 | 8.95 | 15.401 | |
| 2,100.0 | 2,100.0 | 2,086.4 | 2,080.3 | 4.6 | 4.9 | -49.28 | 97.4 | -113.1 | 150.6 | 141.1 | 9.48 | 15.885 | |
| 2,200.0 | 2,200.0 | 2,185.1 | 2,177.7 | 4.8 | 5.2 | -46.05 | 112.7 | -116.9 | 163.9 | 153.9 | 10.02 | 16.359 | |
| 2,300.0 | 2,300.0 | 2,283.8 | 2,275.2 | 5.1 | 5.5 | -43.31 | 128.0 | -120.7 | 177.7 | 167.1 | 10.57 | 16.815 | |
| 2,400.0 | 2,400.0 | 2,382.5 | 2,372.6 | 5.3 | 5.8 | -40.97 | 143.4 | -124.5 | 191.8 | 180.7 | 11.12 | 17.248 | |
| 2,500.0 | 2,500.0 | 2,481.2 | 2,470.1 | 5.5 | 6.2 | -38.95 | 158.7 | -128.2 | 206.2 | 194.5 | 11.68 | 17.658 | |
| 2,600.0 | 2,600.0 | 2,579.9 | 2,567.5 | 5.7 | 6.5 | 70.59 | 174.0 | -132.0 | 220.5 | 208.9 | 11.60 | 19.004 | |
| 2,700.0 | 2,700.0 | 2,678.6 | 2,664.9 | 5.9 | 6.8 | 72.59 | 189.3 | -135.8 | 234.6 | 222.5 | 12.03 | 19.501 | |
| 2,800.0 | 2,799.9 | 2,777.2 | 2,762.2 | 6.1 | 7.2 | 74.73 | 204.6 | -139.6 | 248.4 | 236.0 | 12.45 | 19.950 | |
| 2,900.0 | 2,899.7 | 2,875.6 | 2,859.4 | 6.3 | 7.5 | 77.00 | 219.9 | -143.3 | 262.2 | 249.4 | 12.88 | 20.363 | |
| 3,000.0 | 2,999.4 | 2,974.0 | 2,956.5 | 6.5 | 7.9 | 79.38 | 235.2 | -147.1 | 276.1 | 262.8 | 13.31 | 20.751 | |
| 3,100.0 | 3,098.9 | 3,072.1 | 3,053.3 | 6.7 | 8.2 | 81.85 | 250.4 | -150.9 | 290.3 | 276.5 | 13.74 | 21.120 | |
| 3,200.0 | 3,198.3 | 3,170.1 | 3,150.0 | 6.9 | 8.6 | 84.38 | 265.6 | -154.6 | 304.8 | 290.6 | 14.19 | 21.479 | |
| 3,254.3 | 3,252.1 | 3,223.2 | 3,202.5 | 7.1 | 8.7 | 85.78 | 273.8 | -156.6 | 312.9 | 298.5 | 14.44 | 21.671 | |
| 3,300.0 | 3,297.4 | 3,267.8 | 3,246.5 | 7.2 | 8.9 | 87.01 | 280.8 | -158.3 | 319.8 | 305.2 | 14.65 | 21.833 | |
| 3,400.0 | 3,396.6 | 3,365.5 | 3,343.0 | 7.4 | 9.3 | 89.52 | 295.9 | -162.1 | 335.5 | 320.4 | 15.12 | 22.190 | |
| 3,500.0 | 3,495.7 | 3,463.3 | 3,439.5 | 7.7 | 9.6 | 91.80 | 311.1 | -165.8 | 351.8 | 336.2 | 15.60 | 22.546 | |
| 3,600.0 | 3,594.8 | 3,561.0 | 3,535.9 | 7.9 | 9.9 | 93.89 | 326.3 | -169.6 | 368.6 | 352.5 | 16.10 | 22.897 | |
| 3,700.0 | 3,694.0 | 3,658.7 | 3,632.4 | 8.2 | 10.3 | 95.79 | 341.4 | -173.3 | 385.8 | 369.2 | 16.60 | 23.240 | |
| 3,800.0 | 3,793.1 | 3,756.4 | 3,728.9 | 8.5 | 10.7 | 97.53 | 356.6 | -177.0 | 403.4 | 386.3 | 17.11 | 23.574 | |
| 3,900.0 | 3,892.2 | 3,854.1 | 3,825.3 | 8.7 | 11.0 | 99.13 | 371.8 | -180.8 | 421.3 | 403.7 | 17.63 | 23.897 | |
| 4,000.0 | 3,991.4 | 3,951.9 | 3,921.8 | 9.0 | 11.4 | 100.59 | 386.9 | -184.5 | 439.6 | 421.4 | 18.16 | 24.209 | |
| 4,100.0 | 4,090.5 | 4,049.6 | 4,018.2 | 9.3 | 11.7 | 101.94 | 402.1 | -188.2 | 458.0 | 439.4 | 18.69 | 24.510 | |
| 4,200.0 | 4,189.6 | 4,147.3 | 4,114.7 | 9.6 | 12.1 | 103.19 | 417.3 | -192.0 | 476.8 | 457.5 | 19.22 | 24.799 | |
| 4,300.0 | 4,288.8 | 4,245.0 | 4,211.2 | 9.9 | 12.4 | 104.34 | 432.4 | -195.7 | 495.7 | 475.9 | 19.77 | 25.077 | |
| 4,400.0 | 4,387.9 | 4,342.7 | 4,307.6 | 10.2 | 12.8 | 105.41 | 447.6 | -199.5 | 514.8 | 494.5 | 20.31 | 25.345 | |
| 4,500.0 | 4,487.0 | 4,440.4 | 4,404.1 | 10.5 | 13.1 | 106.40 | 462.8 | -203.2 | 534.0 | 513.2 | 20.86 | 25.601 | |
| 4,600.0 | 4,586.2 | 4,538.2 | 4,500.5 | 10.8 | 13.5 | 107.33 | 477.9 | -206.9 | 553.5 | 532.0 | 21.41 | 25.847 | |
| 4,638.1 | 4,623.9 | 4,575.4 | 4,537.3 | 10.9 | 13.6 | 107.66 | 483.7 | -208.4 | 560.9 | 539.3 | 21.62 | 25.939 | |
| 4,700.0 | 4,685.4 | 4,636.0 | 4,597.1 | 11.1 | 13.8 | 108.35 | 493.1 | -210.7 | 572.8 | 550.8 | 21.96 | 26.078 | |
| 4,800.0 | 4,785.0 | 4,734.2 | 4,694.0 | 11.3 | 14.2 | 109.15 | 508.4 | -214.4 | 591.2 | 568.7 | 22.48 | 26.304 | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19M-402 - Wellbore #1 - Plan #3 (7-13-15) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 4,900.0 | 4,884.8 | 4,832.6 | 4,791.2 | 11.5 | 14.6 | 109.59 | 523.6 | -218.2 | 608.5 | 585.5 | 22.96 | 26.496 | | |
| 5,000.0 | 4,984.8 | 4,931.3 | 4,888.6 | 11.7 | 14.9 | 109.69 | 539.0 | -222.0 | 624.6 | 601.2 | 23.43 | 26.661 | | |
| 5,015.2 | 5,000.0 | 4,946.3 | 4,903.5 | 11.7 | 15.0 | 1.97 | 541.3 | -222.6 | 627.0 | 601.4 | 25.54 | 24.547 | | |
| 5,100.0 | 5,084.8 | 5,030.0 | 4,986.1 | 11.9 | 15.3 | 1.64 | 554.3 | -225.8 | 640.0 | 614.0 | 26.02 | 24.602 | | |
| 5,200.0 | 5,184.8 | 5,128.7 | 5,083.5 | 12.1 | 15.6 | 1.27 | 569.6 | -229.5 | 655.5 | 628.9 | 26.59 | 24.653 | | |
| 5,300.0 | 5,284.8 | 5,227.4 | 5,181.0 | 12.3 | 16.0 | 0.92 | 584.9 | -233.3 | 670.9 | 643.8 | 27.16 | 24.701 | | |
| 5,400.0 | 5,384.8 | 5,326.2 | 5,278.4 | 12.5 | 16.4 | 0.58 | 600.2 | -237.1 | 686.4 | 658.7 | 27.74 | 24.748 | | |
| 5,500.0 | 5,484.8 | 5,424.9 | 5,375.8 | 12.7 | 16.7 | 0.25 | 615.6 | -240.9 | 701.9 | 673.6 | 28.31 | 24.793 | | |
| 5,600.0 | 5,584.8 | 5,533.8 | 5,483.4 | 12.9 | 17.1 | -0.08 | 632.2 | -244.9 | 717.2 | 688.3 | 28.89 | 24.826 | | |
| 5,700.0 | 5,684.8 | 5,665.3 | 5,613.9 | 13.1 | 17.4 | -0.39 | 647.8 | -248.8 | 729.2 | 699.7 | 29.44 | 24.766 | | |
| 5,800.0 | 5,784.8 | 5,798.1 | 5,746.3 | 13.3 | 17.7 | -0.57 | 657.7 | -251.3 | 736.6 | 706.7 | 29.94 | 24.604 | | |
| 5,900.0 | 5,884.8 | 5,931.5 | 5,879.6 | 13.5 | 17.9 | -0.64 | 661.7 | -252.2 | 739.6 | 709.2 | 30.37 | 24.352 | | |
| 6,000.0 | 5,984.8 | 6,036.6 | 5,984.8 | 13.7 | 18.1 | -0.65 | 661.7 | -252.2 | 739.6 | 708.9 | 30.74 | 24.058 | | |
| 6,052.0 | 6,036.8 | 6,088.6 | 6,036.8 | 13.8 | 18.1 | -0.65 | 661.7 | -252.2 | 739.6 | 708.7 | 30.94 | 23.907 | | |
| 6,100.0 | 6,084.7 | 6,136.6 | 6,084.7 | 13.9 | 18.2 | -90.76 | 661.7 | -252.2 | 739.7 | 711.5 | 28.20 | 26.229 | | |
| 6,150.0 | 6,134.5 | 6,186.7 | 6,134.9 | 13.9 | 18.3 | -91.11 | 661.7 | -252.0 | 739.7 | 711.4 | 28.36 | 26.086 | | |
| 6,200.0 | 6,183.8 | 6,237.6 | 6,185.6 | 14.0 | 18.4 | -91.49 | 661.7 | -248.9 | 739.8 | 711.4 | 28.49 | 25.971 | | |
| 6,250.0 | 6,232.6 | 6,288.8 | 6,236.4 | 14.1 | 18.4 | -91.88 | 661.7 | -242.4 | 740.0 | 711.4 | 28.60 | 25.875 | | |
| 6,300.0 | 6,280.4 | 6,340.4 | 6,287.0 | 14.1 | 18.5 | -92.25 | 661.7 | -232.5 | 740.2 | 711.5 | 28.70 | 25.790 | | |
| 6,350.0 | 6,327.3 | 6,392.3 | 6,337.2 | 14.1 | 18.5 | -92.62 | 661.7 | -219.0 | 740.4 | 711.6 | 28.80 | 25.710 | | |
| 6,400.0 | 6,372.8 | 6,444.6 | 6,386.6 | 14.2 | 18.6 | -92.98 | 661.7 | -202.1 | 740.6 | 711.7 | 28.90 | 25.627 | | |
| 6,450.0 | 6,417.0 | 6,497.2 | 6,435.1 | 14.2 | 18.6 | -93.32 | 661.7 | -181.7 | 740.8 | 711.8 | 29.02 | 25.530 | | |
| 6,500.0 | 6,459.5 | 6,550.2 | 6,482.3 | 14.3 | 18.6 | -93.65 | 661.7 | -157.8 | 741.1 | 711.9 | 29.17 | 25.406 | | |
| 6,550.0 | 6,500.2 | 6,603.4 | 6,528.1 | 14.4 | 18.7 | -93.97 | 661.7 | -130.5 | 741.4 | 712.0 | 29.37 | 25.240 | | |
| 6,600.0 | 6,539.0 | 6,657.0 | 6,572.1 | 14.5 | 18.7 | -94.27 | 661.7 | -99.9 | 741.7 | 712.0 | 29.65 | 25.018 | | |
| 6,650.0 | 6,575.5 | 6,710.9 | 6,614.1 | 14.7 | 18.7 | -94.55 | 661.7 | -66.1 | 741.9 | 711.9 | 30.01 | 24.721 | | |
| 6,700.0 | 6,609.8 | 6,765.1 | 6,653.8 | 15.0 | 18.8 | -94.80 | 661.7 | -29.3 | 742.2 | 711.7 | 30.48 | 24.351 | | |
| 6,750.0 | 6,641.6 | 6,819.6 | 6,690.9 | 15.3 | 18.9 | -95.04 | 661.7 | 10.5 | 742.5 | 711.4 | 31.09 | 23.883 | | |
| 6,800.0 | 6,670.8 | 6,874.3 | 6,725.3 | 15.7 | 19.0 | -95.26 | 661.7 | 53.1 | 742.7 | 710.9 | 31.84 | 23.324 | | |
| 6,850.0 | 6,697.3 | 6,929.2 | 6,756.7 | 16.1 | 19.1 | -95.45 | 661.7 | 98.1 | 742.9 | 710.2 | 32.77 | 22.675 | | |
| 6,900.0 | 6,721.0 | 6,984.3 | 6,784.8 | 16.7 | 19.3 | -95.61 | 661.7 | 145.5 | 743.2 | 709.3 | 33.86 | 21.948 | | |
| 6,950.0 | 6,741.8 | 7,039.6 | 6,809.6 | 17.3 | 19.7 | -95.75 | 661.7 | 195.0 | 743.3 | 708.2 | 35.13 | 21.160 | | |
| 7,000.0 | 6,759.5 | 7,095.1 | 6,830.7 | 18.0 | 20.2 | -95.86 | 661.7 | 246.2 | 743.5 | 706.9 | 36.57 | 20.329 | | |
| 7,050.0 | 6,774.1 | 7,150.6 | 6,848.1 | 18.8 | 20.8 | -95.94 | 661.7 | 299.0 | 743.6 | 705.4 | 38.18 | 19.475 | | |
| 7,100.0 | 6,785.6 | 7,206.3 | 6,861.6 | 19.7 | 21.6 | -96.00 | 661.7 | 352.9 | 743.7 | 703.7 | 39.95 | 18.617 | | |
| 7,150.0 | 6,793.9 | 7,261.9 | 6,871.2 | 20.6 | 22.5 | -96.02 | 661.7 | 407.7 | 743.7 | 701.9 | 41.84 | 17.775 | | |
| 7,200.0 | 6,798.9 | 7,317.6 | 6,876.8 | 21.6 | 23.5 | -96.02 | 661.7 | 463.1 | 743.7 | 699.8 | 43.84 | 16.963 | | |
| 7,250.0 | 6,800.7 | 7,373.1 | 6,878.3 | 22.6 | 24.6 | -95.99 | 661.7 | 518.5 | 743.6 | 697.7 | 45.92 | 16.193 | | |
| 7,256.8 | 6,800.7 | 7,379.9 | 6,878.2 | 22.7 | 24.7 | -95.99 | 661.7 | 525.4 | 743.6 | 697.4 | 46.20 | 16.097 | | |
| 7,259.3 | 6,800.7 | 7,382.4 | 6,878.2 | 22.8 | 24.8 | -95.99 | 661.7 | 527.9 | 743.6 | 697.3 | 46.30 | 16.062 | | |
| 7,300.0 | 6,800.3 | 7,423.1 | 6,878.0 | 23.6 | 25.6 | -96.00 | 661.7 | 568.5 | 743.7 | 695.7 | 48.00 | 15.494 | | |
| 7,400.0 | 6,799.3 | 7,523.1 | 6,877.3 | 25.8 | 27.7 | -96.02 | 661.7 | 668.5 | 743.7 | 691.4 | 52.33 | 14.211 | | |
| 7,500.0 | 6,798.3 | 7,623.1 | 6,876.7 | 28.1 | 30.0 | -96.05 | 661.7 | 768.5 | 743.7 | 686.8 | 56.89 | 13.073 | | |
| 7,600.0 | 6,797.4 | 7,723.1 | 6,876.1 | 30.5 | 32.3 | -96.07 | 661.7 | 868.5 | 743.8 | 682.1 | 61.61 | 12.071 | | |
| 7,700.0 | 6,796.4 | 7,823.1 | 6,875.5 | 32.9 | 34.7 | -96.10 | 661.7 | 968.5 | 743.8 | 677.3 | 66.47 | 11.190 | | |
| 7,800.0 | 6,795.5 | 7,923.1 | 6,874.8 | 35.4 | 37.1 | -96.12 | 661.7 | 1,068.5 | 743.8 | 672.4 | 71.44 | 10.413 | | |
| 7,900.0 | 6,794.5 | 8,023.1 | 6,874.2 | 38.0 | 39.6 | -96.15 | 661.7 | 1,168.5 | 743.9 | 667.4 | 76.48 | 9.726 | | |
| 8,000.0 | 6,793.6 | 8,123.1 | 6,873.6 | 40.6 | 42.2 | -96.18 | 661.7 | 1,268.5 | 743.9 | 662.3 | 81.60 | 9.116 | | |
| 8,100.0 | 6,792.6 | 8,223.1 | 6,872.9 | 43.2 | 44.7 | -96.20 | 661.7 | 1,368.5 | 743.9 | 657.2 | 86.78 | 8.573 | | |
| 8,200.0 | 6,791.6 | 8,323.1 | 6,872.3 | 45.8 | 47.3 | -96.23 | 661.7 | 1,468.5 | 744.0 | 652.0 | 92.00 | 8.086 | | |
| 8,300.0 | 6,790.7 | 8,423.1 | 6,871.7 | 48.5 | 50.0 | -96.25 | 661.7 | 1,568.5 | 744.0 | 646.7 | 97.26 | 7.649 | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | |
| 8,400.0 | 6,789.7 | 8,523.1 | 6,871.1 | 51.1 | 52.6 | -96.28 | 661.7 | 1,668.5 | 744.0 | 641.5 | 102.56 | 7.255 | |
| 8,500.0 | 6,788.8 | 8,623.1 | 6,870.4 | 53.8 | 55.2 | -96.30 | 661.7 | 1,768.5 | 744.1 | 636.2 | 107.88 | 6.897 | |
| 8,600.0 | 6,787.8 | 8,723.1 | 6,869.8 | 56.5 | 57.9 | -96.33 | 661.7 | 1,868.5 | 744.1 | 630.9 | 113.23 | 6.572 | |
| 8,700.0 | 6,786.8 | 8,823.1 | 6,869.2 | 59.2 | 60.6 | -96.35 | 661.7 | 1,968.5 | 744.2 | 625.5 | 118.60 | 6.274 | |
| 8,800.0 | 6,785.9 | 8,923.1 | 6,868.5 | 61.9 | 63.3 | -96.38 | 661.7 | 2,068.5 | 744.2 | 620.2 | 123.99 | 6.002 | |
| 8,900.0 | 6,784.9 | 9,023.1 | 6,867.9 | 64.7 | 66.0 | -96.40 | 661.7 | 2,168.5 | 744.2 | 614.8 | 129.39 | 5.752 | |
| 9,000.0 | 6,784.0 | 9,123.1 | 6,867.3 | 67.4 | 68.7 | -96.43 | 661.7 | 2,268.5 | 744.3 | 609.5 | 134.81 | 5.521 | |
| 9,100.0 | 6,783.0 | 9,223.1 | 6,866.7 | 70.1 | 71.4 | -96.45 | 661.7 | 2,368.5 | 744.3 | 604.1 | 140.24 | 5.307 | |
| 9,200.0 | 6,782.0 | 9,323.1 | 6,866.0 | 72.9 | 74.2 | -96.48 | 661.7 | 2,468.5 | 744.3 | 598.7 | 145.68 | 5.109 | |
| 9,300.0 | 6,781.1 | 9,423.1 | 6,865.4 | 75.6 | 76.9 | -96.51 | 661.7 | 2,568.5 | 744.4 | 593.2 | 151.13 | 4.925 | |
| 9,400.0 | 6,780.1 | 9,523.0 | 6,864.8 | 78.4 | 79.6 | -96.53 | 661.7 | 2,668.5 | 744.4 | 587.8 | 156.59 | 4.754 | |
| 9,500.0 | 6,779.2 | 9,623.0 | 6,864.1 | 81.1 | 82.4 | -96.56 | 661.7 | 2,768.5 | 744.4 | 582.4 | 162.05 | 4.594 | |
| 9,600.0 | 6,778.2 | 9,723.0 | 6,863.5 | 83.9 | 85.1 | -96.58 | 661.7 | 2,868.5 | 744.5 | 577.0 | 167.52 | 4.444 | |
| 9,700.0 | 6,777.2 | 9,823.0 | 6,862.9 | 86.7 | 87.9 | -96.61 | 661.7 | 2,968.5 | 744.5 | 571.5 | 173.00 | 4.304 | |
| 9,800.0 | 6,776.3 | 9,923.0 | 6,862.3 | 89.4 | 90.6 | -96.63 | 661.7 | 3,068.5 | 744.6 | 566.1 | 178.48 | 4.172 | |
| 9,900.0 | 6,775.3 | 10,023.0 | 6,861.6 | 92.2 | 93.4 | -96.66 | 661.7 | 3,168.5 | 744.6 | 560.6 | 183.97 | 4.047 | |
| 10,000.0 | 6,774.4 | 10,123.0 | 6,861.0 | 95.0 | 96.1 | -96.68 | 661.7 | 3,268.5 | 744.6 | 555.2 | 189.47 | 3.930 | |
| 10,100.0 | 6,773.4 | 10,223.0 | 6,860.4 | 97.7 | 98.9 | -96.71 | 661.7 | 3,368.5 | 744.7 | 549.7 | 194.96 | 3.820 | |
| 10,200.0 | 6,772.4 | 10,323.0 | 6,859.8 | 100.5 | 101.7 | -96.73 | 661.7 | 3,468.5 | 744.7 | 544.2 | 200.46 | 3.715 | |
| 10,300.0 | 6,771.5 | 10,423.0 | 6,859.1 | 103.3 | 104.4 | -96.76 | 661.7 | 3,568.5 | 744.8 | 538.8 | 205.97 | 3.616 | |
| 10,400.0 | 6,770.5 | 10,523.0 | 6,858.5 | 106.1 | 107.2 | -96.78 | 661.7 | 3,668.5 | 744.8 | 533.3 | 211.47 | 3.522 | |
| 10,500.0 | 6,769.6 | 10,623.0 | 6,857.9 | 108.8 | 110.0 | -96.81 | 661.7 | 3,768.5 | 744.8 | 527.8 | 216.98 | 3.433 | |
| 10,600.0 | 6,768.6 | 10,723.0 | 6,857.2 | 111.6 | 112.8 | -96.83 | 661.7 | 3,868.5 | 744.9 | 522.4 | 222.49 | 3.348 | |
| 10,700.0 | 6,767.6 | 10,823.0 | 6,856.6 | 114.4 | 115.5 | -96.86 | 661.7 | 3,968.5 | 744.9 | 516.9 | 228.01 | 3.267 | |
| 10,800.0 | 6,766.7 | 10,923.0 | 6,856.0 | 117.2 | 118.3 | -96.89 | 661.7 | 4,068.5 | 744.9 | 511.4 | 233.52 | 3.190 | |
| 10,900.0 | 6,765.7 | 11,023.0 | 6,855.4 | 120.0 | 121.1 | -96.91 | 661.7 | 4,168.5 | 745.0 | 505.9 | 239.04 | 3.117 | |
| 11,000.0 | 6,764.8 | 11,123.0 | 6,854.7 | 122.8 | 123.9 | -96.94 | 661.7 | 4,268.4 | 745.0 | 500.5 | 244.56 | 3.046 | |
| 11,100.0 | 6,763.8 | 11,223.0 | 6,854.1 | 125.5 | 126.7 | -96.96 | 661.7 | 4,368.4 | 745.1 | 495.0 | 250.08 | 2.979 | |
| 11,200.0 | 6,762.8 | 11,323.0 | 6,853.5 | 128.3 | 129.4 | -96.99 | 661.7 | 4,468.4 | 745.1 | 489.5 | 255.60 | 2.915 | |
| 11,300.0 | 6,761.9 | 11,423.0 | 6,852.8 | 131.1 | 132.2 | -97.01 | 661.7 | 4,568.4 | 745.1 | 484.0 | 261.13 | 2.854 | |
| 11,400.0 | 6,760.9 | 11,523.0 | 6,852.2 | 133.9 | 135.0 | -97.04 | 661.7 | 4,668.4 | 745.2 | 478.5 | 266.65 | 2.795 | |
| 11,500.0 | 6,760.0 | 11,623.0 | 6,851.6 | 136.7 | 137.8 | -97.06 | 661.7 | 4,768.4 | 745.2 | 473.0 | 272.18 | 2.738 | |
| 11,600.0 | 6,759.0 | 11,723.0 | 6,851.0 | 139.5 | 140.6 | -97.09 | 661.7 | 4,868.4 | 745.3 | 467.6 | 277.70 | 2.684 | |
| 11,700.0 | 6,758.0 | 11,823.0 | 6,850.3 | 142.3 | 143.4 | -97.11 | 661.7 | 4,968.4 | 745.3 | 462.1 | 283.23 | 2.631 | |
| 11,800.0 | 6,757.1 | 11,923.0 | 6,849.7 | 145.1 | 146.2 | -97.14 | 661.7 | 5,068.4 | 745.3 | 456.6 | 288.76 | 2.581 | |
| 11,900.0 | 6,756.1 | 12,023.0 | 6,849.1 | 147.9 | 149.0 | -97.16 | 661.7 | 5,168.4 | 745.4 | 451.1 | 294.29 | 2.533 | |
| 12,000.0 | 6,755.2 | 12,123.0 | 6,848.4 | 150.7 | 151.7 | -97.19 | 661.7 | 5,268.4 | 745.4 | 445.6 | 299.82 | 2.486 | |
| 12,100.0 | 6,754.2 | 12,223.0 | 6,847.8 | 153.5 | 154.5 | -97.21 | 661.7 | 5,368.4 | 745.5 | 440.1 | 305.35 | 2.441 | |
| 12,200.0 | 6,753.2 | 12,323.0 | 6,847.2 | 156.3 | 157.3 | -97.24 | 661.7 | 5,468.4 | 745.5 | 434.6 | 310.88 | 2.398 | |
| 12,300.0 | 6,752.3 | 12,423.0 | 6,846.6 | 159.1 | 160.1 | -97.27 | 661.7 | 5,568.4 | 745.6 | 429.1 | 316.41 | 2.356 | |
| 12,400.0 | 6,751.3 | 12,523.0 | 6,845.9 | 161.9 | 162.9 | -97.29 | 661.7 | 5,668.4 | 745.6 | 423.7 | 321.94 | 2.316 | |
| 12,500.0 | 6,750.4 | 12,623.0 | 6,845.3 | 164.7 | 165.7 | -97.32 | 661.7 | 5,768.4 | 745.6 | 418.2 | 327.47 | 2.277 | |
| 12,600.0 | 6,749.4 | 12,723.0 | 6,844.7 | 167.4 | 168.5 | -97.34 | 661.7 | 5,868.4 | 745.7 | 412.7 | 333.00 | 2.239 | |
| 12,700.0 | 6,748.4 | 12,823.0 | 6,844.0 | 170.2 | 171.3 | -97.37 | 661.7 | 5,968.4 | 745.7 | 407.2 | 338.53 | 2.203 | |
| 12,800.0 | 6,747.5 | 12,923.0 | 6,843.4 | 173.0 | 174.1 | -97.39 | 661.7 | 6,068.4 | 745.8 | 401.7 | 344.07 | 2.168 | |
| 12,900.0 | 6,746.5 | 13,023.0 | 6,842.8 | 175.8 | 176.9 | -97.42 | 661.7 | 6,168.4 | 745.8 | 396.2 | 349.60 | 2.133 | |
| 13,000.0 | 6,745.6 | 13,123.0 | 6,842.2 | 178.6 | 179.7 | -97.44 | 661.7 | 6,268.4 | 745.8 | 390.7 | 355.13 | 2.100 | |
| 13,100.0 | 6,744.6 | 13,223.0 | 6,841.5 | 181.4 | 182.5 | -97.47 | 661.7 | 6,368.4 | 745.9 | 385.2 | 360.66 | 2.068 | |
| 13,200.0 | 6,743.6 | 13,323.0 | 6,840.9 | 184.2 | 185.3 | -97.49 | 661.7 | 6,468.4 | 745.9 | 379.7 | 366.19 | 2.037 | |
| 13,300.0 | 6,742.7 | 13,423.0 | 6,840.3 | 187.0 | 188.1 | -97.52 | 661.7 | 6,568.4 | 746.0 | 374.3 | 371.73 | 2.007 | |
| 13,400.0 | 6,741.7 | 13,523.0 | 6,839.6 | 189.8 | 190.9 | -97.54 | 661.7 | 6,668.4 | 746.0 | 368.8 | 377.26 | 1.977 | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | |
| 13,500.0 | 6,740.8 | 13,623.0 | 6,839.0 | 192.6 | 193.7 | -97.57 | 661.7 | 6,768.4 | 746.1 | 363.3 | 382.79 | 1.949 | |
| 13,600.0 | 6,739.8 | 13,723.0 | 6,838.4 | 195.4 | 196.5 | -97.59 | 661.7 | 6,868.4 | 746.1 | 357.8 | 388.32 | 1.921 | |
| 13,700.0 | 6,738.8 | 13,823.0 | 6,837.8 | 198.2 | 199.3 | -97.62 | 661.7 | 6,968.4 | 746.2 | 352.3 | 393.85 | 1.894 | |
| 13,800.0 | 6,737.9 | 13,923.0 | 6,837.1 | 201.0 | 202.1 | -97.64 | 661.7 | 7,068.4 | 746.2 | 346.8 | 399.38 | 1.868 | |
| 13,900.0 | 6,736.9 | 14,023.0 | 6,836.5 | 203.8 | 204.9 | -97.67 | 661.7 | 7,168.4 | 746.2 | 341.3 | 404.91 | 1.843 | |
| 14,000.0 | 6,736.0 | 14,123.0 | 6,835.9 | 206.6 | 207.7 | -97.69 | 661.7 | 7,268.4 | 746.3 | 335.8 | 410.44 | 1.818 | |
| 14,100.0 | 6,735.0 | 14,223.0 | 6,835.2 | 209.4 | 210.5 | -97.72 | 661.7 | 7,368.4 | 746.3 | 330.4 | 415.98 | 1.794 | |
| 14,200.0 | 6,734.0 | 14,323.0 | 6,834.6 | 212.2 | 213.3 | -97.75 | 661.7 | 7,468.4 | 746.4 | 324.9 | 421.51 | 1.771 | |
| 14,300.0 | 6,733.1 | 14,423.0 | 6,834.0 | 215.1 | 216.1 | -97.77 | 661.7 | 7,568.4 | 746.4 | 319.4 | 427.04 | 1.748 | |
| 14,400.0 | 6,732.1 | 14,523.0 | 6,833.4 | 217.9 | 218.9 | -97.80 | 661.7 | 7,668.4 | 746.5 | 313.9 | 432.57 | 1.726 | |
| 14,500.0 | 6,731.2 | 14,623.0 | 6,832.7 | 220.7 | 221.7 | -97.82 | 661.7 | 7,768.4 | 746.5 | 308.4 | 438.09 | 1.704 | |
| 14,600.0 | 6,730.2 | 14,723.0 | 6,832.1 | 223.5 | 224.5 | -97.85 | 661.7 | 7,868.4 | 746.5 | 302.9 | 443.62 | 1.683 | |
| 14,700.0 | 6,729.2 | 14,823.0 | 6,831.5 | 226.3 | 227.3 | -97.87 | 661.7 | 7,968.4 | 746.6 | 297.4 | 449.15 | 1.662 | |
| 14,800.0 | 6,728.3 | 14,923.0 | 6,830.8 | 229.1 | 230.1 | -97.90 | 661.7 | 8,068.4 | 746.6 | 292.0 | 454.68 | 1.642 | |
| 14,900.0 | 6,727.3 | 15,023.0 | 6,830.2 | 231.9 | 232.9 | -97.92 | 661.7 | 8,168.3 | 746.7 | 286.5 | 460.21 | 1.622 | |
| 15,000.0 | 6,726.4 | 15,123.0 | 6,829.6 | 234.7 | 235.7 | -97.95 | 661.7 | 8,268.3 | 746.7 | 281.0 | 465.74 | 1.603 | |
| 15,100.0 | 6,725.4 | 15,223.0 | 6,829.0 | 237.5 | 238.5 | -97.97 | 661.7 | 8,368.3 | 746.8 | 275.5 | 471.26 | 1.585 | |
| 15,200.0 | 6,724.4 | 15,323.0 | 6,828.3 | 240.3 | 241.3 | -98.00 | 661.7 | 8,468.3 | 746.8 | 270.0 | 476.79 | 1.566 | |
| 15,300.0 | 6,723.5 | 15,423.0 | 6,827.7 | 243.1 | 244.1 | -98.02 | 661.7 | 8,568.3 | 746.9 | 264.6 | 482.32 | 1.549 | |
| 15,400.0 | 6,722.5 | 15,523.0 | 6,827.1 | 245.9 | 246.9 | -98.05 | 661.7 | 8,668.3 | 746.9 | 259.1 | 487.84 | 1.531 | |
| 15,500.0 | 6,721.6 | 15,623.0 | 6,826.5 | 248.7 | 249.7 | -98.07 | 661.7 | 8,768.3 | 747.0 | 253.6 | 493.37 | 1.514 | |
| 15,600.0 | 6,720.6 | 15,723.0 | 6,825.8 | 251.5 | 252.5 | -98.10 | 661.7 | 8,868.3 | 747.0 | 248.1 | 498.89 | 1.497 Level 3 | |
| 15,700.0 | 6,719.6 | 15,823.0 | 6,825.2 | 254.3 | 255.3 | -98.12 | 661.7 | 8,968.3 | 747.1 | 242.6 | 504.42 | 1.481 Level 3 | |
| 15,800.0 | 6,718.7 | 15,923.0 | 6,824.6 | 257.1 | 258.1 | -98.15 | 661.7 | 9,068.3 | 747.1 | 237.2 | 509.94 | 1.465 Level 3 | |
| 15,900.0 | 6,717.7 | 16,023.0 | 6,823.9 | 259.9 | 260.9 | -98.17 | 661.7 | 9,168.3 | 747.1 | 231.7 | 515.46 | 1.449 Level 3 | |
| 16,000.0 | 6,716.8 | 16,123.0 | 6,823.3 | 262.7 | 263.7 | -98.20 | 661.7 | 9,268.3 | 747.2 | 226.2 | 520.98 | 1.434 Level 3 | |
| 16,100.0 | 6,715.8 | 16,223.0 | 6,822.7 | 265.5 | 266.5 | -98.22 | 661.7 | 9,368.3 | 747.2 | 220.7 | 526.51 | 1.419 Level 3 | |
| 16,200.0 | 6,714.8 | 16,323.0 | 6,822.1 | 268.3 | 269.3 | -98.25 | 661.7 | 9,468.3 | 747.3 | 215.3 | 532.03 | 1.405 Level 3 | |
| 16,300.0 | 6,713.9 | 16,423.0 | 6,821.4 | 271.1 | 272.1 | -98.27 | 661.7 | 9,568.3 | 747.3 | 209.8 | 537.55 | 1.390 Level 3 | |
| 16,400.0 | 6,712.9 | 16,523.0 | 6,820.8 | 273.9 | 274.9 | -98.30 | 661.7 | 9,668.3 | 747.4 | 204.3 | 543.07 | 1.376 Level 3 | |
| 16,500.0 | 6,712.0 | 16,623.0 | 6,820.2 | 276.7 | 277.7 | -98.32 | 661.7 | 9,768.3 | 747.4 | 198.8 | 548.59 | 1.362 Level 3 | |
| 16,600.0 | 6,711.0 | 16,723.0 | 6,819.5 | 279.5 | 280.5 | -98.35 | 661.7 | 9,868.3 | 747.5 | 193.4 | 554.11 | 1.349 Level 3 | |
| 16,700.0 | 6,710.0 | 16,823.0 | 6,818.9 | 282.3 | 283.3 | -98.37 | 661.7 | 9,968.3 | 747.5 | 187.9 | 559.63 | 1.336 Level 3 | |
| 16,800.0 | 6,709.1 | 16,923.0 | 6,818.3 | 285.2 | 286.1 | -98.40 | 661.7 | 10,068.3 | 747.6 | 182.4 | 565.15 | 1.323 Level 3 | |
| 16,900.0 | 6,708.1 | 17,023.0 | 6,817.7 | 288.0 | 288.9 | -98.43 | 661.7 | 10,168.3 | 747.6 | 177.0 | 570.66 | 1.310 Level 3 | |
| 17,000.0 | 6,707.2 | 17,123.0 | 6,817.0 | 290.8 | 291.7 | -98.45 | 661.7 | 10,268.3 | 747.7 | 171.5 | 576.18 | 1.298 Level 3 | |
| 17,100.0 | 6,706.2 | 17,223.0 | 6,816.4 | 293.6 | 294.5 | -98.48 | 661.7 | 10,368.3 | 747.7 | 166.0 | 581.70 | 1.285 Level 3 | |
| 17,200.0 | 6,705.2 | 17,323.0 | 6,815.8 | 296.4 | 297.3 | -98.50 | 661.7 | 10,468.3 | 747.8 | 160.6 | 587.21 | 1.273 Level 3 | |
| 17,300.0 | 6,704.3 | 17,423.0 | 6,815.1 | 299.2 | 300.1 | -98.53 | 661.7 | 10,568.3 | 747.8 | 155.1 | 592.73 | 1.262 Level 3 | |
| 17,309.6 | 6,704.2 | 17,432.6 | 6,815.1 | 299.4 | 300.4 | -98.53 | 661.7 | 10,577.9 | 747.8 | 154.6 | 593.26 | 1.261 Level 3 | |
| 17,329.0 | 6,704.0 | 17,445.4 | 6,815.0 | 300.0 | 300.8 | -98.53 | 661.7 | 10,590.7 | 747.9 | 153.7 | 594.15 | 1.259 Level 3, SF | |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-202 - Wellbore #1 - Plan #3 (7-14-15) | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|----------------|-------------|--|--------------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Semi Major Axis Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -89.99 | 0.0 | -30.6 | 30.6 | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -89.99 | 0.0 | -30.6 | 30.6 | 30.4 | 0.22 | 136.328 | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -89.99 | 0.0 | -30.6 | 30.6 | 30.0 | 0.67 | 45.443 | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.6 | 0.6 | -89.99 | 0.0 | -30.6 | 30.6 | 29.5 | 1.12 | 27.266 | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -89.99 | 0.0 | -30.6 | 30.6 | 29.1 | 1.57 | 19.475 | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | -89.99 | 0.0 | -30.6 | 30.6 | 28.6 | 2.02 | 15.148 | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | -89.99 | 0.0 | -30.6 | 30.6 | 28.2 | 2.47 | 12.393 | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.5 | 1.5 | -89.99 | 0.0 | -30.6 | 30.6 | 27.7 | 2.92 | 10.487 | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | -89.99 | 0.0 | -30.6 | 30.6 | 27.3 | 3.37 | 9.089 | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | -89.99 | 0.0 | -30.6 | 30.6 | 26.8 | 3.82 | 8.019 | |
| 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 2.1 | 2.1 | -89.99 | 0.0 | -30.6 | 30.6 | 26.4 | 4.27 | 7.175 | |
| 1,100.0 | 1,100.0 | 1,100.0 | 1,100.0 | 2.4 | 2.4 | -89.99 | 0.0 | -30.6 | 30.6 | 25.9 | 4.72 | 6.492 | |
| 1,200.0 | 1,200.0 | 1,200.0 | 1,200.0 | 2.6 | 2.6 | -89.99 | 0.0 | -30.6 | 30.6 | 25.5 | 5.17 | 5.927 | |
| 1,300.0 | 1,300.0 | 1,300.0 | 1,300.0 | 2.8 | 2.8 | -89.99 | 0.0 | -30.6 | 30.6 | 25.0 | 5.62 | 5.453 | |
| 1,400.0 | 1,400.0 | 1,400.0 | 1,400.0 | 3.0 | 3.0 | -89.99 | 0.0 | -30.6 | 30.6 | 24.6 | 6.07 | 5.049 | |
| 1,500.0 | 1,500.0 | 1,500.0 | 1,500.0 | 3.3 | 3.3 | -89.99 | 0.0 | -30.6 | 30.6 | 24.1 | 6.52 | 4.701 CC | |
| 1,600.0 | 1,600.0 | 1,599.7 | 1,599.7 | 3.5 | 3.5 | -91.41 | -0.8 | -31.0 | 31.1 | 24.1 | 6.94 | 4.474 | |
| 1,700.0 | 1,700.0 | 1,699.4 | 1,699.4 | 3.7 | 3.6 | -95.45 | -3.1 | -32.2 | 32.4 | 25.1 | 7.34 | 4.414 | |
| 1,800.0 | 1,800.0 | 1,799.0 | 1,798.9 | 3.9 | 3.8 | -101.41 | -6.9 | -34.2 | 35.0 | 27.2 | 7.75 | 4.513 | |
| 1,900.0 | 1,900.0 | 1,898.4 | 1,898.1 | 4.2 | 4.0 | -108.34 | -12.3 | -37.0 | 39.1 | 30.9 | 8.16 | 4.789 | |
| 2,000.0 | 2,000.0 | 1,997.5 | 1,996.9 | 4.4 | 4.2 | -115.24 | -19.1 | -40.6 | 45.0 | 36.4 | 8.58 | 5.248 | |
| 2,100.0 | 2,100.0 | 2,096.4 | 2,095.3 | 4.6 | 4.4 | -121.45 | -27.5 | -45.0 | 52.9 | 43.9 | 9.00 | 5.879 | |
| 2,200.0 | 2,200.0 | 2,194.8 | 2,193.1 | 4.8 | 4.6 | -126.69 | -37.3 | -50.1 | 62.8 | 53.4 | 9.44 | 6.657 | |
| 2,300.0 | 2,300.0 | 2,292.9 | 2,290.4 | 5.1 | 4.9 | -130.97 | -48.6 | -55.9 | 74.7 | 64.8 | 9.89 | 7.555 | |
| 2,400.0 | 2,400.0 | 2,391.9 | 2,388.5 | 5.3 | 5.1 | -134.28 | -60.7 | -62.3 | 87.8 | 77.4 | 10.36 | 8.474 | |
| 2,500.0 | 2,500.0 | 2,491.0 | 2,486.5 | 5.5 | 5.4 | -136.73 | -72.9 | -68.6 | 101.0 | 90.2 | 10.83 | 9.325 | |
| 2,600.0 | 2,600.0 | 2,590.1 | 2,584.7 | 5.7 | 5.6 | -31.08 | -85.1 | -74.9 | 113.7 | 102.5 | 11.11 | 10.226 | |
| 2,700.0 | 2,700.0 | 2,689.3 | 2,683.0 | 5.9 | 5.9 | -33.14 | -97.2 | -81.3 | 125.0 | 113.5 | 11.51 | 10.854 | |
| 2,800.0 | 2,799.9 | 2,788.7 | 2,781.4 | 6.1 | 6.2 | -35.27 | -109.4 | -87.6 | 135.0 | 123.1 | 11.92 | 11.329 | |
| 2,900.0 | 2,899.7 | 2,888.2 | 2,879.9 | 6.3 | 6.5 | -37.52 | -121.7 | -94.0 | 143.8 | 131.5 | 12.33 | 11.670 | |
| 3,000.0 | 2,999.4 | 2,987.7 | 2,978.5 | 6.5 | 6.8 | -39.93 | -133.9 | -100.4 | 151.5 | 138.8 | 12.74 | 11.895 | |
| 3,100.0 | 3,098.9 | 3,087.2 | 3,077.0 | 6.7 | 7.1 | -42.52 | -146.1 | -106.7 | 158.2 | 145.0 | 13.16 | 12.020 | |
| 3,200.0 | 3,198.3 | 3,186.7 | 3,175.6 | 6.9 | 7.4 | -45.33 | -158.3 | -113.1 | 163.9 | 150.3 | 13.59 | 12.059 | |
| 3,254.3 | 3,252.1 | 3,240.7 | 3,229.1 | 7.1 | 7.6 | -46.95 | -164.9 | -116.5 | 166.7 | 152.9 | 13.84 | 12.049 | |
| 3,300.0 | 3,297.4 | 3,286.2 | 3,274.1 | 7.2 | 7.7 | -48.35 | -170.5 | -119.5 | 169.0 | 155.0 | 14.05 | 12.031 | |
| 3,400.0 | 3,396.6 | 3,385.7 | 3,372.6 | 7.4 | 8.0 | -51.27 | -182.7 | -125.8 | 174.4 | 159.9 | 14.52 | 12.007 | |
| 3,500.0 | 3,495.7 | 3,485.1 | 3,471.1 | 7.7 | 8.4 | -54.01 | -194.9 | -132.2 | 180.2 | 165.2 | 15.01 | 12.002 | |
| 3,600.0 | 3,594.8 | 3,584.6 | 3,569.6 | 7.9 | 8.7 | -56.58 | -207.2 | -138.5 | 186.4 | 170.8 | 15.52 | 12.010 | |
| 3,700.0 | 3,694.0 | 3,684.1 | 3,668.1 | 8.2 | 9.0 | -58.97 | -219.4 | -144.9 | 192.9 | 176.9 | 16.03 | 12.030 | |
| 3,800.0 | 3,793.1 | 3,783.5 | 3,766.7 | 8.5 | 9.3 | -61.21 | -231.6 | -151.3 | 199.7 | 183.2 | 16.57 | 12.058 | |
| 3,900.0 | 3,892.2 | 3,883.0 | 3,865.2 | 8.7 | 9.7 | -63.30 | -243.8 | -157.6 | 206.9 | 189.8 | 17.11 | 12.092 | |
| 4,000.0 | 3,991.4 | 3,982.5 | 3,963.7 | 9.0 | 10.0 | -65.24 | -256.0 | -164.0 | 214.3 | 196.6 | 17.66 | 12.131 | |
| 4,100.0 | 4,090.5 | 4,081.9 | 4,062.2 | 9.3 | 10.3 | -67.06 | -268.2 | -170.3 | 221.9 | 203.7 | 18.23 | 12.173 | |
| 4,200.0 | 4,189.6 | 4,181.4 | 4,160.7 | 9.6 | 10.6 | -68.75 | -280.4 | -176.7 | 229.7 | 210.9 | 18.80 | 12.218 | |
| 4,300.0 | 4,288.8 | 4,280.9 | 4,259.2 | 9.9 | 11.0 | -70.33 | -292.6 | -183.1 | 237.7 | 218.3 | 19.38 | 12.265 | |
| 4,400.0 | 4,387.9 | 4,380.4 | 4,357.7 | 10.2 | 11.3 | -71.81 | -304.9 | -189.4 | 245.9 | 225.9 | 19.97 | 12.312 | |
| 4,500.0 | 4,487.0 | 4,479.8 | 4,456.2 | 10.5 | 11.6 | -73.19 | -317.1 | -195.8 | 254.2 | 233.7 | 20.57 | 12.361 | |
| 4,600.0 | 4,586.2 | 4,579.3 | 4,554.8 | 10.8 | 12.0 | -74.49 | -329.3 | -202.1 | 262.7 | 241.5 | 21.17 | 12.410 | |
| 4,638.1 | 4,623.9 | 4,617.2 | 4,592.3 | 10.9 | 12.1 | -74.96 | -333.9 | -204.6 | 266.0 | 244.6 | 21.40 | 12.428 | |
| 4,700.0 | 4,685.4 | 4,678.8 | 4,653.3 | 11.1 | 12.3 | -75.67 | -341.5 | -208.5 | 271.5 | 249.7 | 21.75 | 12.479 | |
| 4,800.0 | 4,785.0 | 4,778.3 | 4,751.8 | 11.3 | 12.6 | -76.22 | -353.7 | -214.9 | 281.1 | 258.8 | 22.26 | 12.626 | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-202 - Wellbore #1 - Plan #3 (7-14-15) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 4,900.0 | 4,884.8 | 4,877.7 | 4,850.3 | 11.5 | 13.0 | -76.10 | -365.9 | -221.2 | 291.5 | 268.8 | 22.73 | 12.828 | | |
| 5,000.0 | 4,984.8 | 4,977.0 | 4,948.6 | 11.7 | 13.3 | -75.37 | -378.1 | -227.6 | 302.9 | 279.7 | 23.14 | 13.088 | | |
| 5,015.2 | 5,000.0 | 4,992.1 | 4,963.5 | 11.7 | 13.4 | 177.09 | -379.9 | -228.5 | 304.7 | 281.1 | 23.56 | 12.933 | | |
| 5,100.0 | 5,084.8 | 5,080.6 | 5,051.3 | 11.9 | 13.6 | 178.19 | -390.5 | -234.0 | 314.6 | 290.5 | 24.04 | 13.085 | | |
| 5,200.0 | 5,184.8 | 5,190.9 | 5,161.0 | 12.1 | 13.9 | 179.17 | -400.5 | -239.2 | 323.6 | 299.0 | 24.55 | 13.179 | | |
| 5,300.0 | 5,284.8 | 5,301.8 | 5,271.7 | 12.3 | 14.1 | 179.76 | -406.8 | -242.5 | 329.2 | 304.2 | 25.01 | 13.163 | | |
| 5,400.0 | 5,384.8 | 5,413.2 | 5,383.0 | 12.5 | 14.3 | 179.99 | -409.3 | -243.8 | 331.5 | 306.0 | 25.43 | 13.034 | | |
| 5,500.0 | 5,484.8 | 5,514.9 | 5,484.8 | 12.7 | 14.5 | 179.99 | -409.4 | -243.8 | 331.5 | 305.7 | 25.82 | 12.841 | | |
| 5,600.0 | 5,584.8 | 5,614.9 | 5,584.8 | 12.9 | 14.6 | 179.99 | -409.4 | -243.8 | 331.5 | 305.3 | 26.19 | 12.657 | | |
| 5,700.0 | 5,684.8 | 5,714.9 | 5,684.8 | 13.1 | 14.8 | 179.99 | -409.4 | -243.8 | 331.5 | 304.9 | 26.57 | 12.478 | | |
| 5,800.0 | 5,784.8 | 5,814.9 | 5,784.8 | 13.3 | 15.0 | 179.99 | -409.4 | -243.8 | 331.5 | 304.6 | 26.95 | 12.302 | | |
| 5,900.0 | 5,884.8 | 5,914.9 | 5,884.8 | 13.5 | 15.1 | 179.99 | -409.4 | -243.8 | 331.5 | 304.2 | 27.33 | 12.130 | | |
| 5,961.1 | 5,945.8 | 5,976.0 | 5,945.8 | 13.6 | 15.2 | 179.99 | -409.4 | -243.8 | 331.5 | 303.9 | 27.56 | 12.027 | | |
| 6,000.0 | 5,984.8 | 6,014.9 | 5,984.7 | 13.7 | 15.3 | 179.92 | -409.4 | -243.4 | 331.5 | 303.8 | 27.71 | 11.964 | | |
| 6,052.0 | 6,036.8 | 6,066.7 | 6,036.3 | 13.8 | 15.4 | 179.31 | -409.4 | -239.9 | 331.5 | 303.7 | 27.88 | 11.891 | | |
| 6,100.0 | 6,084.7 | 6,114.0 | 6,083.3 | 13.9 | 15.4 | 88.48 | -409.4 | -233.7 | 331.6 | 304.2 | 27.46 | 12.075 | | |
| 6,150.0 | 6,134.5 | 6,163.0 | 6,131.4 | 13.9 | 15.5 | 87.62 | -409.4 | -224.2 | 331.8 | 304.2 | 27.62 | 12.013 | | |
| 6,200.0 | 6,183.8 | 6,211.8 | 6,178.5 | 14.0 | 15.5 | 86.78 | -409.4 | -211.7 | 332.0 | 304.3 | 27.75 | 11.964 | | |
| 6,250.0 | 6,232.6 | 6,260.2 | 6,224.4 | 14.1 | 15.5 | 85.95 | -409.4 | -196.3 | 332.3 | 304.5 | 27.86 | 11.927 | | |
| 6,300.0 | 6,280.4 | 6,308.3 | 6,269.0 | 14.1 | 15.5 | 85.15 | -409.4 | -178.2 | 332.7 | 304.7 | 27.96 | 11.899 | | |
| 6,350.0 | 6,327.3 | 6,356.2 | 6,312.1 | 14.1 | 15.6 | 84.36 | -409.4 | -157.4 | 333.1 | 305.1 | 28.05 | 11.875 | | |
| 6,400.0 | 6,372.8 | 6,403.8 | 6,353.6 | 14.2 | 15.6 | 83.61 | -409.4 | -134.1 | 333.6 | 305.5 | 28.15 | 11.852 | | |
| 6,450.0 | 6,417.0 | 6,450.0 | 6,392.4 | 14.2 | 15.6 | 82.90 | -409.4 | -109.0 | 334.1 | 305.8 | 28.26 | 11.824 | | |
| 6,500.0 | 6,459.5 | 6,498.3 | 6,431.3 | 14.3 | 15.6 | 82.19 | -409.4 | -80.4 | 334.6 | 306.2 | 28.40 | 11.781 | | |
| 6,550.0 | 6,500.2 | 6,545.3 | 6,467.3 | 14.4 | 15.6 | 81.53 | -409.4 | -50.3 | 335.2 | 306.6 | 28.60 | 11.719 | | |
| 6,600.0 | 6,539.0 | 6,592.0 | 6,501.2 | 14.5 | 15.6 | 80.90 | -409.4 | -18.1 | 335.8 | 306.9 | 28.87 | 11.631 | | |
| 6,650.0 | 6,575.5 | 6,638.5 | 6,532.9 | 14.7 | 15.7 | 80.32 | -409.4 | 15.9 | 336.3 | 307.1 | 29.22 | 11.509 | | |
| 6,700.0 | 6,609.8 | 6,684.9 | 6,562.5 | 15.0 | 15.7 | 79.77 | -409.4 | 51.6 | 336.9 | 307.2 | 29.69 | 11.347 | | |
| 6,750.0 | 6,641.6 | 6,731.1 | 6,589.7 | 15.3 | 15.8 | 79.27 | -409.4 | 88.9 | 337.4 | 307.2 | 30.28 | 11.145 | | |
| 6,800.0 | 6,670.8 | 6,771.1 | 6,614.5 | 15.7 | 16.0 | 78.81 | -409.4 | 127.7 | 337.9 | 306.9 | 31.00 | 10.901 | | |
| 6,850.0 | 6,697.3 | 6,823.0 | 6,636.9 | 16.1 | 16.3 | 78.40 | -409.4 | 167.8 | 338.4 | 306.6 | 31.87 | 10.618 | | |
| 6,900.0 | 6,721.0 | 6,868.8 | 6,656.8 | 16.7 | 16.9 | 78.03 | -409.4 | 209.0 | 338.9 | 306.0 | 32.90 | 10.300 | | |
| 6,950.0 | 6,741.8 | 6,914.5 | 6,674.1 | 17.3 | 17.5 | 77.71 | -409.4 | 251.3 | 339.3 | 305.2 | 34.09 | 9.954 | | |
| 7,000.0 | 6,759.5 | 6,960.1 | 6,688.9 | 18.0 | 18.2 | 77.44 | -409.4 | 294.4 | 339.6 | 304.2 | 35.42 | 9.589 | | |
| 7,050.0 | 6,774.1 | 7,005.7 | 6,701.1 | 18.8 | 19.0 | 77.21 | -409.4 | 338.3 | 339.9 | 303.0 | 36.90 | 9.213 | | |
| 7,100.0 | 6,785.6 | 7,050.0 | 6,710.3 | 19.7 | 19.8 | 77.04 | -409.4 | 381.6 | 340.2 | 301.7 | 38.49 | 8.838 | | |
| 7,150.0 | 6,793.9 | 7,096.6 | 6,717.4 | 20.6 | 20.6 | 76.91 | -409.4 | 427.7 | 340.4 | 300.1 | 40.25 | 8.457 | | |
| 7,200.0 | 6,798.9 | 7,142.0 | 6,721.5 | 21.6 | 21.5 | 76.84 | -409.4 | 472.9 | 340.5 | 298.4 | 42.08 | 8.091 | | |
| 7,250.0 | 6,800.7 | 7,187.4 | 6,723.0 | 22.6 | 22.5 | 76.81 | -409.4 | 518.2 | 340.5 | 296.5 | 44.00 | 7.739 | | |
| 7,259.3 | 6,800.7 | 7,197.0 | 6,723.0 | 22.8 | 22.7 | 76.81 | -409.4 | 527.8 | 340.5 | 296.1 | 44.38 | 7.672 | | |
| 7,267.1 | 6,800.6 | 7,203.5 | 6,722.9 | 22.9 | 22.8 | 76.81 | -409.4 | 534.3 | 340.5 | 295.8 | 44.68 | 7.621 | | |
| 7,300.0 | 6,800.3 | 7,236.4 | 6,722.6 | 23.6 | 23.5 | 76.81 | -409.4 | 567.3 | 340.5 | 294.5 | 46.04 | 7.395 | | |
| 7,400.0 | 6,799.3 | 7,336.4 | 6,721.5 | 25.8 | 25.7 | 76.80 | -409.4 | 667.3 | 340.5 | 290.2 | 50.33 | 6.765 | | |
| 7,500.0 | 6,798.3 | 7,436.4 | 6,720.5 | 28.1 | 28.0 | 76.79 | -409.4 | 767.3 | 340.5 | 285.7 | 54.83 | 6.210 | | |
| 7,600.0 | 6,797.4 | 7,536.4 | 6,719.5 | 30.5 | 30.4 | 76.78 | -409.4 | 867.2 | 340.5 | 281.0 | 59.50 | 5.724 | | |
| 7,700.0 | 6,796.4 | 7,636.4 | 6,718.5 | 32.9 | 32.9 | 76.77 | -409.4 | 967.2 | 340.5 | 276.3 | 64.29 | 5.297 | | |
| 7,800.0 | 6,795.5 | 7,736.4 | 6,717.5 | 35.4 | 35.4 | 76.76 | -409.4 | 1,067.2 | 340.6 | 271.4 | 69.18 | 4.923 | | |
| 7,900.0 | 6,794.5 | 7,836.4 | 6,716.5 | 38.0 | 38.0 | 76.76 | -409.4 | 1,167.2 | 340.6 | 266.4 | 74.16 | 4.593 | | |
| 8,000.0 | 6,793.6 | 7,936.4 | 6,715.5 | 40.6 | 40.6 | 76.75 | -409.4 | 1,267.2 | 340.6 | 261.4 | 79.20 | 4.300 | | |
| 8,100.0 | 6,792.6 | 8,036.4 | 6,714.5 | 43.2 | 43.2 | 76.74 | -409.4 | 1,367.2 | 340.6 | 256.3 | 84.29 | 4.041 | | |
| 8,200.0 | 6,791.6 | 8,136.4 | 6,713.4 | 45.8 | 45.8 | 76.73 | -409.4 | 1,467.2 | 340.6 | 251.2 | 89.43 | 3.809 | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-202 - Wellbore #1 - Plan #3 (7-14-15) | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | Distance | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 8,300.0 | 6,790.7 | 8,236.4 | 6,712.4 | 48.5 | 48.5 | 76.72 | -409.4 | 1,567.2 | 340.6 | 246.0 | 94.61 | 3.600 | |
| 8,400.0 | 6,789.7 | 8,336.4 | 6,711.4 | 51.1 | 51.1 | 76.71 | -409.4 | 1,667.2 | 340.6 | 240.8 | 99.82 | 3.413 | |
| 8,500.0 | 6,788.8 | 8,436.4 | 6,710.4 | 53.8 | 53.8 | 76.70 | -409.4 | 1,767.2 | 340.6 | 235.6 | 105.05 | 3.243 | |
| 8,600.0 | 6,787.8 | 8,536.4 | 6,709.4 | 56.5 | 56.5 | 76.70 | -409.4 | 1,867.2 | 340.7 | 230.3 | 110.31 | 3.088 | |
| 8,700.0 | 6,786.8 | 8,636.4 | 6,708.4 | 59.2 | 59.2 | 76.69 | -409.4 | 1,967.2 | 340.7 | 225.1 | 115.59 | 2.947 | |
| 8,800.0 | 6,785.9 | 8,736.4 | 6,707.4 | 61.9 | 61.9 | 76.68 | -409.4 | 2,067.2 | 340.7 | 219.8 | 120.88 | 2.818 | |
| 8,900.0 | 6,784.9 | 8,836.4 | 6,706.4 | 64.7 | 64.7 | 76.67 | -409.4 | 2,167.2 | 340.7 | 214.5 | 126.19 | 2.700 | |
| 9,000.0 | 6,784.0 | 8,936.4 | 6,705.4 | 67.4 | 67.4 | 76.66 | -409.4 | 2,267.2 | 340.7 | 209.2 | 131.51 | 2.591 | |
| 9,100.0 | 6,783.0 | 9,036.4 | 6,704.3 | 70.1 | 70.1 | 76.65 | -409.4 | 2,367.2 | 340.7 | 203.9 | 136.85 | 2.490 | |
| 9,200.0 | 6,782.0 | 9,136.4 | 6,703.3 | 72.9 | 72.9 | 76.64 | -409.4 | 2,467.2 | 340.7 | 198.5 | 142.19 | 2.396 | |
| 9,300.0 | 6,781.1 | 9,236.4 | 6,702.3 | 75.6 | 75.6 | 76.64 | -409.4 | 2,567.2 | 340.7 | 193.2 | 147.54 | 2.309 | |
| 9,400.0 | 6,780.1 | 9,336.4 | 6,701.3 | 78.4 | 78.4 | 76.63 | -409.4 | 2,667.2 | 340.8 | 187.8 | 152.90 | 2.229 | |
| 9,500.0 | 6,779.2 | 9,436.4 | 6,700.3 | 81.1 | 81.1 | 76.62 | -409.4 | 2,767.2 | 340.8 | 182.5 | 158.27 | 2.153 | |
| 9,600.0 | 6,778.2 | 9,536.4 | 6,699.3 | 83.9 | 83.9 | 76.61 | -409.4 | 2,867.1 | 340.8 | 177.1 | 163.64 | 2.082 | |
| 9,700.0 | 6,777.2 | 9,636.4 | 6,698.3 | 86.7 | 86.7 | 76.60 | -409.4 | 2,967.1 | 340.8 | 171.8 | 169.02 | 2.016 | |
| 9,800.0 | 6,776.3 | 9,736.4 | 6,697.3 | 89.4 | 89.4 | 76.59 | -409.4 | 3,067.1 | 340.8 | 166.4 | 174.41 | 1.954 | |
| 9,900.0 | 6,775.3 | 9,836.4 | 6,696.2 | 92.2 | 92.2 | 76.58 | -409.4 | 3,167.1 | 340.8 | 161.0 | 179.80 | 1.896 | |
| 10,000.0 | 6,774.4 | 9,936.4 | 6,695.2 | 95.0 | 95.0 | 76.58 | -409.4 | 3,267.1 | 340.8 | 155.6 | 185.19 | 1.840 | |
| 10,100.0 | 6,773.4 | 10,036.4 | 6,694.2 | 97.7 | 97.7 | 76.57 | -409.4 | 3,367.1 | 340.8 | 150.2 | 190.59 | 1.788 | |
| 10,200.0 | 6,772.4 | 10,136.4 | 6,693.2 | 100.5 | 100.5 | 76.56 | -409.4 | 3,467.1 | 340.9 | 144.9 | 195.99 | 1.739 | |
| 10,300.0 | 6,771.5 | 10,236.4 | 6,692.2 | 103.3 | 103.3 | 76.55 | -409.4 | 3,567.1 | 340.9 | 139.5 | 201.40 | 1.692 | |
| 10,400.0 | 6,770.5 | 10,336.4 | 6,691.2 | 106.1 | 106.1 | 76.54 | -409.4 | 3,667.1 | 340.9 | 134.1 | 206.80 | 1.648 | |
| 10,500.0 | 6,769.6 | 10,436.4 | 6,690.2 | 108.8 | 108.9 | 76.53 | -409.4 | 3,767.1 | 340.9 | 128.7 | 212.21 | 1.606 | |
| 10,600.0 | 6,768.6 | 10,536.4 | 6,689.2 | 111.6 | 111.6 | 76.52 | -409.4 | 3,867.1 | 340.9 | 123.3 | 217.63 | 1.566 | |
| 10,700.0 | 6,767.6 | 10,636.4 | 6,688.1 | 114.4 | 114.4 | 76.52 | -409.4 | 3,967.1 | 340.9 | 117.9 | 223.04 | 1.528 | |
| 10,800.0 | 6,766.7 | 10,736.4 | 6,687.1 | 117.2 | 117.2 | 76.51 | -409.4 | 4,067.1 | 340.9 | 112.5 | 228.46 | 1.492 Level 3 | |
| 10,900.0 | 6,765.7 | 10,836.4 | 6,686.1 | 120.0 | 120.0 | 76.50 | -409.4 | 4,167.1 | 340.9 | 107.1 | 233.88 | 1.458 Level 3 | |
| 11,000.0 | 6,764.8 | 10,936.4 | 6,685.1 | 122.8 | 122.8 | 76.49 | -409.4 | 4,267.1 | 340.9 | 101.7 | 239.30 | 1.425 Level 3 | |
| 11,100.0 | 6,763.8 | 11,036.4 | 6,684.1 | 125.5 | 125.6 | 76.48 | -409.4 | 4,367.1 | 341.0 | 96.2 | 244.72 | 1.393 Level 3 | |
| 11,200.0 | 6,762.8 | 11,136.4 | 6,683.1 | 128.3 | 128.4 | 76.47 | -409.4 | 4,467.1 | 341.0 | 90.8 | 250.14 | 1.363 Level 3 | |
| 11,300.0 | 6,761.9 | 11,236.4 | 6,682.1 | 131.1 | 131.1 | 76.46 | -409.4 | 4,567.1 | 341.0 | 85.4 | 255.57 | 1.334 Level 3 | |
| 11,400.0 | 6,760.9 | 11,336.4 | 6,681.1 | 133.9 | 133.9 | 76.46 | -409.4 | 4,667.1 | 341.0 | 80.0 | 260.99 | 1.307 Level 3 | |
| 11,500.0 | 6,760.0 | 11,436.4 | 6,680.0 | 136.7 | 136.7 | 76.45 | -409.4 | 4,767.0 | 341.0 | 74.6 | 266.42 | 1.280 Level 3 | |
| 11,600.0 | 6,759.0 | 11,536.4 | 6,679.0 | 139.5 | 139.5 | 76.44 | -409.4 | 4,867.0 | 341.0 | 69.2 | 271.85 | 1.254 Level 3 | |
| 11,700.0 | 6,758.0 | 11,636.4 | 6,678.0 | 142.3 | 142.3 | 76.43 | -409.4 | 4,967.0 | 341.0 | 63.8 | 277.28 | 1.230 Level 2 | |
| 11,800.0 | 6,757.1 | 11,736.4 | 6,677.0 | 145.1 | 145.1 | 76.42 | -409.4 | 5,067.0 | 341.0 | 58.3 | 282.71 | 1.206 Level 2 | |
| 11,900.0 | 6,756.1 | 11,836.4 | 6,676.0 | 147.9 | 147.9 | 76.41 | -409.4 | 5,167.0 | 341.1 | 52.9 | 288.14 | 1.184 Level 2 | |
| 12,000.0 | 6,755.2 | 11,936.4 | 6,675.0 | 150.7 | 150.7 | 76.40 | -409.4 | 5,267.0 | 341.1 | 47.5 | 293.57 | 1.162 Level 2 | |
| 12,100.0 | 6,754.2 | 12,036.4 | 6,674.0 | 153.5 | 153.5 | 76.40 | -409.4 | 5,367.0 | 341.1 | 42.1 | 299.00 | 1.141 Level 2 | |
| 12,200.0 | 6,753.2 | 12,136.4 | 6,673.0 | 156.3 | 156.3 | 76.39 | -409.4 | 5,467.0 | 341.1 | 36.7 | 304.43 | 1.120 Level 2 | |
| 12,300.0 | 6,752.3 | 12,236.4 | 6,671.9 | 159.1 | 159.1 | 76.38 | -409.4 | 5,567.0 | 341.1 | 31.2 | 309.87 | 1.101 Level 2 | |
| 12,400.0 | 6,751.3 | 12,336.4 | 6,670.9 | 161.9 | 161.9 | 76.37 | -409.4 | 5,667.0 | 341.1 | 25.8 | 315.30 | 1.082 Level 2 | |
| 12,500.0 | 6,750.4 | 12,436.4 | 6,669.9 | 164.7 | 164.7 | 76.36 | -409.4 | 5,767.0 | 341.1 | 20.4 | 320.74 | 1.064 Level 2 | |
| 12,600.0 | 6,749.4 | 12,536.4 | 6,668.9 | 167.4 | 167.5 | 76.35 | -409.4 | 5,867.0 | 341.1 | 15.0 | 326.17 | 1.046 Level 2 | |
| 12,700.0 | 6,748.4 | 12,636.4 | 6,667.9 | 170.2 | 170.3 | 76.34 | -409.4 | 5,967.0 | 341.2 | 9.6 | 331.61 | 1.029 Level 2 | |
| 12,800.0 | 6,747.5 | 12,736.4 | 6,666.9 | 173.0 | 173.1 | 76.34 | -409.4 | 6,067.0 | 341.2 | 4.1 | 337.04 | 1.012 Level 2 | |
| 12,900.0 | 6,746.5 | 12,836.4 | 6,665.9 | 175.8 | 175.9 | 76.33 | -409.4 | 6,167.0 | 341.2 | -1.3 | 342.48 | 0.996 Level 1 | |
| 13,000.0 | 6,745.6 | 12,936.4 | 6,664.9 | 178.6 | 178.7 | 76.32 | -409.4 | 6,267.0 | 341.2 | -6.7 | 347.91 | 0.981 Level 1 | |
| 13,100.0 | 6,744.6 | 13,036.4 | 6,663.8 | 181.4 | 181.5 | 76.31 | -409.4 | 6,367.0 | 341.2 | -12.1 | 353.35 | 0.966 Level 1 | |
| 13,200.0 | 6,743.6 | 13,136.4 | 6,662.8 | 184.2 | 184.3 | 76.30 | -409.4 | 6,467.0 | 341.2 | -17.6 | 358.79 | 0.951 Level 1 | |
| 13,300.0 | 6,742.7 | 13,236.4 | 6,661.8 | 187.0 | 187.1 | 76.29 | -409.4 | 6,567.0 | 341.2 | -23.0 | 364.22 | 0.937 Level 1 | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

| Offset Design Klein 19MN-HZ Pad Sec.19-T5N-R64W - Klein 19N-202 - Wellbore #1 - Plan #3 (7-14-15) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|----------------|-------------|--|--------------------------------------|------------|----------------------------------|-----------------------|-------------------------|-------------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Semi Major Axis Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Distance Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning | |
| 13,400.0 | 6,741.7 | 13,336.4 | 6,660.8 | 189.8 | 189.9 | 76.28 | -409.4 | 6,666.9 | 341.2 | -28.4 | 369.66 | 0.923 | Level 1 | |
| 13,500.0 | 6,740.8 | 13,436.4 | 6,659.8 | 192.6 | 192.7 | 76.28 | -409.4 | 6,766.9 | 341.3 | -33.8 | 375.10 | 0.910 | Level 1 | |
| 13,600.0 | 6,739.8 | 13,536.4 | 6,658.8 | 195.4 | 195.5 | 76.27 | -409.4 | 6,866.9 | 341.3 | -39.3 | 380.53 | 0.897 | Level 1 | |
| 13,700.0 | 6,738.8 | 13,636.4 | 6,657.8 | 198.2 | 198.3 | 76.26 | -409.4 | 6,966.9 | 341.3 | -44.7 | 385.97 | 0.884 | Level 1 | |
| 13,800.0 | 6,737.9 | 13,736.4 | 6,656.8 | 201.0 | 201.1 | 76.25 | -409.4 | 7,066.9 | 341.3 | -50.1 | 391.41 | 0.872 | Level 1 | |
| 13,900.0 | 6,736.9 | 13,836.4 | 6,655.7 | 203.8 | 203.9 | 76.24 | -409.4 | 7,166.9 | 341.3 | -55.5 | 396.85 | 0.860 | Level 1 | |
| 14,000.0 | 6,736.0 | 13,936.4 | 6,654.7 | 206.6 | 206.7 | 76.23 | -409.4 | 7,266.9 | 341.3 | -61.0 | 402.28 | 0.848 | Level 1 | |
| 14,100.0 | 6,735.0 | 14,036.4 | 6,653.7 | 209.4 | 209.5 | 76.22 | -409.4 | 7,366.9 | 341.3 | -66.4 | 407.72 | 0.837 | Level 1 | |
| 14,200.0 | 6,734.0 | 14,136.4 | 6,652.7 | 212.2 | 212.3 | 76.22 | -409.4 | 7,466.9 | 341.3 | -71.8 | 413.16 | 0.826 | Level 1 | |
| 14,300.0 | 6,733.1 | 14,236.4 | 6,651.7 | 215.1 | 215.1 | 76.21 | -409.4 | 7,566.9 | 341.4 | -77.2 | 418.60 | 0.815 | Level 1 | |
| 14,400.0 | 6,732.1 | 14,336.4 | 6,650.7 | 217.9 | 217.9 | 76.20 | -409.4 | 7,666.9 | 341.4 | -82.7 | 424.03 | 0.805 | Level 1 | |
| 14,500.0 | 6,731.2 | 14,436.4 | 6,649.7 | 220.7 | 220.7 | 76.19 | -409.4 | 7,766.9 | 341.4 | -88.1 | 429.47 | 0.795 | Level 1 | |
| 14,600.0 | 6,730.2 | 14,536.4 | 6,648.7 | 223.5 | 223.5 | 76.18 | -409.4 | 7,866.9 | 341.4 | -93.5 | 434.91 | 0.785 | Level 1 | |
| 14,700.0 | 6,729.2 | 14,636.4 | 6,647.7 | 226.3 | 226.3 | 76.17 | -409.4 | 7,966.9 | 341.4 | -98.9 | 440.35 | 0.775 | Level 1 | |
| 14,800.0 | 6,728.3 | 14,736.4 | 6,646.6 | 229.1 | 229.1 | 76.17 | -409.4 | 8,066.9 | 341.4 | -104.4 | 445.78 | 0.766 | Level 1 | |
| 14,900.0 | 6,727.3 | 14,836.4 | 6,645.6 | 231.9 | 231.9 | 76.16 | -409.4 | 8,166.9 | 341.4 | -109.8 | 451.22 | 0.757 | Level 1 | |
| 15,000.0 | 6,726.4 | 14,936.4 | 6,644.6 | 234.7 | 234.7 | 76.15 | -409.4 | 8,266.9 | 341.4 | -115.2 | 456.66 | 0.748 | Level 1 | |
| 15,100.0 | 6,725.4 | 15,036.4 | 6,643.6 | 237.5 | 237.5 | 76.14 | -409.4 | 8,366.9 | 341.5 | -120.6 | 462.10 | 0.739 | Level 1 | |
| 15,200.0 | 6,724.4 | 15,136.4 | 6,642.6 | 240.3 | 240.3 | 76.13 | -409.4 | 8,466.9 | 341.5 | -126.1 | 467.53 | 0.730 | Level 1 | |
| 15,300.0 | 6,723.5 | 15,236.4 | 6,641.6 | 243.1 | 243.1 | 76.12 | -409.4 | 8,566.9 | 341.5 | -131.5 | 472.97 | 0.722 | Level 1 | |
| 15,400.0 | 6,722.5 | 15,336.4 | 6,640.6 | 245.9 | 245.9 | 76.11 | -409.4 | 8,666.8 | 341.5 | -136.9 | 478.41 | 0.714 | Level 1 | |
| 15,500.0 | 6,721.6 | 15,436.4 | 6,639.6 | 248.7 | 248.7 | 76.11 | -409.4 | 8,766.8 | 341.5 | -142.3 | 483.84 | 0.706 | Level 1 | |
| 15,600.0 | 6,720.6 | 15,536.4 | 6,638.5 | 251.5 | 251.5 | 76.10 | -409.4 | 8,866.8 | 341.5 | -147.8 | 489.28 | 0.698 | Level 1 | |
| 15,700.0 | 6,719.6 | 15,636.4 | 6,637.5 | 254.3 | 254.3 | 76.09 | -409.4 | 8,966.8 | 341.5 | -153.2 | 494.72 | 0.690 | Level 1 | |
| 15,800.0 | 6,718.7 | 15,736.4 | 6,636.5 | 257.1 | 257.1 | 76.08 | -409.4 | 9,066.8 | 341.6 | -158.6 | 500.15 | 0.683 | Level 1 | |
| 15,900.0 | 6,717.7 | 15,836.4 | 6,635.5 | 259.9 | 259.9 | 76.07 | -409.4 | 9,166.8 | 341.6 | -164.0 | 505.59 | 0.676 | Level 1 | |
| 16,000.0 | 6,716.8 | 15,936.4 | 6,634.5 | 262.7 | 262.7 | 76.06 | -409.4 | 9,266.8 | 341.6 | -169.4 | 511.02 | 0.668 | Level 1 | |
| 16,100.0 | 6,715.8 | 16,036.4 | 6,633.5 | 265.5 | 265.5 | 76.05 | -409.4 | 9,366.8 | 341.6 | -174.9 | 516.46 | 0.661 | Level 1 | |
| 16,200.0 | 6,714.8 | 16,136.4 | 6,632.5 | 268.3 | 268.3 | 76.05 | -409.4 | 9,466.8 | 341.6 | -180.3 | 521.89 | 0.655 | Level 1 | |
| 16,300.0 | 6,713.9 | 16,236.4 | 6,631.5 | 271.1 | 271.2 | 76.04 | -409.4 | 9,566.8 | 341.6 | -185.7 | 527.33 | 0.648 | Level 1 | |
| 16,400.0 | 6,712.9 | 16,336.4 | 6,630.4 | 273.9 | 274.0 | 76.03 | -409.4 | 9,666.8 | 341.6 | -191.1 | 532.76 | 0.641 | Level 1 | |
| 16,500.0 | 6,712.0 | 16,436.4 | 6,629.4 | 276.7 | 276.8 | 76.02 | -409.4 | 9,766.8 | 341.6 | -196.6 | 538.20 | 0.635 | Level 1 | |
| 16,600.0 | 6,711.0 | 16,536.4 | 6,628.4 | 279.5 | 279.6 | 76.01 | -409.4 | 9,866.8 | 341.7 | -202.0 | 543.63 | 0.628 | Level 1 | |
| 16,700.0 | 6,710.0 | 16,636.4 | 6,627.4 | 282.3 | 282.4 | 76.00 | -409.4 | 9,966.8 | 341.7 | -207.4 | 549.07 | 0.622 | Level 1 | |
| 16,800.0 | 6,709.1 | 16,736.4 | 6,626.4 | 285.2 | 285.2 | 75.99 | -409.4 | 10,066.8 | 341.7 | -212.8 | 554.50 | 0.616 | Level 1 | |
| 16,900.0 | 6,708.1 | 16,836.4 | 6,625.4 | 288.0 | 288.0 | 75.99 | -409.4 | 10,166.8 | 341.7 | -218.2 | 559.94 | 0.610 | Level 1 | |
| 17,000.0 | 6,707.2 | 16,936.4 | 6,624.4 | 290.8 | 290.8 | 75.98 | -409.4 | 10,266.8 | 341.7 | -223.7 | 565.37 | 0.604 | Level 1 | |
| 17,100.0 | 6,706.2 | 17,036.4 | 6,623.4 | 293.6 | 293.6 | 75.97 | -409.4 | 10,366.8 | 341.7 | -229.1 | 570.80 | 0.599 | Level 1 | |
| 17,200.0 | 6,705.2 | 17,136.4 | 6,622.3 | 296.4 | 296.4 | 75.96 | -409.4 | 10,466.8 | 341.7 | -234.5 | 576.24 | 0.593 | Level 1 | |
| 17,300.0 | 6,704.3 | 17,236.4 | 6,621.3 | 299.2 | 299.2 | 75.95 | -409.4 | 10,566.7 | 341.7 | -239.9 | 581.67 | 0.588 | Level 1 | |
| 17,329.0 | 6,704.0 | 17,265.4 | 6,621.0 | 300.0 | 300.0 | 75.95 | -409.4 | 10,595.7 | 341.7 | -241.5 | 583.24 | 0.586 | Level 1, ES, SF | |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to WELL @ 4641.0ft (RKB - 13')

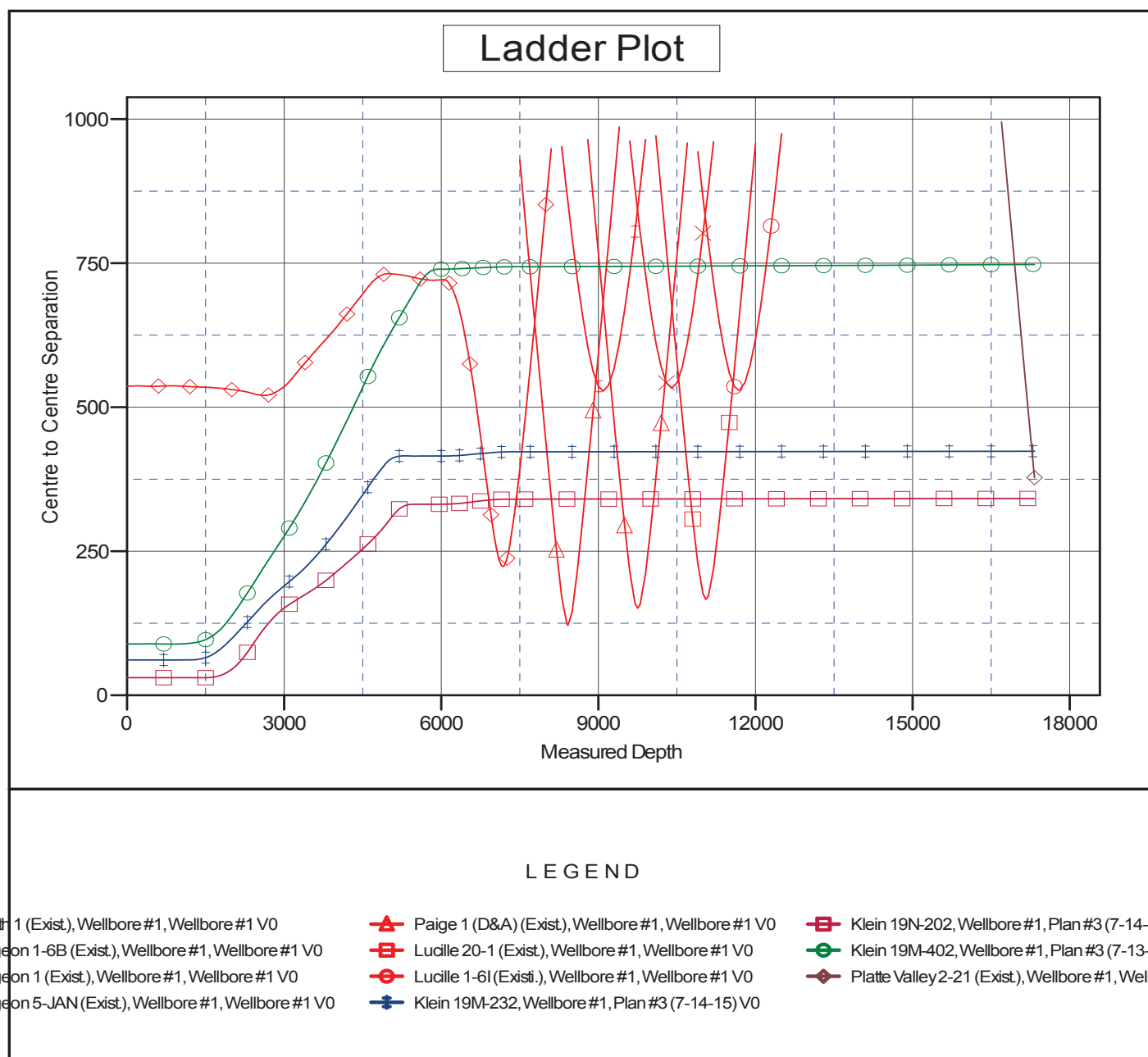
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Klein 19N-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 Klein 19N-312 |
| Project: | SEC.19-T5N-R64W | TVD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Reference Site: | Klein 19MN-HZ Pad Sec.19-T5N-R64W | MD Reference: | WELL @ 4641.0ft (RKB - 13') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Klein 19N-312 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #3 (7-14-15) | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to WELL @ 4641.0ft (RKB - 13')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Klein 19N-312

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.59°

