

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Jacobucci 32S-403**

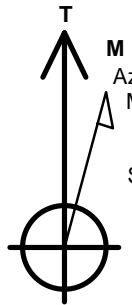
Surface Location: Jacobucci 1N67W32S Pad Sec.32-T1N-R67W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 5059.0

| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Slot |
|-------|-------|------------|------------|-----------|-------------|------|
| 0.0 | 0.0 | 1245853.45 | 3164964.91 | 40.006750 | -104.911100 | |

Original Well Elev WELL @ 5074.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Shape |
|---------------------------------|--------|---------|--------|-------|
| SHL 2338'FSL & 1750'FEL, Sec.32 | 1.0 | 0.0 | 0.0 | Point |
| BHL 500'FSL & 1181'FEL, Sec.5 | 7861.0 | -6921.4 | 1000.4 | Point |



Azimuths to True North
 Magnetic North: 8.46°

Magnetic Field
 Strength: 52558.0snT
 Dip Angle: 66.59°
 Date: 10/8/2014
 Model: IGRF2010

ANNOTATIONS

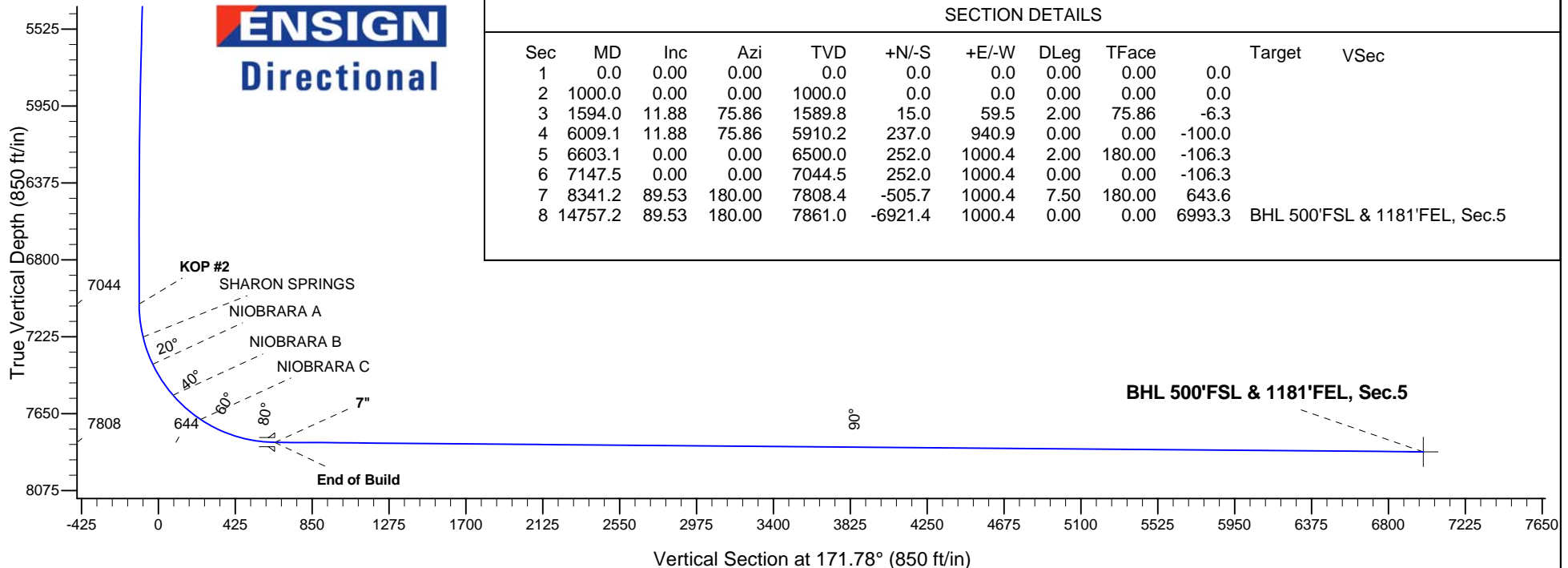
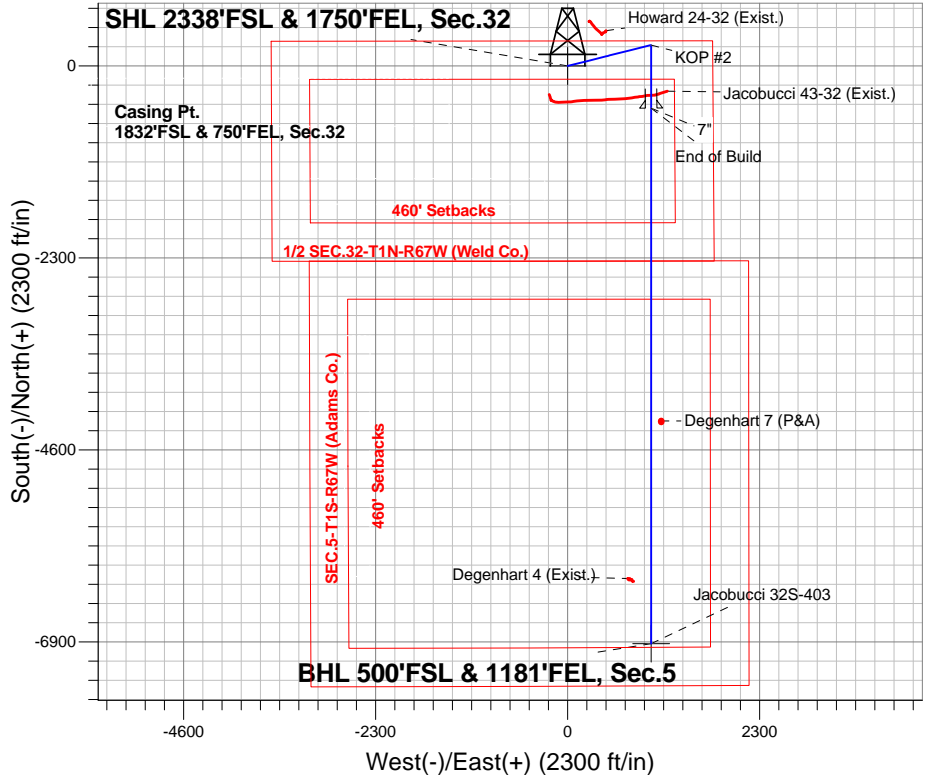
| TVD | MD | Annotation |
|--------|--------|--------------|
| 1000.0 | 1000.0 | KOP |
| 7044.4 | 7147.5 | KOP #2 |
| 7808.4 | 8341.2 | End of Build |

Jacobucci 1N67W32S Pad Sec.32-T1N-R67W
 Jacobucci 32S-403
 Plan #1 (10-8-14)
 14:02, October 16 2014

SHL 2338'FSL & 1750'FEL, Sec.32

South(-)/North(+) (2300 ft/in)

Casing Pt.
 1832'FSL & 750'FEL, Sec.32



SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | DLeg | TFace | Target | VSec |
|-----|---------|-------|--------|--------|---------|--------|------|--------|--------|-------------------------------|
| 1 | 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 2 | 1000.0 | 0.00 | 0.00 | 1000.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 3 | 1594.0 | 11.88 | 75.86 | 1589.8 | 15.0 | 59.5 | 2.00 | 75.86 | -6.3 | |
| 4 | 6009.1 | 11.88 | 75.86 | 5910.2 | 237.0 | 940.9 | 0.00 | 0.00 | -100.0 | |
| 5 | 6603.1 | 0.00 | 0.00 | 6500.0 | 252.0 | 1000.4 | 2.00 | 180.00 | -106.3 | |
| 6 | 7147.5 | 0.00 | 0.00 | 7044.5 | 252.0 | 1000.4 | 0.00 | 0.00 | -106.3 | |
| 7 | 8341.2 | 89.53 | 180.00 | 7808.4 | -505.7 | 1000.4 | 7.50 | 180.00 | 643.6 | |
| 8 | 14757.2 | 89.53 | 180.00 | 7861.0 | -6921.4 | 1000.4 | 0.00 | 0.00 | 6993.3 | BHL 500'FSL & 1181'FEL, Sec.5 |



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T1N-R67W

Jacobucci 1N67W32S Pad Sec.32-T1N-R67W

Jacobucci 32S-403

Wellbore #1

Plan: Plan #1 (10-8-14)

Standard Planning Report

16 October, 2014

| | | | |
|------------------|---|-------------------------------------|--------------------------------------|
| Database: | Landmark | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Project: | SEC.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | North Reference: | True |
| Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #1 (10-8-14) | | |

| | | | |
|--------------------|----------------------------------|----------------------|-----------------------------|
| Project | SEC.32-T1N-R67W, Weld County, CO | | |
| 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 | | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | | | |
| Site Position: | | Northing: | 1,245,853.29ft | Latitude: | 40.006750 |
| From: | Lat/Long | Easting: | 3,164,939.70ft | Longitude: | -104.911190 |
| Position Uncertainty: | 0.0 ft | Slot Radius: | " | Grid Convergence: | 0.38 ° |

| Well | Jacobucci 32S-403 | | | | | |
|----------------------|-------------------|---------|---------------------|-----------------|---------------|-------------|
| Well Position | +N/-S | 0.0 ft | Northing: | 1,245,853.45 ft | Latitude: | 40.006750 |
| | +E/-W | 25.2 ft | Easting: | 3,164,964.91 ft | Longitude: | -104.911100 |
| Position Uncertainty | | 0.0 ft | Wellhead Elevation: | ft | Ground Level: | 5,059.0 ft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Wellbore #1 | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 10/8/2014 | 8.46 | 66.60 | 52,558 |

| | | | | |
|--------------------------|------------------------------|-------------------|----------------------|----------------------|
| Design | Plan #1 (10-8-14) | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PROTOTYPE | Tie On Depth: | 0.0 |
| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
| | 0.0 | 0.0 | 0.0 | 171.78 |

| Plan Sections | | | | | | | | | | |
|----------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|----------------------|---------------------|---------|-------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,000.0 | 0.00 | 0.00 | 1,000.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,594.0 | 11.88 | 75.86 | 1,589.8 | 15.0 | 59.5 | 2.00 | 2.00 | 0.00 | 75.86 | |
| 6,009.1 | 11.88 | 75.86 | 5,910.2 | 237.0 | 940.9 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,603.1 | 0.00 | 0.00 | 6,500.0 | 252.0 | 1,000.4 | 2.00 | -2.00 | 0.00 | 180.00 | |
| 7,147.5 | 0.00 | 0.00 | 7,044.5 | 252.0 | 1,000.4 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 8,341.2 | 89.53 | 180.00 | 7,808.4 | -505.7 | 1,000.4 | 7.50 | 7.50 | 0.00 | 180.00 | |
| 14,757.2 | 89.53 | 180.00 | 7,861.0 | -6,921.4 | 1,000.4 | 0.00 | 0.00 | 0.00 | 0.00 | BHL 500'FSL & 11E |

| | | | |
|------------------|---|-------------------------------------|--------------------------------------|
| Database: | Landmark | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Project: | SEC.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | North Reference: | True |
| Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #1 (10-8-14) | | |

| Planned Survey | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 100.0 | 0.00 | 0.00 | 100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 200.0 | 0.00 | 0.00 | 200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 300.0 | 0.00 | 0.00 | 300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 400.0 | 0.00 | 0.00 | 400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 500.0 | 0.00 | 0.00 | 500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 600.0 | 0.00 | 0.00 | 600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 700.0 | 0.00 | 0.00 | 700.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 800.0 | 0.00 | 0.00 | 800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 900.0 | 0.00 | 0.00 | 900.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1,000.0 | 0.00 | 0.00 | 1,000.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| KOP | | | | | | | | | |
| 1,100.0 | 2.00 | 75.86 | 1,100.0 | 0.4 | 1.7 | -0.2 | 2.00 | 2.00 | 0.00 |
| 1,200.0 | 4.00 | 75.86 | 1,199.8 | 1.7 | 6.8 | -0.7 | 2.00 | 2.00 | 0.00 |
| 1,300.0 | 6.00 | 75.86 | 1,299.5 | 3.8 | 15.2 | -1.6 | 2.00 | 2.00 | 0.00 |
| 1,400.0 | 8.00 | 75.86 | 1,398.7 | 6.8 | 27.0 | -2.9 | 2.00 | 2.00 | 0.00 |
| 1,500.0 | 10.00 | 75.86 | 1,497.5 | 10.6 | 42.2 | -4.5 | 2.00 | 2.00 | 0.00 |
| 1,594.0 | 11.88 | 75.86 | 1,589.8 | 15.0 | 59.5 | -6.3 | 2.00 | 2.00 | 0.00 |
| 1,600.0 | 11.88 | 75.86 | 1,595.6 | 15.3 | 60.7 | -6.5 | 0.00 | 0.00 | 0.00 |
| 1,700.0 | 11.88 | 75.86 | 1,693.5 | 20.3 | 80.7 | -8.6 | 0.00 | 0.00 | 0.00 |
| 1,800.0 | 11.88 | 75.86 | 1,791.3 | 25.3 | 100.6 | -10.7 | 0.00 | 0.00 | 0.00 |
| 1,900.0 | 11.88 | 75.86 | 1,889.2 | 30.4 | 120.6 | -12.8 | 0.00 | 0.00 | 0.00 |
| 2,000.0 | 11.88 | 75.86 | 1,987.1 | 35.4 | 140.6 | -14.9 | 0.00 | 0.00 | 0.00 |
| 2,100.0 | 11.88 | 75.86 | 2,084.9 | 40.4 | 160.5 | -17.1 | 0.00 | 0.00 | 0.00 |
| 2,200.0 | 11.88 | 75.86 | 2,182.8 | 45.5 | 180.5 | -19.2 | 0.00 | 0.00 | 0.00 |
| 2,300.0 | 11.88 | 75.86 | 2,280.6 | 50.5 | 200.4 | -21.3 | 0.00 | 0.00 | 0.00 |
| 2,400.0 | 11.88 | 75.86 | 2,378.5 | 55.5 | 220.4 | -23.4 | 0.00 | 0.00 | 0.00 |
| 2,500.0 | 11.88 | 75.86 | 2,476.3 | 60.5 | 240.4 | -25.5 | 0.00 | 0.00 | 0.00 |
| 2,600.0 | 11.88 | 75.86 | 2,574.2 | 65.6 | 260.3 | -27.7 | 0.00 | 0.00 | 0.00 |
| 2,700.0 | 11.88 | 75.86 | 2,672.1 | 70.6 | 280.3 | -29.8 | 0.00 | 0.00 | 0.00 |
| 2,800.0 | 11.88 | 75.86 | 2,769.9 | 75.6 | 300.3 | -31.9 | 0.00 | 0.00 | 0.00 |
| 2,900.0 | 11.88 | 75.86 | 2,867.8 | 80.7 | 320.2 | -34.0 | 0.00 | 0.00 | 0.00 |
| 3,000.0 | 11.88 | 75.86 | 2,965.6 | 85.7 | 340.2 | -36.2 | 0.00 | 0.00 | 0.00 |
| 3,100.0 | 11.88 | 75.86 | 3,063.5 | 90.7 | 360.1 | -38.3 | 0.00 | 0.00 | 0.00 |
| 3,200.0 | 11.88 | 75.86 | 3,161.4 | 95.8 | 380.1 | -40.4 | 0.00 | 0.00 | 0.00 |
| 3,300.0 | 11.88 | 75.86 | 3,259.2 | 100.8 | 400.1 | -42.5 | 0.00 | 0.00 | 0.00 |
| 3,400.0 | 11.88 | 75.86 | 3,357.1 | 105.8 | 420.0 | -44.6 | 0.00 | 0.00 | 0.00 |
| 3,500.0 | 11.88 | 75.86 | 3,454.9 | 110.8 | 440.0 | -46.8 | 0.00 | 0.00 | 0.00 |
| 3,600.0 | 11.88 | 75.86 | 3,552.8 | 115.9 | 460.0 | -48.9 | 0.00 | 0.00 | 0.00 |
| 3,700.0 | 11.88 | 75.86 | 3,650.6 | 120.9 | 479.9 | -51.0 | 0.00 | 0.00 | 0.00 |
| 3,800.0 | 11.88 | 75.86 | 3,748.5 | 125.9 | 499.9 | -53.1 | 0.00 | 0.00 | 0.00 |
| 3,900.0 | 11.88 | 75.86 | 3,846.4 | 131.0 | 519.8 | -55.2 | 0.00 | 0.00 | 0.00 |
| 4,000.0 | 11.88 | 75.86 | 3,944.2 | 136.0 | 539.8 | -57.4 | 0.00 | 0.00 | 0.00 |
| 4,100.0 | 11.88 | 75.86 | 4,042.1 | 141.0 | 559.8 | -59.5 | 0.00 | 0.00 | 0.00 |
| 4,200.0 | 11.88 | 75.86 | 4,139.9 | 146.0 | 579.7 | -61.6 | 0.00 | 0.00 | 0.00 |
| 4,300.0 | 11.88 | 75.86 | 4,237.8 | 151.1 | 599.7 | -63.7 | 0.00 | 0.00 | 0.00 |
| 4,400.0 | 11.88 | 75.86 | 4,335.7 | 156.1 | 619.7 | -65.9 | 0.00 | 0.00 | 0.00 |
| 4,500.0 | 11.88 | 75.86 | 4,433.5 | 161.1 | 639.6 | -68.0 | 0.00 | 0.00 | 0.00 |
| 4,567.9 | 11.88 | 75.86 | 4,500.0 | 164.5 | 653.2 | -69.4 | 0.00 | 0.00 | 0.00 |
| PARKMAN | | | | | | | | | |
| 4,600.0 | 11.88 | 75.86 | 4,531.4 | 166.2 | 659.6 | -70.1 | 0.00 | 0.00 | 0.00 |
| 4,700.0 | 11.88 | 75.86 | 4,629.2 | 171.2 | 679.5 | -72.2 | 0.00 | 0.00 | 0.00 |

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|------------------|---|-------------------------------------|--------------------------------------|
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| Project: | SEC.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site: | Jacobucci 1N67W32S Pad | North Reference: | True |
| Well: | Sec.32-T1N-R67W | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Jacobucci 32S-403 | | |
| Design: | Wellbore #1 | | |
| | Plan #1 (10-8-14) | | |

| Planned Survey | | | | | | | | | |
|-----------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 4,800.0 | 11.88 | 75.86 | 4,727.1 | 176.2 | 699.5 | -74.3 | 0.00 | 0.00 | 0.00 |
| 4,900.0 | 11.88 | 75.86 | 4,824.9 | 181.2 | 719.5 | -76.5 | 0.00 | 0.00 | 0.00 |
| 4,976.7 | 11.88 | 75.86 | 4,900.0 | 185.1 | 734.8 | -78.1 | 0.00 | 0.00 | 0.00 |
| SUSSEX | | | | | | | | | |
| 5,000.0 | 11.88 | 75.86 | 4,922.8 | 186.3 | 739.4 | -78.6 | 0.00 | 0.00 | 0.00 |
| 5,100.0 | 11.88 | 75.86 | 5,020.7 | 191.3 | 759.4 | -80.7 | 0.00 | 0.00 | 0.00 |
| 5,200.0 | 11.88 | 75.86 | 5,118.5 | 196.3 | 779.4 | -82.8 | 0.00 | 0.00 | 0.00 |
| 5,300.0 | 11.88 | 75.86 | 5,216.4 | 201.4 | 799.3 | -84.9 | 0.00 | 0.00 | 0.00 |
| 5,400.0 | 11.88 | 75.86 | 5,314.2 | 206.4 | 819.3 | -87.1 | 0.00 | 0.00 | 0.00 |
| 5,436.6 | 11.88 | 75.86 | 5,350.0 | 208.2 | 826.6 | -87.8 | 0.00 | 0.00 | 0.00 |
| SHANNON | | | | | | | | | |
| 5,500.0 | 11.88 | 75.86 | 5,412.1 | 211.4 | 839.2 | -89.2 | 0.00 | 0.00 | 0.00 |
| 5,600.0 | 11.88 | 75.86 | 5,509.9 | 216.4 | 859.2 | -91.3 | 0.00 | 0.00 | 0.00 |
| 5,700.0 | 11.88 | 75.86 | 5,607.8 | 221.5 | 879.2 | -93.4 | 0.00 | 0.00 | 0.00 |
| 5,800.0 | 11.88 | 75.86 | 5,705.7 | 226.5 | 899.1 | -95.6 | 0.00 | 0.00 | 0.00 |
| 5,900.0 | 11.88 | 75.86 | 5,803.5 | 231.5 | 919.1 | -97.7 | 0.00 | 0.00 | 0.00 |
| 6,000.0 | 11.88 | 75.86 | 5,901.4 | 236.6 | 939.1 | -99.8 | 0.00 | 0.00 | 0.00 |
| 6,009.1 | 11.88 | 75.86 | 5,910.2 | 237.0 | 940.9 | -100.0 | 0.00 | 0.00 | 0.00 |
| 6,100.0 | 10.06 | 75.86 | 5,999.5 | 241.2 | 957.6 | -101.8 | 2.00 | -2.00 | 0.00 |
| 6,200.0 | 8.06 | 75.86 | 6,098.3 | 245.1 | 972.9 | -103.4 | 2.00 | -2.00 | 0.00 |
| 6,300.0 | 6.06 | 75.86 | 6,197.5 | 248.1 | 984.8 | -104.7 | 2.00 | -2.00 | 0.00 |
| 6,400.0 | 4.06 | 75.86 | 6,297.1 | 250.2 | 993.4 | -105.6 | 2.00 | -2.00 | 0.00 |
| 6,500.0 | 2.06 | 75.86 | 6,397.0 | 251.5 | 998.6 | -106.1 | 2.00 | -2.00 | 0.00 |
| 6,600.0 | 0.06 | 75.86 | 6,496.9 | 252.0 | 1,000.4 | -106.3 | 2.00 | -2.00 | 0.00 |
| 6,603.1 | 0.00 | 0.00 | 6,500.0 | 252.0 | 1,000.4 | -106.3 | 2.00 | -2.00 | 0.00 |
| 6,700.0 | 0.00 | 0.00 | 6,596.9 | 252.0 | 1,000.4 | -106.3 | 0.00 | 0.00 | 0.00 |
| 6,800.0 | 0.00 | 0.00 | 6,696.9 | 252.0 | 1,000.4 | -106.3 | 0.00 | 0.00 | 0.00 |
| 6,900.0 | 0.00 | 0.00 | 6,796.9 | 252.0 | 1,000.4 | -106.3 | 0.00 | 0.00 | 0.00 |
| 7,000.0 | 0.00 | 0.00 | 6,896.9 | 252.0 | 1,000.4 | -106.3 | 0.00 | 0.00 | 0.00 |
| 7,100.0 | 0.00 | 0.00 | 6,996.9 | 252.0 | 1,000.4 | -106.3 | 0.00 | 0.00 | 0.00 |
| 7,147.5 | 0.00 | 0.00 | 7,044.4 | 252.0 | 1,000.4 | -106.3 | 0.00 | 0.00 | 0.00 |
| KOP #2 | | | | | | | | | |
| 7,200.0 | 3.94 | 180.00 | 7,096.9 | 250.2 | 1,000.4 | -104.5 | 7.50 | 7.50 | 0.00 |
| 7,300.0 | 11.44 | 180.00 | 7,195.9 | 236.8 | 1,000.4 | -91.3 | 7.50 | 7.50 | 0.00 |
| 7,330.8 | 13.75 | 180.00 | 7,226.0 | 230.1 | 1,000.4 | -84.7 | 7.50 | 7.50 | 0.00 |
| SHARON SPRINGS | | | | | | | | | |
| 7,400.0 | 18.94 | 180.00 | 7,292.4 | 210.7 | 1,000.4 | -65.4 | 7.50 | 7.50 | 0.00 |
| 7,491.6 | 25.80 | 180.00 | 7,377.0 | 175.8 | 1,000.4 | -30.9 | 7.50 | 7.50 | 0.00 |
| NIORARA A | | | | | | | | | |
| 7,500.0 | 26.44 | 180.00 | 7,384.6 | 172.1 | 1,000.4 | -27.2 | 7.50 | 7.50 | 0.00 |
| 7,600.0 | 33.94 | 180.00 | 7,470.9 | 121.9 | 1,000.4 | 22.5 | 7.50 | 7.50 | 0.00 |
| 7,697.3 | 41.23 | 180.00 | 7,548.0 | 62.6 | 1,000.4 | 81.2 | 7.50 | 7.50 | 0.00 |
| NIORARA B | | | | | | | | | |
| 7,700.0 | 41.44 | 180.00 | 7,550.0 | 60.8 | 1,000.4 | 82.9 | 7.50 | 7.50 | 0.00 |
| 7,800.0 | 48.94 | 180.00 | 7,620.5 | -10.1 | 1,000.4 | 153.1 | 7.50 | 7.50 | 0.00 |
| 7,900.0 | 56.44 | 180.00 | 7,681.0 | -89.6 | 1,000.4 | 231.8 | 7.50 | 7.50 | 0.00 |
| 7,901.8 | 56.57 | 180.00 | 7,682.0 | -91.1 | 1,000.4 | 233.2 | 7.50 | 7.50 | 0.00 |
| NIORARA C | | | | | | | | | |
| 8,000.0 | 63.94 | 180.00 | 7,730.7 | -176.3 | 1,000.4 | 317.6 | 7.50 | 7.50 | 0.00 |
| 8,100.0 | 71.44 | 180.00 | 7,768.6 | -268.7 | 1,000.4 | 409.1 | 7.50 | 7.50 | 0.00 |
| 8,200.0 | 78.94 | 180.00 | 7,794.2 | -365.3 | 1,000.4 | 504.7 | 7.50 | 7.50 | 0.00 |
| 8,300.0 | 86.44 | 180.00 | 7,806.9 | -464.5 | 1,000.4 | 602.8 | 7.50 | 7.50 | 0.00 |

| | | | |
|------------------|---|-------------------------------------|--------------------------------------|
| Database: | Landmark | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Project: | SEC.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | North Reference: | True |
| Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #1 (10-8-14) | | |

| Planned Survey | | | | | | | | | |
|--------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 8,341.2 | 89.53 | 180.00 | 7,808.4 | -505.6 | 1,000.4 | 643.5 | 7.50 | 7.50 | 0.00 |
| End of Build - 7" | | | | | | | | | |
| 8,400.0 | 89.53 | 180.00 | 7,808.9 | -564.4 | 1,000.4 | 701.7 | 0.01 | 0.01 | 0.00 |
| 8,500.0 | 89.53 | 180.00 | 7,809.7 | -664.4 | 1,000.4 | 800.7 | 0.00 | 0.00 | 0.00 |
| 8,600.0 | 89.53 | 180.00 | 7,810.5 | -764.4 | 1,000.4 | 899.7 | 0.00 | 0.00 | 0.00 |
| 8,700.0 | 89.53 | 180.00 | 7,811.3 | -864.4 | 1,000.4 | 998.6 | 0.00 | 0.00 | 0.00 |
| 8,800.0 | 89.53 | 180.00 | 7,812.1 | -964.4 | 1,000.4 | 1,097.6 | 0.00 | 0.00 | 0.00 |
| 8,900.0 | 89.53 | 180.00 | 7,813.0 | -1,064.4 | 1,000.4 | 1,196.6 | 0.00 | 0.00 | 0.00 |
| 9,000.0 | 89.53 | 180.00 | 7,813.8 | -1,164.4 | 1,000.4 | 1,295.5 | 0.00 | 0.00 | 0.00 |
| 9,100.0 | 89.53 | 180.00 | 7,814.6 | -1,264.4 | 1,000.4 | 1,394.5 | 0.00 | 0.00 | 0.00 |
| 9,200.0 | 89.53 | 180.00 | 7,815.4 | -1,364.4 | 1,000.4 | 1,493.5 | 0.00 | 0.00 | 0.00 |
| 9,300.0 | 89.53 | 180.00 | 7,816.2 | -1,464.4 | 1,000.4 | 1,592.4 | 0.00 | 0.00 | 0.00 |
| 9,400.0 | 89.53 | 180.00 | 7,817.1 | -1,564.4 | 1,000.4 | 1,691.4 | 0.00 | 0.00 | 0.00 |
| 9,500.0 | 89.53 | 180.00 | 7,817.9 | -1,664.4 | 1,000.4 | 1,790.4 | 0.00 | 0.00 | 0.00 |
| 9,515.2 | 89.53 | 180.00 | 7,818.0 | -1,679.6 | 1,000.4 | 1,805.4 | 0.00 | 0.00 | 0.00 |
| FT HAYS | | | | | | | | | |
| 9,600.0 | 89.53 | 180.00 | 7,818.7 | -1,764.4 | 1,000.4 | 1,889.3 | 0.00 | 0.00 | 0.00 |
| 9,700.0 | 89.53 | 180.00 | 7,819.5 | -1,864.4 | 1,000.4 | 1,988.3 | 0.00 | 0.00 | 0.00 |
| 9,800.0 | 89.53 | 180.00 | 7,820.3 | -1,964.4 | 1,000.4 | 2,087.3 | 0.00 | 0.00 | 0.00 |
| 9,900.0 | 89.53 | 180.00 | 7,821.2 | -2,064.4 | 1,000.4 | 2,186.2 | 0.00 | 0.00 | 0.00 |
| 10,000.0 | 89.53 | 180.00 | 7,822.0 | -2,164.4 | 1,000.4 | 2,285.2 | 0.00 | 0.00 | 0.00 |
| 10,100.0 | 89.53 | 180.00 | 7,822.8 | -2,264.4 | 1,000.4 | 2,384.2 | 0.00 | 0.00 | 0.00 |
| 10,200.0 | 89.53 | 180.00 | 7,823.6 | -2,364.4 | 1,000.4 | 2,483.2 | 0.00 | 0.00 | 0.00 |
| 10,300.0 | 89.53 | 180.00 | 7,824.4 | -2,464.4 | 1,000.4 | 2,582.1 | 0.00 | 0.00 | 0.00 |
| 10,400.0 | 89.53 | 180.00 | 7,825.3 | -2,564.4 | 1,000.4 | 2,681.1 | 0.00 | 0.00 | 0.00 |
| 10,500.0 | 89.53 | 180.00 | 7,826.1 | -2,664.4 | 1,000.4 | 2,780.1 | 0.00 | 0.00 | 0.00 |
| 10,600.0 | 89.53 | 180.00 | 7,826.9 | -2,764.4 | 1,000.4 | 2,879.0 | 0.00 | 0.00 | 0.00 |
| 10,700.0 | 89.53 | 180.00 | 7,827.7 | -2,864.4 | 1,000.4 | 2,978.0 | 0.00 | 0.00 | 0.00 |
| 10,800.0 | 89.53 | 180.00 | 7,828.5 | -2,964.3 | 1,000.4 | 3,077.0 | 0.00 | 0.00 | 0.00 |
| 10,900.0 | 89.53 | 180.00 | 7,829.4 | -3,064.3 | 1,000.4 | 3,175.9 | 0.00 | 0.00 | 0.00 |
| 11,000.0 | 89.53 | 180.00 | 7,830.2 | -3,164.3 | 1,000.4 | 3,274.9 | 0.00 | 0.00 | 0.00 |
| 11,100.0 | 89.53 | 180.00 | 7,831.0 | -3,264.3 | 1,000.4 | 3,373.9 | 0.00 | 0.00 | 0.00 |
| 11,200.0 | 89.53 | 180.00 | 7,831.8 | -3,364.3 | 1,000.4 | 3,472.8 | 0.00 | 0.00 | 0.00 |
| 11,300.0 | 89.53 | 180.00 | 7,832.6 | -3,464.3 | 1,000.4 | 3,571.8 | 0.00 | 0.00 | 0.00 |
| 11,400.0 | 89.53 | 180.00 | 7,833.5 | -3,564.3 | 1,000.4 | 3,670.8 | 0.00 | 0.00 | 0.00 |
| 11,500.0 | 89.53 | 180.00 | 7,834.3 | -3,664.3 | 1,000.4 | 3,769.7 | 0.00 | 0.00 | 0.00 |
| 11,600.0 | 89.53 | 180.00 | 7,835.1 | -3,764.3 | 1,000.4 | 3,868.7 | 0.00 | 0.00 | 0.00 |
| 11,700.0 | 89.53 | 180.00 | 7,835.9 | -3,864.3 | 1,000.4 | 3,967.7 | 0.00 | 0.00 | 0.00 |
| 11,800.0 | 89.53 | 180.00 | 7,836.7 | -3,964.3 | 1,000.4 | 4,066.6 | 0.00 | 0.00 | 0.00 |
| 11,900.0 | 89.53 | 180.00 | 7,837.6 | -4,064.3 | 1,000.4 | 4,165.6 | 0.00 | 0.00 | 0.00 |
| 12,000.0 | 89.53 | 180.00 | 7,838.4 | -4,164.3 | 1,000.4 | 4,264.6 | 0.00 | 0.00 | 0.00 |
| 12,075.2 | 89.53 | 180.00 | 7,839.0 | -4,239.6 | 1,000.4 | 4,339.1 | 0.00 | 0.00 | 0.00 |
| CODELL | | | | | | | | | |
| 12,100.0 | 89.53 | 180.00 | 7,839.2 | -4,264.3 | 1,000.4 | 4,363.5 | 0.00 | 0.00 | 0.00 |
| 12,200.0 | 89.53 | 180.00 | 7,840.0 | -4,364.3 | 1,000.4 | 4,462.5 | 0.00 | 0.00 | 0.00 |
| 12,300.0 | 89.53 | 180.00 | 7,840.8 | -4,464.3 | 1,000.4 | 4,561.5 | 0.00 | 0.00 | 0.00 |
| 12,400.0 | 89.53 | 180.00 | 7,841.7 | -4,564.3 | 1,000.4 | 4,660.5 | 0.00 | 0.00 | 0.00 |
| 12,500.0 | 89.53 | 180.00 | 7,842.5 | -4,664.3 | 1,000.4 | 4,759.4 | 0.00 | 0.00 | 0.00 |
| 12,600.0 | 89.53 | 180.00 | 7,843.3 | -4,764.3 | 1,000.4 | 4,858.4 | 0.00 | 0.00 | 0.00 |
| 12,700.0 | 89.53 | 180.00 | 7,844.1 | -4,864.3 | 1,000.4 | 4,957.4 | 0.00 | 0.00 | 0.00 |
| 12,800.0 | 89.53 | 180.00 | 7,844.9 | -4,964.3 | 1,000.4 | 5,056.3 | 0.00 | 0.00 | 0.00 |
| 12,900.0 | 89.53 | 180.00 | 7,845.8 | -5,064.3 | 1,000.4 | 5,155.3 | 0.00 | 0.00 | 0.00 |

| | | | |
|------------------|---|-------------------------------------|--------------------------------------|
| Database: | Landmark | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Project: | SEC.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site: | Jacobucci 1N67W32S Pad | North Reference: | True |
| Well: | Sec.32-T1N-R67W | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Jacobucci 32S-403 | | |
| Design: | Wellbore #1 | | |
| | Plan #1 (10-8-14) | | |

| Planned Survey | | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|--|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | |
| 13,000.0 | 89.53 | 180.00 | 7,846.6 | -5,164.3 | 1,000.4 | 5,254.3 | 0.00 | 0.00 | 0.00 | |
| 13,100.0 | 89.53 | 180.00 | 7,847.4 | -5,264.3 | 1,000.4 | 5,353.2 | 0.00 | 0.00 | 0.00 | |
| 13,200.0 | 89.53 | 180.00 | 7,848.2 | -5,364.3 | 1,000.4 | 5,452.2 | 0.00 | 0.00 | 0.00 | |
| 13,300.0 | 89.53 | 180.00 | 7,849.0 | -5,464.3 | 1,000.4 | 5,551.2 | 0.00 | 0.00 | 0.00 | |
| 13,400.0 | 89.53 | 180.00 | 7,849.9 | -5,564.3 | 1,000.4 | 5,650.1 | 0.00 | 0.00 | 0.00 | |
| 13,500.0 | 89.53 | 180.00 | 7,850.7 | -5,664.3 | 1,000.4 | 5,749.1 | 0.00 | 0.00 | 0.00 | |
| 13,600.0 | 89.53 | 180.00 | 7,851.5 | -5,764.3 | 1,000.4 | 5,848.1 | 0.00 | 0.00 | 0.00 | |
| 13,700.0 | 89.53 | 180.00 | 7,852.3 | -5,864.3 | 1,000.4 | 5,947.0 | 0.00 | 0.00 | 0.00 | |
| 13,800.0 | 89.53 | 180.00 | 7,853.1 | -5,964.2 | 1,000.4 | 6,046.0 | 0.00 | 0.00 | 0.00 | |
| 13,900.0 | 89.53 | 180.00 | 7,854.0 | -6,064.2 | 1,000.4 | 6,145.0 | 0.00 | 0.00 | 0.00 | |
| 14,000.0 | 89.53 | 180.00 | 7,854.8 | -6,164.2 | 1,000.4 | 6,243.9 | 0.00 | 0.00 | 0.00 | |
| 14,100.0 | 89.53 | 180.00 | 7,855.6 | -6,264.2 | 1,000.4 | 6,342.9 | 0.00 | 0.00 | 0.00 | |
| 14,200.0 | 89.53 | 180.00 | 7,856.4 | -6,364.2 | 1,000.4 | 6,441.9 | 0.00 | 0.00 | 0.00 | |
| 14,300.0 | 89.53 | 180.00 | 7,857.2 | -6,464.2 | 1,000.4 | 6,540.9 | 0.00 | 0.00 | 0.00 | |
| 14,400.0 | 89.53 | 180.00 | 7,858.1 | -6,564.2 | 1,000.4 | 6,639.8 | 0.00 | 0.00 | 0.00 | |
| 14,500.0 | 89.53 | 180.00 | 7,858.9 | -6,664.2 | 1,000.4 | 6,738.8 | 0.00 | 0.00 | 0.00 | |
| 14,600.0 | 89.53 | 180.00 | 7,859.7 | -6,764.2 | 1,000.4 | 6,837.8 | 0.00 | 0.00 | 0.00 | |
| 14,700.0 | 89.53 | 180.00 | 7,860.5 | -6,864.2 | 1,000.4 | 6,936.7 | 0.00 | 0.00 | 0.00 | |
| 14,757.2 | 89.53 | 180.00 | 7,861.0 | -6,921.4 | 1,000.4 | 6,993.3 | 0.00 | 0.00 | 0.00 | |

| Targets | | | | | | | | | | |
|---------------------------|---------------|--------------|----------|------------|------------|---------------|--------------|-----------|-------------|--|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude | Longitude | |
| - hit/miss target | | | | | | | | | | |
| - Shape | | | | | | | | | | |
| SHL 2338'FSL & 175C | 0.00 | 0.00 | 1.0 | 0.0 | 0.0 | 1,245,853.44 | 3,164,964.91 | 40.006750 | -104.911100 | |
| - plan hits target center | | | | | | | | | | |
| - Point | | | | | | | | | | |
| BHL 500'FSL & 1181'I | 0.00 | 0.00 | 7,861.0 | -6,921.4 | 1,000.4 | 1,238,939.07 | 3,166,011.18 | 39.987750 | -104.907530 | |
| - plan hits target center | | | | | | | | | | |
| - Point | | | | | | | | | | |

| Casing Points | | | | | | |
|---------------------|---------------------|------|---------------------|-------------------|--|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (") | Hole Diameter (") | | |
| 8,341.2 | 7,808.4 | 7" | 7 | 7-1/2 | | |

| | | | |
|------------------|---|-------------------------------------|--------------------------------------|
| Database: | Landmark | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Project: | SEC.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | North Reference: | True |
| Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #1 (10-8-14) | | |

| Formations | | | | | | |
|---------------------|---------------------|----------------|-----------|---------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) | |
| 4,567.9 | 4,500.0 | PARKMAN | | 0.00 | | |
| 4,976.7 | 4,900.0 | SUSSEX | | 0.00 | | |
| 5,436.6 | 5,350.0 | SHANNON | | 0.00 | | |
| 7,330.8 | 7,226.0 | SHARON SPRINGS | | 0.00 | | |
| 7,491.6 | 7,377.0 | NIOBRARA A | | 0.00 | | |
| 7,697.3 | 7,548.0 | NIOBRARA B | | 0.00 | | |
| 7,901.8 | 7,682.0 | NIOBRARA C | | 0.00 | | |
| 9,515.2 | 7,818.0 | FT HAYS | | 0.00 | | |
| 12,075.2 | 7,839.0 | CODELL | | 0.00 | | |

| Plan Annotations | | | | |
|---------------------|---------------------|-------------------|------------|--------------|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | Comment |
| | | +N/-S (ft) | +E/-W (ft) | |
| 1,000.0 | 1,000.0 | 0.0 | 0.0 | KOP |
| 7,147.5 | 7,044.4 | 252.0 | 1,000.4 | KOP #2 |
| 8,341.2 | 7,808.4 | -505.6 | 1,000.4 | End of Build |



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T1N-R67W

Jacobucci 1N67W32S Pad Sec.32-T1N-R67W

Jacobucci 32S-403

Wellbore #1

Plan #1 (10-8-14)

Anticollision Report

16 October, 2014



| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| | | | |
|-------------------------------------|---|-----------------------|---------------------|
| Reference | Plan #1 (10-8-14) | | |
| Filter type: | NO GLOBAL FILTER: Using user defined selection & filtering criteria | | |
| Interpolation Method: | MD Interval 100.0ft | Error Model: | ISCWSA |
| Depth Range: | Unlimited | Scan Method: | Closest Approach 3D |
| Results Limited by: | Maximum center-center distance of 10,000.0ft | Error Surface: | Elliptical Conic |
| Warning Levels Evaluated at: | 2.00 Sigma | | |

| | | | | |
|----------------------------|------------------------|---------------------------------|------------------|--------------------|
| Survey Tool Program | Date 10/15/2014 | | | |
| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description |
| 0.0 | 14,757.2 | Plan #1 (10-8-14) (Wellbore #1) | MWD | MWD - Standard |

| Summary | | | | | | |
|--|-------------------------------|----------------------------|-------------------------------|--------------------------------|-------------------|------------|
| Site Name | Reference Measured Depth (ft) | Offset Measured Depth (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Separation Factor | Warning |
| Offset Well - Wellbore - Design | | | | | | |
| Existings Sec.32-T1N-R67W | | | | | | |
| Degenhart 4 (Exist.) - Wellbore #1 - Wellbore #1 | 13,976.2 | 7,936.9 | 266.1 | 129.6 | 1.949 | CC, ES, SF |
| Degenhart 7 (P&A) - Wellbore #1 - Wellbore #1 | 5,900.0 | 5,135.0 | 4,529.1 | 4,404.3 | 36.289 | SF |
| Degenhart 7 (P&A) - Wellbore #1 - Wellbore #1 | 12,065.6 | 5,135.0 | 2,649.7 | 2,610.1 | 66.825 | CC |
| Degenhart 7 (P&A) - Wellbore #1 - Wellbore #1 | 12,100.0 | 5,135.0 | 2,649.9 | 2,610.0 | 66.421 | ES |
| Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1 | 4,726.9 | 4,721.2 | 436.6 | 411.7 | 17.595 | CC |
| Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1 | 4,800.0 | 4,793.0 | 436.8 | 411.7 | 17.404 | ES |
| Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1 | 5,200.0 | 5,183.0 | 443.2 | 416.7 | 16.708 | SF |
| Jacobucci 43-32 (Exist.) - Wellbore #1 - Wellbore #1 | 8,145.3 | 7,963.0 | 150.9 | 113.5 | 4.040 | CC, ES, SF |
| Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | | | | | | |
| Jacobucci 32S-203 - Wellbore #1 - Plan #2 (10-8-14) | 1,000.0 | 1,000.0 | 86.8 | 82.6 | 20.335 | CC, ES |
| Jacobucci 32S-203 - Wellbore #1 - Plan #2 (10-8-14) | 14,757.2 | 14,462.3 | 1,049.4 | 787.8 | 4.011 | SF |
| Jacobucci 32S-303 - Wellbore #1 - Plan #1 (10-8-14) | 1,000.0 | 1,000.0 | 28.0 | 23.7 | 6.560 | CC, ES |
| Jacobucci 32S-303 - Wellbore #1 - Plan #1 (10-8-14) | 14,757.2 | 14,600.2 | 386.8 | 139.8 | 1.566 | SF |
| Jacobucci 32S-323 - Wellbore #1 - Plan #2 (10-8-14) | 800.0 | 800.0 | 28.0 | 24.6 | 8.309 | CC, ES |
| Jacobucci 32S-323 - Wellbore #1 - Plan #2 (10-8-14) | 14,757.2 | 14,713.5 | 430.7 | 174.9 | 1.684 | SF |
| Jacobucci 32S-343 - Wellbore #1 - Plan #2 (10-8-14) | 1,000.0 | 1,000.0 | 114.9 | 110.6 | 26.895 | CC, ES |
| Jacobucci 32S-343 - Wellbore #1 - Plan #2 (10-8-14) | 14,757.2 | 14,577.6 | 1,369.4 | 1,102.2 | 5.125 | SF |
| Jacobucci 32S-423 - Wellbore #1 - Plan #2 (10-8-14) | 1,000.0 | 1,000.0 | 58.8 | 54.6 | 13.775 | CC, ES |
| Jacobucci 32S-423 - Wellbore #1 - Plan #2 (10-8-14) | 14,757.2 | 14,709.1 | 546.4 | 277.7 | 2.034 | SF |

| | | | | | | | | | | | |
|---|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|
| Offset Design Existings Sec.32-T1N-R67W - Degenhart 4 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | |
| Survey Program: 100-NS-GYRO-MS | | | | | | | | | | | |
| Reference Offset Semi Major Axis Distance | | | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) |
| 0.0 | 0.0 | 90.3 | 90.3 | 0.0 | 0.1 | 172.73 | -6,174.6 | 787.3 | 6,224.6 | 6,224.4 | 0.12 |
| 100.0 | 100.0 | 194.8 | 194.8 | 0.1 | 0.4 | 172.74 | -6,174.4 | 786.8 | 6,224.3 | 6,223.8 | 0.50 |
| 200.0 | 200.0 | 282.7 | 282.7 | 0.3 | 0.6 | 172.74 | -6,174.3 | 786.2 | 6,224.1 | 6,223.2 | 0.95 |
| 272.6 | 272.6 | 349.6 | 349.6 | 0.5 | 0.8 | 172.75 | -6,174.3 | 785.7 | 6,224.1 | 6,222.8 | 1.28 |
| 300.0 | 300.0 | 375.3 | 375.3 | 0.6 | 0.8 | 172.75 | -6,174.3 | 785.5 | 6,224.1 | 6,222.7 | 1.41 |
| 400.0 | 400.0 | 485.9 | 485.9 | 0.8 | 1.1 | 172.75 | -6,174.4 | 785.0 | 6,224.1 | 6,222.2 | 1.92 |
| | | | | | | | | | | Separation Factor | Warning |
| | | | | | | | | | | N/A | |
| | | | | | | | | | | N/A | |
| | | | | | | | | | | 6,576.796 | |
| | | | | | | | | | | 4,865.947 | |
| | | | | | | | | | | 4,427.456 | |
| | | | | | | | | | | 3,250.137 | |

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

| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--------------------------------|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|---------|--------------------|--------|
| Survey Program: 100-NS-GYRO-MS | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | | | | | | | | | | | | | | |
| Offset | | | | | | | | | | | | | | | |
| Semi Major Axis | | | | | | | | | | | | | | | |
| Distance | | | | | | | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning | | |
| 500.0 | 500.0 | 613.5 | 613.5 | 1.0 | 1.4 | 172.76 | -6,173.9 | 784.5 | 6,223.7 | 6,221.2 | 2.45 | 2,541.366 | | | |
| 600.0 | 600.0 | 707.3 | 707.3 | 1.2 | 1.7 | 172.76 | -6,173.5 | 784.0 | 6,223.1 | 6,220.2 | 2.90 | 2,143.474 | | | |
| 700.0 | 700.0 | 800.0 | 800.0 | 1.5 | 1.9 | 172.77 | -6,173.2 | 783.4 | 6,222.7 | 6,219.4 | 3.37 | 1,844.900 | | | |
| 800.0 | 800.0 | 902.2 | 902.1 | 1.7 | 2.2 | 172.77 | -6,172.9 | 782.9 | 6,222.4 | 6,218.5 | 3.86 | 1,611.186 | | | |
| 900.0 | 900.0 | 1,008.3 | 1,008.2 | 1.9 | 2.4 | 172.78 | -6,172.5 | 782.4 | 6,221.9 | 6,217.6 | 4.36 | 1,427.333 | | | |
| 1,000.0 | 1,000.0 | 1,111.5 | 1,111.5 | 2.1 | 2.7 | 172.78 | -6,172.0 | 781.7 | 6,221.4 | 6,216.5 | 4.85 | 1,281.690 | | | |
| 1,071.6 | 1,071.6 | 1,167.5 | 1,167.4 | 2.3 | 2.9 | 96.94 | -6,171.8 | 781.2 | 6,221.2 | 6,216.0 | 5.15 | 1,207.168 | | | |
| 1,100.0 | 1,100.0 | 1,200.0 | 1,200.0 | 2.4 | 2.9 | 96.95 | -6,171.8 | 780.9 | 6,221.2 | 6,215.9 | 5.30 | 1,174.053 | | | |
| 1,200.0 | 1,199.8 | 1,290.6 | 1,290.6 | 2.6 | 3.2 | 96.99 | -6,171.7 | 780.2 | 6,221.6 | 6,215.9 | 5.75 | 1,082.967 | | | |
| 1,300.0 | 1,299.5 | 1,410.9 | 1,410.9 | 2.8 | 3.5 | 97.08 | -6,171.3 | 779.3 | 6,222.3 | 6,216.0 | 6.29 | 989.917 | | | |
| 1,400.0 | 1,398.7 | 1,500.0 | 1,500.0 | 3.0 | 3.7 | 97.17 | -6,171.0 | 778.4 | 6,223.4 | 6,216.6 | 6.76 | 920.180 | | | |
| 1,500.0 | 1,497.5 | 1,575.6 | 1,575.6 | 3.3 | 3.9 | 97.24 | -6,171.0 | 777.7 | 6,225.2 | 6,218.0 | 7.23 | 861.527 | | | |
| 1,600.0 | 1,595.6 | 1,687.6 | 1,687.6 | 3.6 | 4.2 | 97.40 | -6,171.0 | 777.0 | 6,227.6 | 6,219.8 | 7.82 | 796.307 | | | |
| 1,700.0 | 1,693.5 | 1,786.7 | 1,786.6 | 4.0 | 4.5 | 97.60 | -6,170.8 | 776.2 | 6,230.1 | 6,221.7 | 8.43 | 739.449 | | | |
| 1,800.0 | 1,791.3 | 1,868.1 | 1,868.1 | 4.3 | 4.7 | 97.76 | -6,170.8 | 775.3 | 6,232.8 | 6,223.8 | 9.00 | 692.795 | | | |
| 1,900.0 | 1,889.2 | 1,975.0 | 1,975.0 | 4.7 | 4.9 | 97.96 | -6,170.9 | 774.5 | 6,235.7 | 6,226.0 | 9.65 | 646.409 | | | |
| 2,000.0 | 1,987.1 | 2,083.4 | 2,083.4 | 5.1 | 5.2 | 98.18 | -6,170.7 | 773.6 | 6,238.4 | 6,228.0 | 10.32 | 604.385 | | | |
| 2,100.0 | 2,084.9 | 2,168.5 | 2,168.4 | 5.5 | 5.5 | 98.34 | -6,170.6 | 772.8 | 6,241.2 | 6,230.2 | 10.94 | 570.303 | | | |
| 2,200.0 | 2,182.8 | 2,300.6 | 2,300.5 | 5.9 | 5.8 | 98.60 | -6,170.4 | 771.8 | 6,244.0 | 6,232.3 | 11.68 | 534.391 | | | |
| 2,300.0 | 2,280.6 | 2,416.5 | 2,416.5 | 6.3 | 6.1 | 98.82 | -6,169.5 | 771.1 | 6,246.4 | 6,234.0 | 12.38 | 504.753 | | | |
| 2,400.0 | 2,378.5 | 2,527.0 | 2,526.9 | 6.7 | 6.3 | 99.03 | -6,168.4 | 770.7 | 6,248.6 | 6,235.6 | 13.02 | 479.868 | | | |
| 2,500.0 | 2,476.3 | 2,642.0 | 2,641.9 | 7.2 | 6.5 | 99.24 | -6,166.8 | 770.5 | 6,250.5 | 6,236.9 | 13.67 | 457.344 | | | |
| 2,600.0 | 2,574.2 | 2,729.0 | 2,728.9 | 7.6 | 6.7 | 99.41 | -6,165.7 | 770.1 | 6,252.6 | 6,238.3 | 14.28 | 437.971 | | | |
| 2,700.0 | 2,672.1 | 2,823.4 | 2,823.3 | 8.0 | 6.9 | 99.59 | -6,164.6 | 769.8 | 6,254.9 | 6,240.0 | 14.91 | 419.452 | | | |
| 2,800.0 | 2,769.9 | 2,938.5 | 2,938.4 | 8.5 | 7.2 | 99.80 | -6,163.1 | 769.4 | 6,257.0 | 6,241.4 | 15.59 | 401.264 | | | |
| 2,900.0 | 2,867.8 | 3,026.9 | 3,026.8 | 8.9 | 7.4 | 99.97 | -6,161.8 | 768.8 | 6,259.1 | 6,242.9 | 16.23 | 385.740 | | | |
| 3,000.0 | 2,965.6 | 3,102.3 | 3,102.2 | 9.3 | 7.5 | 100.11 | -6,161.0 | 768.5 | 6,261.7 | 6,244.8 | 16.83 | 371.948 | | | |
| 3,100.0 | 3,063.5 | 3,199.4 | 3,199.3 | 9.8 | 7.7 | 100.29 | -6,160.1 | 768.4 | 6,264.4 | 6,247.0 | 17.46 | 358.852 | | | |
| 3,200.0 | 3,161.4 | 3,300.0 | 3,299.9 | 10.2 | 7.9 | 100.48 | -6,159.1 | 768.6 | 6,267.2 | 6,249.1 | 18.07 | 346.744 | | | |
| 3,300.0 | 3,259.2 | 3,386.8 | 3,386.7 | 10.7 | 8.1 | 100.64 | -6,158.3 | 768.6 | 6,270.1 | 6,251.4 | 18.68 | 335.715 | | | |
| 3,400.0 | 3,357.1 | 3,487.3 | 3,487.2 | 11.1 | 8.3 | 100.82 | -6,157.4 | 768.9 | 6,273.2 | 6,253.9 | 19.28 | 325.384 | | | |
| 3,500.0 | 3,454.9 | 3,623.7 | 3,623.6 | 11.5 | 8.5 | 101.07 | -6,155.8 | 769.3 | 6,275.9 | 6,256.0 | 19.96 | 314.365 | | | |
| 3,600.0 | 3,552.8 | 3,712.6 | 3,712.4 | 12.0 | 8.7 | 101.23 | -6,154.5 | 769.1 | 6,278.6 | 6,258.0 | 20.60 | 304.781 | | | |
| 3,700.0 | 3,650.6 | 3,800.0 | 3,799.8 | 12.4 | 8.9 | 101.39 | -6,153.5 | 769.0 | 6,281.4 | 6,260.2 | 21.24 | 295.741 | | | |
| 3,800.0 | 3,748.5 | 3,876.5 | 3,876.4 | 12.9 | 9.1 | 101.54 | -6,152.7 | 768.9 | 6,284.6 | 6,262.8 | 21.86 | 287.493 | | | |
| 3,900.0 | 3,846.4 | 3,950.3 | 3,950.1 | 13.3 | 9.3 | 101.67 | -6,152.3 | 768.6 | 6,288.2 | 6,265.7 | 22.48 | 279.742 | | | |
| 4,000.0 | 3,944.2 | 4,031.9 | 4,031.7 | 13.8 | 9.5 | 101.83 | -6,152.1 | 768.2 | 6,292.2 | 6,269.1 | 23.12 | 272.175 | | | |
| 4,100.0 | 4,042.1 | 4,133.3 | 4,133.1 | 14.2 | 9.7 | 102.02 | -6,151.9 | 767.5 | 6,296.4 | 6,272.6 | 23.81 | 264.480 | | | |
| 4,200.0 | 4,139.9 | 4,229.2 | 4,229.0 | 14.7 | 10.0 | 102.20 | -6,151.7 | 766.7 | 6,300.6 | 6,276.1 | 24.48 | 257.375 | | | |
| 4,300.0 | 4,237.8 | 4,325.0 | 4,324.8 | 15.1 | 10.2 | 102.39 | -6,151.6 | 765.7 | 6,304.9 | 6,279.8 | 25.15 | 250.695 | | | |
| 4,400.0 | 4,335.7 | 4,448.4 | 4,448.2 | 15.6 | 10.5 | 102.62 | -6,151.2 | 764.4 | 6,309.1 | 6,283.2 | 25.90 | 243.632 | | | |
| 4,500.0 | 4,433.5 | 4,548.6 | 4,548.4 | 16.0 | 10.8 | 102.82 | -6,150.6 | 763.3 | 6,313.0 | 6,286.5 | 26.59 | 237.404 | | | |
| 4,600.0 | 4,531.4 | 4,633.1 | 4,632.9 | 16.4 | 11.0 | 102.98 | -6,150.2 | 762.0 | 6,317.3 | 6,290.0 | 27.25 | 231.867 | | | |
| 4,700.0 | 4,629.2 | 4,727.4 | 4,727.2 | 16.9 | 11.2 | 103.16 | -6,149.9 | 760.8 | 6,321.7 | 6,293.7 | 27.92 | 226.418 | | | |
| 4,800.0 | 4,727.1 | 4,826.1 | 4,825.9 | 17.3 | 11.5 | 103.35 | -6,149.6 | 759.9 | 6,326.1 | 6,297.5 | 28.61 | 221.118 | | | |
| 4,900.0 | 4,824.9 | 4,915.0 | 4,914.8 | 17.8 | 11.7 | 103.52 | -6,149.3 | 759.2 | 6,330.7 | 6,301.4 | 29.27 | 216.257 | | | |
| 5,000.0 | 4,922.8 | 5,000.0 | 4,999.8 | 18.2 | 11.9 | 103.68 | -6,149.2 | 758.4 | 6,335.5 | 6,305.6 | 29.92 | 211.728 | | | |
| 5,100.0 | 5,020.7 | 5,084.1 | 5,083.9 | 18.7 | 12.1 | 103.84 | -6,149.2 | 757.5 | 6,340.5 | 6,310.0 | 30.55 | 207.534 | | | |
| 5,200.0 | 5,118.5 | 5,193.9 | 5,193.7 | 19.1 | 12.4 | 104.05 | -6,149.4 | 756.4 | 6,345.8 | 6,314.6 | 31.23 | 203.164 | | | |
| 5,300.0 | 5,216.4 | 5,296.7 | 5,296.5 | 19.6 | 12.6 | 104.24 | -6,149.4 | 755.2 | 6,350.9 | 6,319.0 | 31.92 | 198.988 | | | |
| 5,400.0 | 5,314.2 | 5,369.6 | 5,369.4 | 20.0 | 12.8 | 104.39 | -6,149.5 | 754.1 | 6,356.2 | 6,323.7 | 32.52 | 195.463 | | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--------------------------------|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|---------|--------------------|--------|
| Survey Program: 100-NS-GYRO-MS | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | | | | | | | | | | | | | | |
| Offset | | | | | | | | | | | | | | | |
| Semi Major Axis | | | | | | | | | | | | | | | |
| Distance | | | | | | | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning | | |
| 5,500.0 | 5,412.1 | 5,447.2 | 5,446.9 | 20.5 | 12.9 | 104.53 | -6,149.9 | 752.9 | 6,362.0 | 6,328.9 | 33.12 | 192.086 | | | |
| 5,600.0 | 5,509.9 | 5,532.3 | 5,532.0 | 20.9 | 13.1 | 104.70 | -6,150.5 | 751.6 | 6,368.1 | 6,334.4 | 33.73 | 188.813 | | | |
| 5,700.0 | 5,607.8 | 5,625.3 | 5,625.0 | 21.4 | 13.3 | 104.88 | -6,151.3 | 750.1 | 6,374.4 | 6,340.1 | 34.34 | 185.609 | | | |
| 5,800.0 | 5,705.7 | 5,718.4 | 5,718.1 | 21.8 | 13.5 | 105.06 | -6,152.2 | 748.5 | 6,380.8 | 6,345.8 | 34.96 | 182.521 | | | |
| 5,900.0 | 5,803.5 | 5,800.1 | 5,799.7 | 22.3 | 13.6 | 105.22 | -6,153.1 | 747.2 | 6,387.4 | 6,351.9 | 35.55 | 179.683 | | | |
| 6,000.0 | 5,901.4 | 5,926.2 | 5,925.8 | 22.7 | 13.9 | 105.46 | -6,154.4 | 745.4 | 6,394.1 | 6,357.8 | 36.22 | 176.547 | | | |
| 6,100.0 | 5,999.5 | 6,033.0 | 6,032.6 | 23.1 | 14.1 | 105.75 | -6,155.0 | 743.9 | 6,400.0 | 6,363.2 | 36.81 | 173.878 | | | |
| 6,200.0 | 6,098.3 | 6,120.9 | 6,120.5 | 23.4 | 14.3 | 105.98 | -6,155.7 | 742.4 | 6,405.2 | 6,367.9 | 37.27 | 171.864 | | | |
| 6,300.0 | 6,197.5 | 6,252.6 | 6,252.2 | 23.7 | 14.6 | 106.22 | -6,156.5 | 740.4 | 6,409.3 | 6,371.5 | 37.79 | 169.593 | | | |
| 6,400.0 | 6,297.1 | 6,369.5 | 6,369.1 | 23.9 | 14.9 | 106.37 | -6,156.6 | 738.6 | 6,411.9 | 6,373.6 | 38.27 | 167.532 | | | |
| 6,500.0 | 6,397.0 | 6,497.6 | 6,497.2 | 24.0 | 15.2 | 106.48 | -6,156.4 | 736.1 | 6,413.3 | 6,374.6 | 38.76 | 165.482 | | | |
| 6,600.0 | 6,496.9 | 6,720.2 | 6,719.6 | 24.2 | 15.8 | 106.56 | -6,153.6 | 729.7 | 6,413.0 | 6,373.5 | 39.46 | 162.525 | | | |
| 6,700.0 | 6,596.9 | 6,904.7 | 6,903.9 | 24.3 | 16.3 | -177.51 | -6,147.8 | 721.9 | 6,409.9 | 6,369.9 | 40.05 | 160.029 | | | |
| 6,800.0 | 6,696.9 | 7,000.0 | 6,999.1 | 24.4 | 16.5 | -177.48 | -6,144.3 | 719.1 | 6,406.4 | 6,366.0 | 40.41 | 158.521 | | | |
| 6,900.0 | 6,796.9 | 7,057.7 | 7,056.7 | 24.5 | 16.6 | -177.48 | -6,142.4 | 718.9 | 6,403.2 | 6,362.6 | 40.65 | 157.536 | | | |
| 7,000.0 | 6,896.9 | 7,100.0 | 7,099.0 | 24.7 | 16.7 | -177.48 | -6,141.3 | 719.2 | 6,400.7 | 6,359.9 | 40.85 | 156.673 | | | |
| 7,100.0 | 6,996.9 | 7,172.8 | 7,171.8 | 24.8 | 16.7 | -177.49 | -6,139.9 | 720.2 | 6,398.8 | 6,357.8 | 41.06 | 155.855 | | | |
| 7,200.0 | 7,096.9 | 7,231.6 | 7,230.6 | 24.9 | 16.8 | 2.51 | -6,139.3 | 721.3 | 6,395.8 | 6,354.7 | 41.09 | 155.663 | | | |
| 7,300.0 | 7,195.9 | 7,300.0 | 7,299.0 | 25.0 | 16.8 | 2.55 | -6,139.0 | 722.6 | 6,381.9 | 6,341.4 | 40.49 | 157.624 | | | |
| 7,400.0 | 7,292.4 | 7,362.7 | 7,361.6 | 25.1 | 16.8 | 2.64 | -6,139.0 | 723.6 | 6,355.7 | 6,316.4 | 39.25 | 161.939 | | | |
| 7,500.0 | 7,384.6 | 7,442.5 | 7,441.4 | 25.1 | 16.8 | 2.79 | -6,139.3 | 724.9 | 6,317.4 | 6,280.0 | 37.42 | 168.823 | | | |
| 7,600.0 | 7,470.9 | 7,533.3 | 7,532.3 | 25.1 | 16.8 | 3.01 | -6,139.6 | 726.7 | 6,267.5 | 6,232.4 | 35.07 | 178.739 | | | |
| 7,700.0 | 7,550.0 | 7,623.0 | 7,621.9 | 25.1 | 16.8 | 3.34 | -6,139.8 | 728.7 | 6,206.6 | 6,174.3 | 32.26 | 192.386 | | | |
| 7,800.0 | 7,620.5 | 7,694.8 | 7,693.7 | 25.1 | 16.8 | 3.84 | -6,140.0 | 730.1 | 6,135.8 | 6,106.7 | 29.11 | 210.804 | | | |
| 7,900.0 | 7,681.0 | 7,753.0 | 7,751.9 | 25.2 | 16.9 | 4.59 | -6,140.1 | 731.2 | 6,056.5 | 6,030.7 | 25.75 | 235.228 | | | |
| 8,000.0 | 7,730.7 | 7,800.0 | 7,798.9 | 25.4 | 16.9 | 5.83 | -6,140.2 | 732.0 | 5,969.9 | 5,947.5 | 22.40 | 266.519 | | | |
| 8,100.0 | 7,768.6 | 7,837.6 | 7,836.5 | 25.6 | 16.9 | 8.11 | -6,140.2 | 732.7 | 5,877.6 | 5,858.2 | 19.44 | 302.347 | | | |
| 8,200.0 | 7,794.2 | 7,862.7 | 7,861.5 | 26.0 | 16.9 | 13.45 | -6,140.3 | 733.1 | 5,781.1 | 5,763.3 | 17.80 | 324.868 | | | |
| 8,300.0 | 7,806.9 | 7,875.3 | 7,874.2 | 26.5 | 16.9 | 36.38 | -6,140.3 | 733.3 | 5,682.2 | 5,658.4 | 23.79 | 238.858 | | | |
| 8,400.0 | 7,808.9 | 7,877.4 | 7,876.3 | 27.1 | 16.9 | 78.30 | -6,140.3 | 733.3 | 5,582.3 | 5,545.3 | 37.04 | 150.723 | | | |
| 8,500.0 | 7,809.7 | 7,878.4 | 7,877.3 | 27.9 | 16.9 | 78.51 | -6,140.3 | 733.3 | 5,482.4 | 5,444.3 | 38.12 | 143.820 | | | |
| 8,600.0 | 7,810.5 | 7,879.5 | 7,878.4 | 28.7 | 16.9 | 78.73 | -6,140.3 | 733.4 | 5,382.5 | 5,343.2 | 39.31 | 136.915 | | | |
| 8,700.0 | 7,811.3 | 7,880.5 | 7,879.4 | 29.7 | 16.9 | 78.94 | -6,140.3 | 733.4 | 5,282.7 | 5,242.1 | 40.60 | 130.116 | | | |
| 8,800.0 | 7,812.1 | 7,881.6 | 7,880.4 | 30.9 | 16.9 | 79.16 | -6,140.3 | 733.4 | 5,182.8 | 5,140.8 | 41.97 | 123.498 | | | |
| 8,900.0 | 7,813.0 | 7,882.6 | 7,881.5 | 32.0 | 16.9 | 79.37 | -6,140.3 | 733.4 | 5,083.0 | 5,039.5 | 43.40 | 117.112 | | | |
| 9,000.0 | 7,813.8 | 7,883.7 | 7,882.5 | 33.3 | 16.9 | 79.59 | -6,140.3 | 733.4 | 4,983.1 | 4,938.2 | 44.90 | 110.992 | | | |
| 9,100.0 | 7,814.6 | 7,884.7 | 7,883.6 | 34.6 | 16.9 | 79.81 | -6,140.3 | 733.4 | 4,883.2 | 4,836.8 | 46.44 | 105.152 | | | |
| 9,200.0 | 7,815.4 | 7,885.8 | 7,884.6 | 36.0 | 16.9 | 80.02 | -6,140.4 | 733.5 | 4,783.4 | 4,735.4 | 48.03 | 99.599 | | | |
| 9,300.0 | 7,816.2 | 7,886.8 | 7,885.7 | 37.5 | 16.9 | 80.24 | -6,140.4 | 733.5 | 4,683.6 | 4,633.9 | 49.65 | 94.331 | | | |
| 9,400.0 | 7,817.1 | 7,887.9 | 7,886.7 | 38.9 | 16.9 | 80.46 | -6,140.4 | 733.5 | 4,583.7 | 4,532.4 | 51.31 | 89.341 | | | |
| 9,500.0 | 7,817.9 | 7,888.9 | 7,887.8 | 40.4 | 16.9 | 80.68 | -6,140.4 | 733.5 | 4,483.9 | 4,430.9 | 52.99 | 84.619 | | | |
| 9,600.0 | 7,818.7 | 7,890.0 | 7,888.8 | 42.0 | 16.9 | 80.90 | -6,140.4 | 733.5 | 4,384.1 | 4,329.4 | 54.70 | 80.151 | | | |
| 9,700.0 | 7,819.5 | 7,891.0 | 7,889.9 | 43.6 | 16.9 | 81.12 | -6,140.4 | 733.6 | 4,284.3 | 4,227.9 | 56.43 | 75.926 | | | |
| 9,800.0 | 7,820.3 | 7,892.1 | 7,891.0 | 45.2 | 16.9 | 81.34 | -6,140.4 | 733.6 | 4,184.5 | 4,126.3 | 58.18 | 71.929 | | | |
| 9,900.0 | 7,821.2 | 7,893.1 | 7,892.0 | 46.8 | 16.9 | 81.56 | -6,140.4 | 733.6 | 4,084.7 | 4,024.8 | 59.94 | 68.146 | | | |
| 10,000.0 | 7,822.0 | 7,894.2 | 7,893.1 | 48.5 | 16.9 | 81.78 | -6,140.4 | 733.6 | 3,984.9 | 3,923.2 | 61.72 | 64.564 | | | |
| 10,100.0 | 7,822.8 | 7,895.3 | 7,894.1 | 50.1 | 16.9 | 82.00 | -6,140.4 | 733.6 | 3,885.2 | 3,821.7 | 63.51 | 61.170 | | | |
| 10,200.0 | 7,823.6 | 7,896.3 | 7,895.2 | 51.8 | 16.9 | 82.23 | -6,140.4 | 733.6 | 3,785.4 | 3,720.1 | 65.32 | 57.953 | | | |
| 10,300.0 | 7,824.4 | 7,897.4 | 7,896.2 | 53.5 | 16.9 | 82.45 | -6,140.4 | 733.7 | 3,685.7 | 3,618.5 | 67.14 | 54.899 | | | |
| 10,400.0 | 7,825.3 | 7,898.4 | 7,897.3 | 55.3 | 16.9 | 82.67 | -6,140.4 | 733.7 | 3,586.0 | 3,517.0 | 68.96 | 52.000 | | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--------------------------------|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|---------|--------------------|--------|
| Survey Program: 100-NS-GYRO-MS | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | | | | | | | | | | | | | | |
| Offset | | | | | | | | | | | | | | | |
| Semi Major Axis | | | | | | | | | | | | | | | |
| Distance | | | | | | | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning | | |
| 10,500.0 | 7,826.1 | 7,900.0 | 7,898.9 | 57.0 | 16.9 | 83.00 | -6,140.4 | 733.7 | 3,486.2 | 3,415.4 | 70.81 | 49.231 | | | |
| 10,600.0 | 7,826.9 | 7,900.7 | 7,899.5 | 58.7 | 16.9 | 83.14 | -6,140.4 | 733.7 | 3,386.6 | 3,313.9 | 72.64 | 46.621 | | | |
| 10,700.0 | 7,827.7 | 7,901.9 | 7,900.8 | 60.5 | 16.9 | 83.41 | -6,140.4 | 733.7 | 3,286.9 | 3,212.4 | 74.50 | 44.121 | | | |
| 10,800.0 | 7,828.5 | 7,903.2 | 7,902.0 | 62.2 | 16.9 | 83.67 | -6,140.4 | 733.8 | 3,187.2 | 3,110.9 | 76.36 | 41.740 | | | |
| 10,900.0 | 7,829.4 | 7,904.4 | 7,903.3 | 64.0 | 16.9 | 83.93 | -6,140.4 | 733.8 | 3,087.6 | 3,009.4 | 78.23 | 39.470 | | | |
| 11,000.0 | 7,830.2 | 7,905.6 | 7,904.5 | 65.8 | 16.9 | 84.19 | -6,140.4 | 733.8 | 2,988.0 | 2,907.9 | 80.10 | 37.304 | | | |
| 11,100.0 | 7,831.0 | 7,906.8 | 7,905.7 | 67.6 | 16.9 | 84.45 | -6,140.4 | 733.8 | 2,888.4 | 2,806.4 | 81.97 | 35.235 | | | |
| 11,200.0 | 7,831.8 | 7,908.0 | 7,906.9 | 69.4 | 16.9 | 84.70 | -6,140.4 | 733.8 | 2,788.8 | 2,705.0 | 83.85 | 33.258 | | | |
| 11,300.0 | 7,832.6 | 7,909.2 | 7,908.0 | 71.2 | 16.9 | 84.95 | -6,140.4 | 733.8 | 2,689.3 | 2,603.6 | 85.74 | 31.367 | | | |
| 11,400.0 | 7,833.5 | 7,910.3 | 7,909.2 | 73.0 | 16.9 | 85.20 | -6,140.4 | 733.9 | 2,589.8 | 2,502.2 | 87.62 | 29.556 | | | |
| 11,500.0 | 7,834.3 | 7,911.5 | 7,910.4 | 74.8 | 16.9 | 85.45 | -6,140.4 | 733.9 | 2,490.4 | 2,400.9 | 89.51 | 27.822 | | | |
| 11,600.0 | 7,835.1 | 7,912.6 | 7,911.5 | 76.6 | 16.9 | 85.69 | -6,140.4 | 733.9 | 2,391.0 | 2,299.6 | 91.40 | 26.159 | | | |
| 11,700.0 | 7,835.9 | 7,913.8 | 7,912.6 | 78.4 | 16.9 | 85.93 | -6,140.4 | 733.9 | 2,291.6 | 2,198.3 | 93.30 | 24.563 | | | |
| 11,800.0 | 7,836.7 | 7,914.9 | 7,913.8 | 80.3 | 16.9 | 86.17 | -6,140.4 | 733.9 | 2,192.4 | 2,097.2 | 95.19 | 23.031 | | | |
| 11,900.0 | 7,837.6 | 7,916.0 | 7,914.9 | 82.1 | 16.9 | 86.41 | -6,140.4 | 734.0 | 2,093.1 | 1,996.0 | 97.09 | 21.559 | | | |
| 12,000.0 | 7,838.4 | 7,917.1 | 7,916.0 | 83.9 | 16.9 | 86.65 | -6,140.4 | 734.0 | 1,994.0 | 1,895.0 | 98.99 | 20.144 | | | |
| 12,100.0 | 7,839.2 | 7,918.2 | 7,917.1 | 85.8 | 16.9 | 86.88 | -6,140.4 | 734.0 | 1,894.9 | 1,794.1 | 100.88 | 18.783 | | | |
| 12,200.0 | 7,840.0 | 7,919.3 | 7,918.1 | 87.6 | 16.9 | 87.11 | -6,140.4 | 734.0 | 1,796.0 | 1,693.2 | 102.78 | 17.473 | | | |
| 12,300.0 | 7,840.8 | 7,920.3 | 7,919.2 | 89.4 | 16.9 | 87.34 | -6,140.4 | 734.0 | 1,697.2 | 1,592.5 | 104.69 | 16.212 | | | |
| 12,400.0 | 7,841.7 | 7,921.4 | 7,920.3 | 91.3 | 16.9 | 87.57 | -6,140.4 | 734.0 | 1,598.5 | 1,491.9 | 106.59 | 14.997 | | | |
| 12,500.0 | 7,842.5 | 7,922.5 | 7,921.3 | 93.1 | 16.9 | 87.79 | -6,140.4 | 734.1 | 1,500.0 | 1,391.5 | 108.49 | 13.826 | | | |
| 12,600.0 | 7,843.3 | 7,923.5 | 7,922.4 | 95.0 | 16.9 | 88.02 | -6,140.4 | 734.1 | 1,401.7 | 1,291.3 | 110.39 | 12.697 | | | |
| 12,700.0 | 7,844.1 | 7,924.5 | 7,923.4 | 96.8 | 16.9 | 88.24 | -6,140.4 | 734.1 | 1,303.6 | 1,191.3 | 112.29 | 11.609 | | | |
| 12,800.0 | 7,844.9 | 7,925.5 | 7,924.4 | 98.7 | 16.9 | 88.46 | -6,140.4 | 734.1 | 1,205.9 | 1,091.7 | 114.20 | 10.560 | | | |
| 12,900.0 | 7,845.8 | 7,926.6 | 7,925.4 | 100.6 | 16.9 | 88.67 | -6,140.4 | 734.1 | 1,108.6 | 992.5 | 116.10 | 9.549 | | | |
| 13,000.0 | 7,846.6 | 7,927.6 | 7,926.4 | 102.4 | 16.9 | 88.89 | -6,140.4 | 734.1 | 1,011.8 | 893.8 | 118.00 | 8.575 | | | |
| 13,100.0 | 7,847.4 | 7,928.6 | 7,927.4 | 104.3 | 16.9 | 89.10 | -6,140.4 | 734.2 | 915.7 | 795.8 | 119.90 | 7.637 | | | |
| 13,200.0 | 7,848.2 | 7,929.5 | 7,928.4 | 106.1 | 16.9 | 89.31 | -6,140.4 | 734.2 | 820.6 | 698.8 | 121.80 | 6.737 | | | |
| 13,300.0 | 7,849.0 | 7,930.5 | 7,929.4 | 108.0 | 16.9 | 89.52 | -6,140.4 | 734.2 | 726.7 | 603.0 | 123.71 | 5.874 | | | |
| 13,400.0 | 7,849.9 | 7,931.5 | 7,930.4 | 109.9 | 16.9 | 89.73 | -6,140.4 | 734.2 | 634.7 | 509.1 | 125.61 | 5.053 | | | |
| 13,500.0 | 7,850.7 | 7,932.4 | 7,931.3 | 111.7 | 16.9 | 89.94 | -6,140.4 | 734.2 | 545.5 | 418.0 | 127.51 | 4.278 | | | |
| 13,600.0 | 7,851.5 | 7,933.4 | 7,932.3 | 113.6 | 16.9 | 90.14 | -6,140.5 | 734.2 | 460.8 | 331.4 | 129.41 | 3.561 | | | |
| 13,700.0 | 7,852.3 | 7,934.3 | 7,933.2 | 115.5 | 16.9 | 90.35 | -6,140.5 | 734.2 | 383.6 | 252.3 | 131.31 | 2.921 | | | |
| 13,800.0 | 7,853.1 | 7,935.3 | 7,934.1 | 117.4 | 16.9 | 90.55 | -6,140.5 | 734.3 | 319.2 | 186.0 | 133.21 | 2.396 | | | |
| 13,900.0 | 7,854.0 | 7,936.2 | 7,935.1 | 119.2 | 16.9 | 90.75 | -6,140.5 | 734.3 | 276.8 | 141.7 | 135.10 | 2.049 | | | |
| 13,976.2 | 7,854.6 | 7,936.9 | 7,935.8 | 120.7 | 16.9 | 90.90 | -6,140.5 | 734.3 | 266.1 | 129.6 | 136.55 | 1.949 CC, ES, SF | | | |
| 14,000.0 | 7,854.8 | 7,937.1 | 7,936.0 | 121.1 | 16.9 | 90.94 | -6,140.5 | 734.3 | 267.2 | 130.2 | 137.00 | 1.950 | | | |
| 14,100.0 | 7,855.6 | 7,938.0 | 7,936.9 | 123.0 | 16.9 | 91.14 | -6,140.5 | 734.3 | 293.5 | 154.6 | 138.90 | 2.113 | | | |
| 14,200.0 | 7,856.4 | 7,938.9 | 7,937.8 | 124.9 | 16.9 | 91.33 | -6,140.5 | 734.3 | 347.7 | 206.9 | 140.79 | 2.469 | | | |
| 14,300.0 | 7,857.2 | 7,939.8 | 7,938.7 | 126.7 | 16.9 | 91.52 | -6,140.5 | 734.3 | 419.1 | 276.4 | 142.69 | 2.937 | | | |
| 14,400.0 | 7,858.1 | 7,940.7 | 7,939.6 | 128.6 | 16.9 | 91.71 | -6,140.5 | 734.3 | 500.4 | 355.8 | 144.58 | 3.461 | | | |
| 14,500.0 | 7,858.9 | 7,941.6 | 7,940.4 | 130.5 | 16.9 | 91.90 | -6,140.5 | 734.4 | 587.5 | 441.0 | 146.47 | 4.011 | | | |
| 14,600.0 | 7,859.7 | 7,942.4 | 7,941.3 | 132.4 | 16.9 | 92.09 | -6,140.5 | 734.4 | 678.1 | 529.8 | 148.36 | 4.571 | | | |
| 14,700.0 | 7,860.5 | 7,943.3 | 7,942.2 | 134.3 | 16.9 | 92.28 | -6,140.5 | 734.4 | 771.1 | 620.8 | 150.25 | 5.132 | | | |
| 14,757.2 | 7,861.0 | 7,943.8 | 7,942.7 | 135.4 | 16.9 | 92.38 | -6,140.5 | 734.4 | 825.0 | 673.7 | 151.33 | 5.452 | | | |

| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|---------|--------------------|--------|
| Survey Program: 5135-UNKNOWN | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Existings Sec.32-T1N-R67W - Degenhart 7 (P&A) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | | | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 165.24 | -4,251.6 | 1,120.2 | 4,397.0 | | | | | | |
| 100.0 | 100.0 | 43.0 | 43.0 | 0.1 | 0.9 | 165.24 | -4,251.6 | 1,120.2 | 4,396.7 | 4,395.7 | 0.97 | 4,520.615 | | | |
| 200.0 | 200.0 | 143.0 | 143.0 | 0.3 | 2.9 | 165.24 | -4,251.6 | 1,120.2 | 4,396.7 | 4,393.5 | 3.20 | 1,375.100 | | | |
| 300.0 | 300.0 | 243.0 | 243.0 | 0.6 | 4.9 | 165.24 | -4,251.6 | 1,120.2 | 4,396.7 | 4,391.2 | 5.42 | 810.878 | | | |
| 400.0 | 400.0 | 343.0 | 343.0 | 0.8 | 6.9 | 165.24 | -4,251.6 | 1,120.2 | 4,396.7 | 4,389.0 | 7.65 | 574.963 | | | |
| 500.0 | 500.0 | 443.0 | 443.0 | 1.0 | 8.9 | 165.24 | -4,251.6 | 1,120.2 | 4,396.7 | 4,386.8 | 9.87 | 445.384 | | | |
| 600.0 | 600.0 | 543.0 | 543.0 | 1.2 | 10.9 | 165.24 | -4,251.6 | 1,120.2 | 4,396.7 | 4,384.6 | 12.10 | 363.469 | | | |
| 700.0 | 700.0 | 643.0 | 643.0 | 1.5 | 12.9 | 165.24 | -4,251.6 | 1,120.2 | 4,396.7 | 4,382.3 | 14.32 | 307.005 | | | |
| 800.0 | 800.0 | 743.0 | 743.0 | 1.7 | 14.9 | 165.24 | -4,251.6 | 1,120.2 | 4,396.7 | 4,380.1 | 16.55 | 265.725 | | | |
| 900.0 | 900.0 | 843.0 | 843.0 | 1.9 | 16.9 | 165.24 | -4,251.6 | 1,120.2 | 4,396.7 | 4,377.9 | 18.77 | 234.231 | | | |
| 1,000.0 | 1,000.0 | 943.0 | 943.0 | 2.1 | 18.9 | 165.24 | -4,251.6 | 1,120.2 | 4,396.7 | 4,375.7 | 21.00 | 209.410 | | | |
| 1,100.0 | 1,100.0 | 1,043.0 | 1,043.0 | 2.4 | 20.9 | 89.40 | -4,251.6 | 1,120.2 | 4,396.6 | 4,373.4 | 23.21 | 189.428 | | | |
| 1,200.0 | 1,199.8 | 1,142.8 | 1,142.8 | 2.6 | 22.9 | 89.47 | -4,251.6 | 1,120.2 | 4,396.6 | 4,371.2 | 25.42 | 172.968 | | | |
| 1,300.0 | 1,299.5 | 1,242.5 | 1,242.5 | 2.8 | 24.8 | 89.59 | -4,251.6 | 1,120.2 | 4,396.5 | 4,368.9 | 27.63 | 159.095 | | | |
| 1,400.0 | 1,398.7 | 1,341.7 | 1,341.7 | 3.0 | 26.8 | 89.74 | -4,251.6 | 1,120.2 | 4,396.5 | 4,366.6 | 29.86 | 147.219 | | | |
| 1,500.0 | 1,497.5 | 1,440.5 | 1,440.5 | 3.3 | 28.8 | 89.95 | -4,251.6 | 1,120.2 | 4,396.4 | 4,364.3 | 32.11 | 136.909 | | | |
| 1,523.4 | 1,520.5 | 1,463.5 | 1,463.5 | 3.4 | 29.3 | 90.00 | -4,251.6 | 1,120.2 | 4,396.4 | 4,363.8 | 32.65 | 134.669 | | | |
| 1,600.0 | 1,595.6 | 1,538.6 | 1,538.6 | 3.6 | 30.8 | 90.19 | -4,251.6 | 1,120.2 | 4,396.4 | 4,362.0 | 34.39 | 127.849 | | | |
| 1,700.0 | 1,693.5 | 1,636.5 | 1,636.5 | 4.0 | 32.7 | 90.45 | -4,251.6 | 1,120.2 | 4,396.6 | 4,359.9 | 36.69 | 119.828 | | | |
| 1,800.0 | 1,791.3 | 1,734.3 | 1,734.3 | 4.3 | 34.7 | 90.72 | -4,251.6 | 1,120.2 | 4,396.8 | 4,357.8 | 39.01 | 112.698 | | | |
| 1,900.0 | 1,889.2 | 1,832.2 | 1,832.2 | 4.7 | 36.6 | 90.98 | -4,251.6 | 1,120.2 | 4,397.1 | 4,355.7 | 41.35 | 106.333 | | | |
| 2,000.0 | 1,987.1 | 1,930.1 | 1,930.1 | 5.1 | 38.6 | 91.24 | -4,251.6 | 1,120.2 | 4,397.5 | 4,353.8 | 43.70 | 100.624 | | | |
| 2,100.0 | 2,084.9 | 2,027.9 | 2,027.9 | 5.5 | 40.6 | 91.50 | -4,251.6 | 1,120.2 | 4,398.0 | 4,351.9 | 46.06 | 95.481 | | | |
| 2,200.0 | 2,182.8 | 2,125.8 | 2,125.8 | 5.9 | 42.5 | 91.76 | -4,251.6 | 1,120.2 | 4,398.6 | 4,350.2 | 48.43 | 90.827 | | | |
| 2,300.0 | 2,280.6 | 2,223.6 | 2,223.6 | 6.3 | 44.5 | 92.03 | -4,251.6 | 1,120.2 | 4,399.3 | 4,348.5 | 50.80 | 86.599 | | | |
| 2,400.0 | 2,378.5 | 2,321.5 | 2,321.5 | 6.7 | 46.4 | 92.29 | -4,251.6 | 1,120.2 | 4,400.1 | 4,346.9 | 53.18 | 82.742 | | | |
| 2,500.0 | 2,476.3 | 2,419.3 | 2,419.3 | 7.2 | 48.4 | 92.55 | -4,251.6 | 1,120.2 | 4,401.0 | 4,345.4 | 55.56 | 79.212 | | | |
| 2,600.0 | 2,574.2 | 2,517.2 | 2,517.2 | 7.6 | 50.3 | 92.81 | -4,251.6 | 1,120.2 | 4,401.9 | 4,344.0 | 57.94 | 75.970 | | | |
| 2,700.0 | 2,672.1 | 2,615.1 | 2,615.1 | 8.0 | 52.3 | 93.08 | -4,251.6 | 1,120.2 | 4,403.0 | 4,342.7 | 60.33 | 72.982 | | | |
| 2,800.0 | 2,769.9 | 2,712.9 | 2,712.9 | 8.5 | 54.3 | 93.34 | -4,251.6 | 1,120.2 | 4,404.2 | 4,341.5 | 62.72 | 70.221 | | | |
| 2,900.0 | 2,867.8 | 2,810.8 | 2,810.8 | 8.9 | 56.2 | 93.60 | -4,251.6 | 1,120.2 | 4,405.5 | 4,340.4 | 65.11 | 67.662 | | | |
| 3,000.0 | 2,965.6 | 2,908.6 | 2,908.6 | 9.3 | 58.2 | 93.86 | -4,251.6 | 1,120.2 | 4,406.8 | 4,339.3 | 67.50 | 65.284 | | | |
| 3,100.0 | 3,063.5 | 3,006.5 | 3,006.5 | 9.8 | 60.1 | 94.12 | -4,251.6 | 1,120.2 | 4,408.3 | 4,338.4 | 69.90 | 63.069 | | | |
| 3,200.0 | 3,161.4 | 3,104.4 | 3,104.4 | 10.2 | 62.1 | 94.38 | -4,251.6 | 1,120.2 | 4,409.9 | 4,337.6 | 72.29 | 61.002 | | | |
| 3,300.0 | 3,259.2 | 3,202.2 | 3,202.2 | 10.7 | 64.0 | 94.64 | -4,251.6 | 1,120.2 | 4,411.5 | 4,336.8 | 74.69 | 59.068 | | | |
| 3,400.0 | 3,357.1 | 3,300.1 | 3,300.1 | 11.1 | 66.0 | 94.90 | -4,251.6 | 1,120.2 | 4,413.3 | 4,336.2 | 77.08 | 57.254 | | | |
| 3,500.0 | 3,454.9 | 3,397.9 | 3,397.9 | 11.5 | 68.0 | 95.16 | -4,251.6 | 1,120.2 | 4,415.1 | 4,335.6 | 79.48 | 55.551 | | | |
| 3,600.0 | 3,552.8 | 3,495.8 | 3,495.8 | 12.0 | 69.9 | 95.42 | -4,251.6 | 1,120.2 | 4,417.1 | 4,335.2 | 81.88 | 53.949 | | | |
| 3,700.0 | 3,650.6 | 3,593.6 | 3,593.6 | 12.4 | 71.9 | 95.68 | -4,251.6 | 1,120.2 | 4,419.1 | 4,334.8 | 84.27 | 52.438 | | | |
| 3,800.0 | 3,748.5 | 3,691.5 | 3,691.5 | 12.9 | 73.8 | 95.94 | -4,251.6 | 1,120.2 | 4,421.2 | 4,334.6 | 86.67 | 51.012 | | | |
| 3,900.0 | 3,846.4 | 3,789.4 | 3,789.4 | 13.3 | 75.8 | 96.20 | -4,251.6 | 1,120.2 | 4,423.5 | 4,334.4 | 89.07 | 49.664 | | | |
| 4,000.0 | 3,944.2 | 3,887.2 | 3,887.2 | 13.8 | 77.7 | 96.46 | -4,251.6 | 1,120.2 | 4,425.8 | 4,334.3 | 91.46 | 48.388 | | | |
| 4,100.0 | 4,042.1 | 3,985.1 | 3,985.1 | 14.2 | 79.7 | 96.72 | -4,251.6 | 1,120.2 | 4,428.2 | 4,334.3 | 93.86 | 47.178 | | | |
| 4,200.0 | 4,139.9 | 4,082.9 | 4,082.9 | 14.7 | 81.7 | 96.98 | -4,251.6 | 1,120.2 | 4,430.7 | 4,334.4 | 96.26 | 46.029 | | | |
| 4,300.0 | 4,237.8 | 4,180.8 | 4,180.8 | 15.1 | 83.6 | 97.24 | -4,251.6 | 1,120.2 | 4,433.3 | 4,334.6 | 98.66 | 44.937 | | | |
| 4,400.0 | 4,335.7 | 4,278.7 | 4,278.7 | 15.6 | 85.6 | 97.50 | -4,251.6 | 1,120.2 | 4,436.0 | 4,334.9 | 101.05 | 43.898 | | | |
| 4,500.0 | 4,433.5 | 4,376.5 | 4,376.5 | 16.0 | 87.5 | 97.76 | -4,251.6 | 1,120.2 | 4,438.8 | 4,335.3 | 103.45 | 42.908 | | | |
| 4,600.0 | 4,531.4 | 4,474.4 | 4,474.4 | 16.4 | 89.5 | 98.01 | -4,251.6 | 1,120.2 | 4,441.7 | 4,335.8 | 105.85 | 41.963 | | | |
| 4,700.0 | 4,629.2 | 4,572.2 | 4,572.2 | 16.9 | 91.4 | 98.27 | -4,251.6 | 1,120.2 | 4,444.7 | 4,336.4 | 108.24 | 41.062 | | | |
| 4,800.0 | 4,727.1 | 4,670.1 | 4,670.1 | 17.3 | 93.4 | 98.53 | -4,251.6 | 1,120.2 | 4,447.7 | 4,337.1 | 110.64 | 40.201 | | | |
| 4,900.0 | 4,824.9 | 4,767.9 | 4,767.9 | 17.8 | 95.4 | 98.78 | -4,251.6 | 1,120.2 | 4,450.9 | 4,337.9 | 113.03 | 39.377 | | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|------------------------------|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|---------|--------------------|--------|
| Survey Program: 5135-UNKNOWN | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | | | | | | | | | | | | | | |
| Offset | | | | | | | | | | | | | | | |
| Semi Major Axis | | | | | | | | | | | | | | | |
| Distance | | | | | | | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning | | |
| 5,000.0 | 4,922.8 | 4,865.8 | 4,865.8 | 18.2 | 97.3 | 99.04 | -4,251.6 | 1,120.2 | 4,454.1 | 4,338.7 | 115.43 | 38.588 | | | |
| 5,100.0 | 5,020.7 | 4,963.7 | 4,963.7 | 18.7 | 99.3 | 99.30 | -4,251.6 | 1,120.2 | 4,457.5 | 4,339.7 | 117.82 | 37.833 | | | |
| 5,200.0 | 5,118.5 | 5,061.5 | 5,061.5 | 19.1 | 101.2 | 99.55 | -4,251.6 | 1,120.2 | 4,460.9 | 4,340.7 | 120.21 | 37.108 | | | |
| 5,300.0 | 5,216.4 | 5,135.0 | 5,135.0 | 19.6 | 102.7 | 99.74 | -4,251.6 | 1,120.2 | 4,464.5 | 4,342.4 | 122.12 | 36.558 | | | |
| 5,400.0 | 5,314.2 | 5,135.0 | 5,135.0 | 20.0 | 102.7 | 99.74 | -4,251.6 | 1,120.2 | 4,469.8 | 4,347.2 | 122.57 | 36.467 | | | |
| 5,500.0 | 5,412.1 | 5,135.0 | 5,135.0 | 20.5 | 102.7 | 99.74 | -4,251.6 | 1,120.2 | 4,477.2 | 4,354.2 | 123.02 | 36.395 | | | |
| 5,600.0 | 5,509.9 | 5,135.0 | 5,135.0 | 20.9 | 102.7 | 99.74 | -4,251.6 | 1,120.2 | 4,486.9 | 4,363.4 | 123.46 | 36.342 | | | |
| 5,700.0 | 5,607.8 | 5,135.0 | 5,135.0 | 21.4 | 102.7 | 99.74 | -4,251.6 | 1,120.2 | 4,498.8 | 4,374.9 | 123.91 | 36.307 | | | |
| 5,800.0 | 5,705.7 | 5,135.0 | 5,135.0 | 21.8 | 102.7 | 99.74 | -4,251.6 | 1,120.2 | 4,512.9 | 4,388.5 | 124.36 | 36.289 | | | |
| 5,900.0 | 5,803.5 | 5,135.0 | 5,135.0 | 22.3 | 102.7 | 99.74 | -4,251.6 | 1,120.2 | 4,529.1 | 4,404.3 | 124.81 | 36.289 SF | | | |
| 6,000.0 | 5,901.4 | 5,135.0 | 5,135.0 | 22.7 | 102.7 | 99.74 | -4,251.6 | 1,120.2 | 4,547.5 | 4,422.2 | 125.25 | 36.306 | | | |
| 6,100.0 | 5,999.5 | 5,135.0 | 5,135.0 | 23.1 | 102.7 | 100.12 | -4,251.6 | 1,120.2 | 4,567.7 | 4,442.1 | 125.64 | 36.356 | | | |
| 6,200.0 | 6,098.3 | 5,135.0 | 5,135.0 | 23.4 | 102.7 | 100.55 | -4,251.6 | 1,120.2 | 4,589.4 | 4,463.5 | 125.92 | 36.447 | | | |
| 6,300.0 | 6,197.5 | 5,135.0 | 5,135.0 | 23.7 | 102.7 | 101.02 | -4,251.6 | 1,120.2 | 4,612.6 | 4,486.5 | 126.16 | 36.562 | | | |
| 6,400.0 | 6,297.1 | 5,135.0 | 5,135.0 | 23.9 | 102.7 | 101.52 | -4,251.6 | 1,120.2 | 4,637.2 | 4,510.9 | 126.35 | 36.701 | | | |
| 6,500.0 | 6,397.0 | 5,135.0 | 5,135.0 | 24.0 | 102.7 | 102.05 | -4,251.6 | 1,120.2 | 4,663.1 | 4,536.6 | 126.50 | 36.863 | | | |
| 6,600.0 | 6,496.9 | 5,135.0 | 5,135.0 | 24.2 | 102.7 | 102.60 | -4,251.6 | 1,120.2 | 4,690.4 | 4,563.8 | 126.60 | 37.049 | | | |
| 6,700.0 | 6,596.9 | 5,135.0 | 5,135.0 | 24.3 | 102.7 | 178.48 | -4,251.6 | 1,120.2 | 4,719.2 | 4,592.4 | 126.72 | 37.241 | | | |
| 6,800.0 | 6,696.9 | 5,135.0 | 5,135.0 | 24.4 | 102.7 | 178.48 | -4,251.6 | 1,120.2 | 4,749.9 | 4,623.0 | 126.85 | 37.445 | | | |
| 6,900.0 | 6,796.9 | 5,135.0 | 5,135.0 | 24.5 | 102.7 | 178.48 | -4,251.6 | 1,120.2 | 4,782.5 | 4,655.5 | 126.98 | 37.663 | | | |
| 7,000.0 | 6,896.9 | 5,135.0 | 5,135.0 | 24.7 | 102.7 | 178.48 | -4,251.6 | 1,120.2 | 4,817.0 | 4,689.9 | 127.12 | 37.895 | | | |
| 7,100.0 | 6,996.9 | 5,135.0 | 5,135.0 | 24.8 | 102.7 | 178.48 | -4,251.6 | 1,120.2 | 4,853.3 | 4,726.0 | 127.25 | 38.140 | | | |
| 7,200.0 | 7,096.9 | 5,135.0 | 5,135.0 | 24.9 | 102.7 | -1.48 | -4,251.6 | 1,120.2 | 4,889.7 | 4,762.6 | 127.05 | 38.486 | | | |
| 7,300.0 | 7,195.9 | 5,135.0 | 5,135.0 | 25.0 | 102.7 | -1.43 | -4,251.6 | 1,120.2 | 4,916.9 | 4,792.0 | 124.92 | 39.361 | | | |
| 7,400.0 | 7,292.4 | 5,135.0 | 5,135.0 | 25.1 | 102.7 | -1.40 | -4,251.6 | 1,120.2 | 4,933.3 | 4,812.6 | 120.70 | 40.873 | | | |
| 7,500.0 | 7,384.6 | 5,135.0 | 5,135.0 | 25.1 | 102.7 | -1.39 | -4,251.6 | 1,120.2 | 4,938.7 | 4,824.2 | 114.47 | 43.143 | | | |
| 7,600.0 | 7,470.9 | 5,135.0 | 5,135.0 | 25.1 | 102.7 | -1.40 | -4,251.6 | 1,120.2 | 4,933.0 | 4,826.7 | 106.37 | 46.376 | | | |
| 7,700.0 | 7,550.0 | 5,135.0 | 5,135.0 | 25.1 | 102.7 | -1.43 | -4,251.6 | 1,120.2 | 4,916.4 | 4,819.8 | 96.55 | 50.919 | | | |
| 7,800.0 | 7,620.5 | 5,135.0 | 5,135.0 | 25.1 | 102.7 | -1.49 | -4,251.6 | 1,120.2 | 4,888.9 | 4,803.7 | 85.24 | 57.355 | | | |
| 7,900.0 | 7,681.0 | 5,135.0 | 5,135.0 | 25.2 | 102.7 | -1.57 | -4,251.6 | 1,120.2 | 4,850.9 | 4,778.3 | 72.69 | 66.734 | | | |
| 8,000.0 | 7,730.7 | 5,135.0 | 5,135.0 | 25.4 | 102.7 | -1.69 | -4,251.6 | 1,120.2 | 4,802.8 | 4,743.6 | 59.24 | 81.079 | | | |
| 8,100.0 | 7,768.6 | 5,135.0 | 5,135.0 | 25.6 | 102.7 | -1.85 | -4,251.6 | 1,120.2 | 4,745.1 | 4,699.9 | 45.29 | 104.762 | | | |
| 8,200.0 | 7,794.2 | 5,135.0 | 5,135.0 | 26.0 | 102.7 | -2.08 | -4,251.6 | 1,120.2 | 4,678.5 | 4,647.1 | 31.42 | 148.922 | | | |
| 8,300.0 | 7,806.9 | 5,135.0 | 5,135.0 | 26.5 | 102.7 | -2.41 | -4,251.6 | 1,120.2 | 4,603.7 | 4,585.0 | 18.77 | 245.305 | | | |
| 8,400.0 | 7,808.9 | 5,135.0 | 5,135.0 | 27.1 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 4,523.0 | 4,506.8 | 16.16 | 279.840 | | | |
| 8,500.0 | 7,809.7 | 5,135.0 | 5,135.0 | 27.9 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 4,442.3 | 4,425.7 | 16.60 | 267.539 | | | |
| 8,600.0 | 7,810.5 | 5,135.0 | 5,135.0 | 28.7 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 4,362.5 | 4,345.4 | 17.07 | 255.498 | | | |
| 8,700.0 | 7,811.3 | 5,135.0 | 5,135.0 | 29.7 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 4,283.5 | 4,265.9 | 17.57 | 243.800 | | | |
| 8,800.0 | 7,812.1 | 5,135.0 | 5,135.0 | 30.9 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 4,205.3 | 4,187.2 | 18.09 | 232.504 | | | |
| 8,900.0 | 7,813.0 | 5,135.0 | 5,135.0 | 32.0 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 4,128.2 | 4,109.5 | 18.62 | 221.651 | | | |
| 9,000.0 | 7,813.8 | 5,135.0 | 5,135.0 | 33.3 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 4,052.0 | 4,032.8 | 19.18 | 211.263 | | | |
| 9,100.0 | 7,814.6 | 5,135.0 | 5,135.0 | 34.6 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,976.9 | 3,957.1 | 19.75 | 201.353 | | | |
| 9,200.0 | 7,815.4 | 5,135.0 | 5,135.0 | 36.0 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,902.9 | 3,882.5 | 20.34 | 191.923 | | | |
| 9,300.0 | 7,816.2 | 5,135.0 | 5,135.0 | 37.5 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,830.1 | 3,809.1 | 20.93 | 182.967 | | | |
| 9,400.0 | 7,817.1 | 5,135.0 | 5,135.0 | 38.9 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,758.5 | 3,736.9 | 21.54 | 174.476 | | | |
| 9,500.0 | 7,817.9 | 5,135.0 | 5,135.0 | 40.4 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,688.2 | 3,666.1 | 22.16 | 166.436 | | | |
| 9,600.0 | 7,818.7 | 5,135.0 | 5,135.0 | 42.0 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,619.4 | 3,596.6 | 22.79 | 158.831 | | | |
| 9,700.0 | 7,819.5 | 5,135.0 | 5,135.0 | 43.6 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,552.0 | 3,528.6 | 23.42 | 151.646 | | | |
| 9,800.0 | 7,820.3 | 5,135.0 | 5,135.0 | 45.2 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,486.2 | 3,462.2 | 24.07 | 144.861 | | | |
| 9,900.0 | 7,821.2 | 5,135.0 | 5,135.0 | 46.8 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,422.1 | 3,397.4 | 24.72 | 138.460 | | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|------------------------------|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|---------|--------------------|--------|
| Survey Program: 5135-UNKNOWN | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | | | | | | | | | | | | | | |
| Offset | | | | | | | | | | | | | | | |
| Semi Major Axis | | | | | | | | | | | | | | | |
| Distance | | | | | | | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning | | |
| 10,000.0 | 7,822.0 | 5,135.0 | 5,135.0 | 48.5 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,359.7 | 3,334.3 | 25.37 | 132.424 | | | |
| 10,100.0 | 7,822.8 | 5,135.0 | 5,135.0 | 50.1 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,299.2 | 3,273.1 | 26.03 | 126.737 | | | |
| 10,200.0 | 7,823.6 | 5,135.0 | 5,135.0 | 51.8 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,240.6 | 3,213.9 | 26.70 | 121.383 | | | |
| 10,300.0 | 7,824.4 | 5,135.0 | 5,135.0 | 53.5 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,184.1 | 3,156.7 | 27.37 | 116.346 | | | |
| 10,400.0 | 7,825.3 | 5,135.0 | 5,135.0 | 55.3 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,129.7 | 3,101.7 | 28.04 | 111.610 | | | |
| 10,500.0 | 7,826.1 | 5,135.0 | 5,135.0 | 57.0 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,077.7 | 3,048.9 | 28.72 | 107.163 | | | |
| 10,600.0 | 7,826.9 | 5,135.0 | 5,135.0 | 58.7 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,028.0 | 2,998.6 | 29.40 | 102.991 | | | |
| 10,700.0 | 7,827.7 | 5,135.0 | 5,135.0 | 60.5 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,980.9 | 2,950.8 | 30.09 | 99.081 | | | |
| 10,800.0 | 7,828.5 | 5,135.0 | 5,135.0 | 62.2 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,936.4 | 2,905.7 | 30.77 | 95.423 | | | |
| 10,900.0 | 7,829.4 | 5,135.0 | 5,135.0 | 64.0 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,894.7 | 2,863.3 | 31.46 | 92.005 | | | |
| 11,000.0 | 7,830.2 | 5,135.0 | 5,135.0 | 65.8 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,855.9 | 2,823.8 | 32.16 | 88.816 | | | |
| 11,100.0 | 7,831.0 | 5,135.0 | 5,135.0 | 67.6 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,820.2 | 2,787.3 | 32.85 | 85.848 | | | |
| 11,200.0 | 7,831.8 | 5,135.0 | 5,135.0 | 69.4 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,787.5 | 2,754.0 | 33.55 | 83.091 | | | |
| 11,300.0 | 7,832.6 | 5,135.0 | 5,135.0 | 71.2 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,758.1 | 2,723.8 | 34.25 | 80.536 | | | |
| 11,400.0 | 7,833.5 | 5,135.0 | 5,135.0 | 73.0 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,732.0 | 2,697.1 | 34.95 | 78.175 | | | |
| 11,500.0 | 7,834.3 | 5,135.0 | 5,135.0 | 74.8 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,709.4 | 2,673.8 | 35.65 | 76.000 | | | |
| 11,600.0 | 7,835.1 | 5,135.0 | 5,135.0 | 76.6 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,690.3 | 2,654.0 | 36.35 | 74.002 | | | |
| 11,700.0 | 7,835.9 | 5,135.0 | 5,135.0 | 78.4 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,674.8 | 2,637.8 | 37.06 | 72.175 | | | |
| 11,800.0 | 7,836.7 | 5,135.0 | 5,135.0 | 80.3 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,663.0 | 2,625.2 | 37.77 | 70.510 | | | |
| 11,900.0 | 7,837.6 | 5,135.0 | 5,135.0 | 82.1 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,654.9 | 2,616.4 | 38.48 | 69.001 | | | |
| 12,000.0 | 7,838.4 | 5,135.0 | 5,135.0 | 83.9 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,650.5 | 2,611.3 | 39.19 | 67.641 | | | |
| 12,065.6 | 7,838.9 | 5,135.0 | 5,135.0 | 85.1 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,649.7 | 2,610.1 | 39.65 | 66.825 CC | | | |
| 12,100.0 | 7,839.2 | 5,135.0 | 5,135.0 | 85.8 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,649.9 | 2,610.0 | 39.90 | 66.421 ES | | | |
| 12,200.0 | 7,840.0 | 5,135.0 | 5,135.0 | 87.6 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,653.1 | 2,612.5 | 40.61 | 65.335 | | | |
| 12,300.0 | 7,840.8 | 5,135.0 | 5,135.0 | 89.4 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,660.1 | 2,618.8 | 41.32 | 64.375 | | | |
| 12,400.0 | 7,841.7 | 5,135.0 | 5,135.0 | 91.3 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,670.7 | 2,628.7 | 42.04 | 63.536 | | | |
| 12,500.0 | 7,842.5 | 5,135.0 | 5,135.0 | 93.1 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,685.1 | 2,642.3 | 42.75 | 62.809 | | | |
| 12,600.0 | 7,843.3 | 5,135.0 | 5,135.0 | 95.0 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,703.1 | 2,659.6 | 43.47 | 62.189 | | | |
| 12,700.0 | 7,844.1 | 5,135.0 | 5,135.0 | 96.8 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,724.6 | 2,680.4 | 44.18 | 61.668 | | | |
| 12,800.0 | 7,844.9 | 5,135.0 | 5,135.0 | 98.7 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,749.6 | 2,704.7 | 44.90 | 61.239 | | | |
| 12,900.0 | 7,845.8 | 5,135.0 | 5,135.0 | 100.6 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,778.0 | 2,732.4 | 45.62 | 60.898 | | | |
| 13,000.0 | 7,846.6 | 5,135.0 | 5,135.0 | 102.4 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,809.7 | 2,763.3 | 46.34 | 60.636 | | | |
| 13,100.0 | 7,847.4 | 5,135.0 | 5,135.0 | 104.3 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,844.5 | 2,797.4 | 47.06 | 60.449 | | | |
| 13,200.0 | 7,848.2 | 5,135.0 | 5,135.0 | 106.1 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,882.4 | 2,834.6 | 47.78 | 60.331 | | | |
| 13,300.0 | 7,849.0 | 5,135.0 | 5,135.0 | 108.0 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,923.2 | 2,874.7 | 48.50 | 60.276 | | | |
| 13,400.0 | 7,849.9 | 5,135.0 | 5,135.0 | 109.9 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 2,966.8 | 2,917.6 | 49.22 | 60.279 | | | |
| 13,500.0 | 7,850.7 | 5,135.0 | 5,135.0 | 111.7 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,013.1 | 2,963.1 | 49.94 | 60.335 | | | |
| 13,600.0 | 7,851.5 | 5,135.0 | 5,135.0 | 113.6 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,062.0 | 3,011.3 | 50.66 | 60.439 | | | |
| 13,700.0 | 7,852.3 | 5,135.0 | 5,135.0 | 115.5 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,113.3 | 3,061.9 | 51.38 | 60.588 | | | |
| 13,800.0 | 7,853.1 | 5,135.0 | 5,135.0 | 117.4 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,166.9 | 3,114.8 | 52.11 | 60.777 | | | |
| 13,900.0 | 7,854.0 | 5,135.0 | 5,135.0 | 119.2 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,222.8 | 3,169.9 | 52.83 | 61.001 | | | |
| 14,000.0 | 7,854.8 | 5,135.0 | 5,135.0 | 121.1 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,280.7 | 3,227.2 | 53.56 | 61.259 | | | |
| 14,100.0 | 7,855.6 | 5,135.0 | 5,135.0 | 123.0 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,340.7 | 3,286.4 | 54.28 | 61.545 | | | |
| 14,200.0 | 7,856.4 | 5,135.0 | 5,135.0 | 124.9 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,402.5 | 3,347.5 | 55.00 | 61.858 | | | |
| 14,300.0 | 7,857.2 | 5,135.0 | 5,135.0 | 126.7 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,466.1 | 3,410.4 | 55.73 | 62.195 | | | |
| 14,400.0 | 7,858.1 | 5,135.0 | 5,135.0 | 128.6 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,531.4 | 3,474.9 | 56.46 | 62.552 | | | |
| 14,500.0 | 7,858.9 | 5,135.0 | 5,135.0 | 130.5 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,598.3 | 3,541.1 | 57.18 | 62.927 | | | |
| 14,600.0 | 7,859.7 | 5,135.0 | 5,135.0 | 132.4 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,666.7 | 3,608.8 | 57.91 | 63.319 | | | |
| 14,700.0 | 7,860.5 | 5,135.0 | 5,135.0 | 134.3 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,736.5 | 3,677.9 | 58.63 | 63.725 | | | |
| 14,757.2 | 7,861.0 | 5,135.0 | 5,135.0 | 135.4 | 102.7 | -2.59 | -4,251.6 | 1,120.2 | 3,777.0 | 3,718.0 | 59.05 | 63.964 | | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|------------------------|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|--------|
| Survey Program: 15-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 | |
| 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 26.03 | 539.1 | 263.3 | 600.0 | | | | | |
| 100.0 | 100.0 | 104.4 | 104.4 | 0.1 | 0.2 | 26.02 | 539.0 | 263.2 | 599.8 | 599.5 | 0.33 | 1,814.885 | | |
| 200.0 | 200.0 | 205.8 | 205.8 | 0.3 | 0.4 | 26.00 | 538.6 | 262.7 | 599.3 | 598.5 | 0.77 | 773.761 | | |
| 300.0 | 300.0 | 306.7 | 306.7 | 0.6 | 0.6 | 26.02 | 537.9 | 262.6 | 598.6 | 597.4 | 1.21 | 494.495 | | |
| 400.0 | 400.0 | 405.1 | 405.1 | 0.8 | 0.9 | 26.05 | 537.1 | 262.5 | 597.8 | 596.2 | 1.64 | 364.814 | | |
| 486.6 | 486.6 | 488.6 | 488.6 | 1.0 | 1.0 | 26.06 | 536.8 | 262.6 | 597.6 | 595.6 | 2.00 | 298.592 | | |
| 500.0 | 500.0 | 501.5 | 501.5 | 1.0 | 1.0 | 26.06 | 536.9 | 262.5 | 597.6 | 595.5 | 2.06 | 290.465 | | |
| 600.0 | 600.0 | 602.9 | 602.9 | 1.2 | 1.3 | 26.05 | 536.9 | 262.5 | 597.7 | 595.2 | 2.49 | 239.957 | | |
| 700.0 | 700.0 | 704.3 | 704.3 | 1.5 | 1.5 | 26.19 | 536.1 | 263.6 | 597.4 | 594.5 | 2.93 | 203.836 | | |
| 800.0 | 800.0 | 806.3 | 806.3 | 1.7 | 1.7 | 26.36 | 534.7 | 265.0 | 596.8 | 593.4 | 3.38 | 176.807 | | |
| 900.0 | 900.0 | 906.3 | 906.3 | 1.9 | 1.9 | 26.52 | 533.4 | 266.1 | 596.1 | 592.3 | 3.81 | 156.484 | | |
| 1,000.0 | 1,000.0 | 1,005.6 | 1,005.6 | 2.1 | 2.1 | 26.54 | 532.7 | 266.0 | 595.4 | 591.2 | 4.24 | 140.507 | | |
| 1,100.0 | 1,100.0 | 1,103.8 | 1,103.7 | 2.4 | 2.3 | -49.49 | 532.3 | 265.6 | 593.8 | 589.1 | 4.65 | 127.598 | | |
| 1,200.0 | 1,199.8 | 1,201.4 | 1,201.3 | 2.6 | 2.5 | -49.98 | 532.5 | 265.1 | 590.3 | 585.2 | 5.06 | 116.585 | | |
| 1,300.0 | 1,299.5 | 1,299.3 | 1,299.3 | 2.8 | 2.7 | -50.80 | 533.1 | 264.2 | 585.0 | 579.5 | 5.49 | 106.640 | | |
| 1,400.0 | 1,398.7 | 1,399.9 | 1,399.9 | 3.0 | 2.9 | -51.99 | 533.9 | 263.2 | 577.6 | 571.7 | 5.93 | 97.452 | | |
| 1,500.0 | 1,497.5 | 1,501.1 | 1,501.1 | 3.3 | 3.1 | -53.56 | 534.5 | 261.9 | 568.0 | 561.7 | 6.39 | 88.842 | | |
| 1,600.0 | 1,595.6 | 1,603.5 | 1,603.4 | 3.6 | 3.4 | -55.52 | 534.3 | 260.2 | 556.1 | 549.2 | 6.90 | 80.608 | | |
| 1,700.0 | 1,693.5 | 1,699.8 | 1,699.6 | 4.0 | 3.6 | -57.42 | 534.0 | 258.4 | 543.6 | 536.1 | 7.43 | 73.192 | | |
| 1,800.0 | 1,791.3 | 1,795.3 | 1,795.2 | 4.3 | 3.8 | -59.25 | 533.6 | 257.9 | 532.0 | 524.1 | 7.97 | 66.739 | | |
| 1,900.0 | 1,889.2 | 1,891.9 | 1,891.8 | 4.7 | 4.0 | -61.17 | 533.5 | 257.6 | 521.4 | 512.9 | 8.54 | 61.047 | | |
| 2,000.0 | 1,987.1 | 1,988.9 | 1,988.8 | 5.1 | 4.2 | -63.19 | 533.6 | 257.1 | 511.6 | 502.5 | 9.13 | 56.014 | | |
| 2,100.0 | 2,084.9 | 2,087.1 | 2,087.0 | 5.5 | 4.4 | -65.33 | 533.8 | 256.5 | 502.6 | 492.8 | 9.74 | 51.586 | | |
| 2,200.0 | 2,182.8 | 2,184.6 | 2,184.5 | 5.9 | 4.6 | -67.51 | 533.8 | 256.0 | 494.2 | 483.8 | 10.36 | 47.699 | | |
| 2,300.0 | 2,280.6 | 2,282.4 | 2,282.3 | 6.3 | 4.8 | -69.77 | 534.0 | 255.4 | 486.6 | 475.6 | 10.99 | 44.260 | | |
| 2,400.0 | 2,378.5 | 2,380.5 | 2,380.3 | 6.7 | 5.0 | -72.13 | 534.1 | 254.7 | 479.8 | 468.2 | 11.64 | 41.230 | | |
| 2,500.0 | 2,476.3 | 2,478.8 | 2,478.7 | 7.2 | 5.2 | -74.50 | 534.1 | 254.3 | 473.8 | 461.5 | 12.28 | 38.570 | | |
| 2,600.0 | 2,574.2 | 2,578.1 | 2,577.9 | 7.6 | 5.4 | -76.89 | 534.0 | 254.5 | 468.4 | 455.5 | 12.93 | 36.217 | | |
| 2,700.0 | 2,672.1 | 2,680.2 | 2,680.1 | 8.0 | 5.6 | -79.34 | 533.1 | 255.3 | 463.2 | 449.7 | 13.60 | 34.074 | | |
| 2,800.0 | 2,769.9 | 2,776.5 | 2,776.3 | 8.5 | 5.8 | -81.65 | 532.1 | 256.3 | 458.6 | 444.3 | 14.25 | 32.190 | | |
| 2,900.0 | 2,867.8 | 2,872.4 | 2,872.2 | 8.9 | 6.0 | -83.99 | 531.5 | 257.4 | 455.2 | 440.3 | 14.89 | 30.560 | | |
| 3,000.0 | 2,965.6 | 2,968.5 | 2,968.4 | 9.3 | 6.2 | -86.36 | 531.3 | 258.4 | 453.0 | 437.5 | 15.54 | 29.149 | | |
| 3,100.0 | 3,063.5 | 3,063.6 | 3,063.5 | 9.8 | 6.4 | -88.69 | 531.7 | 259.5 | 452.3 | 436.1 | 16.18 | 27.948 | | |
| 3,101.5 | 3,065.0 | 3,065.1 | 3,064.9 | 9.8 | 6.4 | -88.72 | 531.7 | 259.6 | 452.3 | 436.1 | 16.19 | 27.931 | | |
| 3,200.0 | 3,161.4 | 3,159.7 | 3,159.6 | 10.2 | 6.6 | -91.00 | 532.7 | 260.9 | 452.9 | 436.1 | 16.82 | 26.927 | | |
| 3,300.0 | 3,259.2 | 3,256.1 | 3,255.9 | 10.7 | 6.8 | -93.32 | 534.0 | 262.1 | 454.7 | 437.3 | 17.45 | 26.058 | | |
| 3,400.0 | 3,357.1 | 3,353.0 | 3,352.8 | 11.1 | 7.0 | -95.65 | 535.7 | 262.9 | 457.7 | 439.7 | 18.07 | 25.328 | | |
| 3,500.0 | 3,454.9 | 3,452.8 | 3,452.6 | 11.5 | 7.2 | -98.09 | 537.2 | 263.3 | 461.5 | 442.8 | 18.68 | 24.701 | | |
| 3,600.0 | 3,552.8 | 3,555.7 | 3,555.5 | 12.0 | 7.4 | -100.72 | 537.4 | 262.7 | 465.4 | 446.1 | 19.28 | 24.139 | | |
| 3,700.0 | 3,650.6 | 3,674.9 | 3,674.7 | 12.4 | 7.7 | -103.54 | 535.7 | 264.8 | 467.8 | 447.9 | 19.89 | 23.524 | | |
| 3,800.0 | 3,748.5 | 3,791.7 | 3,791.1 | 12.9 | 7.9 | -106.11 | 529.9 | 270.6 | 466.3 | 445.8 | 20.48 | 22.773 | | |
| 3,900.0 | 3,846.4 | 3,901.2 | 3,900.0 | 13.3 | 8.2 | -108.49 | 521.5 | 278.4 | 462.1 | 441.0 | 21.04 | 21.962 | | |
| 4,000.0 | 3,944.2 | 4,003.7 | 4,001.8 | 13.8 | 8.4 | -110.88 | 511.9 | 285.7 | 457.2 | 435.6 | 21.57 | 21.193 | | |
| 4,100.0 | 4,042.1 | 4,103.3 | 4,100.6 | 14.2 | 8.6 | -113.29 | 501.9 | 292.8 | 452.4 | 430.3 | 22.08 | 20.491 | | |
| 4,200.0 | 4,139.9 | 4,203.0 | 4,199.5 | 14.7 | 8.9 | -115.71 | 491.8 | 300.4 | 448.2 | 425.6 | 22.57 | 19.860 | | |
| 4,300.0 | 4,237.8 | 4,298.2 | 4,294.0 | 15.1 | 9.1 | -117.99 | 482.6 | 307.9 | 444.9 | 421.9 | 23.03 | 19.314 | | |
| 4,400.0 | 4,335.7 | 4,397.0 | 4,392.1 | 15.6 | 9.3 | -120.34 | 473.6 | 315.9 | 442.8 | 419.3 | 23.49 | 18.851 | | |
| 4,500.0 | 4,433.5 | 4,502.9 | 4,497.0 | 16.0 | 9.6 | -122.97 | 462.5 | 324.7 | 440.2 | 416.3 | 23.92 | 18.408 | | |
| 4,600.0 | 4,531.4 | 4,600.7 | 4,593.8 | 16.4 | 9.8 | -125.42 | 451.8 | 333.5 | 437.6 | 413.3 | 24.32 | 17.997 | | |
| 4,700.0 | 4,629.2 | 4,695.4 | 4,687.6 | 16.9 | 10.1 | -127.73 | 442.2 | 342.0 | 436.6 | 411.9 | 24.71 | 17.671 | | |
| 4,726.9 | 4,655.5 | 4,721.2 | 4,713.2 | 17.0 | 10.1 | -128.33 | 439.9 | 344.3 | 436.6 | 411.7 | 24.81 | 17.595 CC | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|---------|--------------------|--------|
| Survey Program: 15-MWD | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | | | | | | | | | | | | | | |
| Existing Sec.32-T1N-R67W - Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | | | |
| 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 | | |
| 4,800.0 | 4,727.1 | 4,793.0 | 4,784.5 | 17.3 | 10.3 | -129.91 | 434.0 | 351.3 | 436.8 | 411.7 | 25.10 | 17.404 | ES | | |
| 4,900.0 | 4,824.9 | 4,893.5 | 4,884.2 | 17.8 | 10.6 | -132.01 | 426.3 | 361.6 | 437.5 | 412.0 | 25.48 | 17.167 | | | |
| 5,000.0 | 4,922.8 | 4,992.5 | 4,982.3 | 18.2 | 10.8 | -134.09 | 418.4 | 372.0 | 438.4 | 412.5 | 25.85 | 16.955 | | | |
| 5,100.0 | 5,020.7 | 5,090.0 | 5,078.9 | 18.7 | 11.1 | -136.27 | 409.7 | 381.6 | 440.0 | 413.8 | 26.20 | 16.796 | | | |
| 5,200.0 | 5,118.5 | 5,183.0 | 5,171.2 | 19.1 | 11.3 | -138.40 | 401.4 | 389.7 | 443.2 | 416.7 | 26.53 | 16.708 | SF | | |
| 5,300.0 | 5,216.4 | 5,273.0 | 5,260.7 | 19.6 | 11.5 | -140.36 | 394.5 | 396.4 | 448.8 | 421.9 | 26.86 | 16.710 | | | |
| 5,400.0 | 5,314.2 | 5,363.0 | 5,350.3 | 20.0 | 11.8 | -142.23 | 388.8 | 401.4 | 457.2 | 430.1 | 27.19 | 16.819 | | | |
| 5,500.0 | 5,412.1 | 5,441.2 | 5,428.4 | 20.5 | 11.9 | -143.73 | 385.2 | 403.8 | 469.1 | 441.6 | 27.52 | 17.044 | | | |
| 5,600.0 | 5,509.9 | 5,531.6 | 5,518.7 | 20.9 | 12.1 | -145.22 | 383.1 | 405.0 | 483.8 | 456.0 | 27.87 | 17.360 | | | |
| 5,700.0 | 5,607.8 | 5,623.2 | 5,610.4 | 21.4 | 12.3 | -146.51 | 382.6 | 405.6 | 500.2 | 472.0 | 28.24 | 17.717 | | | |
| 5,800.0 | 5,705.7 | 5,720.7 | 5,707.8 | 21.8 | 12.5 | -147.77 | 382.4 | 405.5 | 517.6 | 489.0 | 28.61 | 18.094 | | | |
| 5,900.0 | 5,803.5 | 5,819.6 | 5,806.8 | 22.3 | 12.7 | -149.01 | 381.9 | 405.5 | 535.2 | 506.2 | 28.98 | 18.467 | | | |
| 6,000.0 | 5,901.4 | 5,918.7 | 5,905.8 | 22.7 | 12.9 | -150.16 | 381.4 | 405.7 | 552.6 | 523.3 | 29.36 | 18.824 | | | |
| 6,100.0 | 5,999.5 | 6,015.3 | 6,002.4 | 23.1 | 13.1 | -151.28 | 381.0 | 405.9 | 569.1 | 539.4 | 29.75 | 19.133 | | | |
| 6,200.0 | 6,098.3 | 6,112.9 | 6,100.0 | 23.4 | 13.3 | -152.15 | 380.9 | 406.0 | 583.0 | 552.9 | 30.11 | 19.364 | | | |
| 6,300.0 | 6,197.5 | 6,211.3 | 6,198.5 | 23.7 | 13.5 | -152.79 | 381.0 | 405.9 | 594.0 | 563.6 | 30.46 | 19.503 | | | |
| 6,400.0 | 6,297.1 | 6,310.7 | 6,297.9 | 23.9 | 13.7 | -153.23 | 381.3 | 405.7 | 602.1 | 571.3 | 30.80 | 19.551 | | | |
| 6,500.0 | 6,397.0 | 6,411.9 | 6,399.1 | 24.0 | 13.9 | -153.47 | 381.6 | 405.7 | 607.0 | 575.9 | 31.12 | 19.505 | | | |
| 6,600.0 | 6,496.9 | 6,511.7 | 6,498.8 | 24.2 | 14.1 | -153.52 | 382.1 | 405.8 | 608.6 | 577.2 | 31.42 | 19.367 | | | |
| 6,700.0 | 6,596.9 | 6,612.6 | 6,599.8 | 24.3 | 14.3 | -77.58 | 382.9 | 406.0 | 608.6 | 576.8 | 31.80 | 19.140 | | | |
| 6,800.0 | 6,696.9 | 6,714.8 | 6,701.9 | 24.4 | 14.5 | -77.45 | 384.2 | 406.6 | 608.3 | 576.1 | 32.19 | 18.897 | | | |
| 6,900.0 | 6,796.9 | 6,815.3 | 6,802.4 | 24.5 | 14.7 | -77.35 | 385.1 | 407.4 | 607.7 | 575.2 | 32.57 | 18.657 | | | |
| 7,000.0 | 6,896.9 | 6,916.7 | 6,903.9 | 24.7 | 14.9 | -77.29 | 385.6 | 408.2 | 607.1 | 574.1 | 32.96 | 18.420 | | | |
| 7,100.0 | 6,996.9 | 7,017.8 | 7,004.9 | 24.8 | 15.1 | -77.25 | 385.8 | 409.2 | 606.1 | 572.8 | 33.34 | 18.181 | | | |
| 7,187.1 | 7,084.0 | 7,105.3 | 7,092.5 | 24.9 | 15.3 | 103.01 | 385.7 | 410.1 | 605.8 | 572.1 | 33.70 | 17.977 | | | |
| 7,200.0 | 7,096.9 | 7,118.6 | 7,105.7 | 24.9 | 15.3 | 102.94 | 385.6 | 410.2 | 605.5 | 571.8 | 33.74 | 17.946 | | | |
| 7,300.0 | 7,195.9 | 7,220.0 | 7,207.2 | 25.0 | 15.5 | 104.04 | 385.2 | 411.5 | 607.3 | 573.2 | 34.15 | 17.783 | | | |
| 7,400.0 | 7,292.4 | 7,312.7 | 7,299.8 | 25.1 | 15.7 | 105.87 | 385.4 | 412.8 | 613.0 | 578.6 | 34.47 | 17.783 | | | |
| 7,500.0 | 7,384.6 | 7,400.9 | 7,388.0 | 25.1 | 15.9 | 108.20 | 386.8 | 413.7 | 624.7 | 590.0 | 34.66 | 18.023 | | | |
| 7,600.0 | 7,470.9 | 7,484.5 | 7,471.5 | 25.1 | 16.1 | 110.67 | 389.1 | 414.7 | 643.8 | 609.1 | 34.66 | 18.575 | | | |
| 7,700.0 | 7,550.0 | 7,570.5 | 7,557.5 | 25.1 | 16.3 | 113.34 | 392.0 | 416.3 | 671.5 | 637.0 | 34.48 | 19.473 | | | |
| 7,800.0 | 7,620.5 | 7,651.2 | 7,638.1 | 25.1 | 16.4 | 115.55 | 394.7 | 419.4 | 708.3 | 674.1 | 34.15 | 20.738 | | | |
| 7,900.0 | 7,681.0 | 7,728.3 | 7,714.9 | 25.2 | 16.6 | 117.18 | 397.2 | 424.5 | 754.8 | 720.9 | 33.83 | 22.313 | | | |
| 8,000.0 | 7,730.7 | 7,784.3 | 7,770.7 | 25.4 | 16.7 | 116.69 | 399.1 | 429.7 | 811.2 | 777.4 | 33.81 | 23.992 | | | |
| 8,100.0 | 7,768.6 | 7,817.8 | 7,804.0 | 25.6 | 16.8 | 113.32 | 400.2 | 433.1 | 877.7 | 843.2 | 34.49 | 25.450 | | | |
| 8,200.0 | 7,794.2 | 7,838.8 | 7,824.9 | 26.0 | 16.8 | 107.23 | 401.0 | 435.2 | 952.6 | 916.8 | 35.82 | 26.591 | | | |
| 8,300.0 | 7,806.9 | 7,847.4 | 7,833.4 | 26.5 | 16.9 | 97.90 | 401.3 | 436.1 | 1,033.7 | 996.5 | 37.27 | 27.739 | | | |
| 8,400.0 | 7,808.9 | 7,845.7 | 7,831.7 | 27.1 | 16.9 | 92.92 | 401.2 | 435.9 | 1,118.7 | 1,080.5 | 38.19 | 29.290 | | | |
| 8,500.0 | 7,809.7 | 7,842.9 | 7,829.0 | 27.9 | 16.9 | 92.64 | 401.1 | 435.6 | 1,206.1 | 1,166.8 | 39.26 | 30.721 | | | |
| 8,600.0 | 7,810.5 | 7,840.2 | 7,826.3 | 28.7 | 16.8 | 92.37 | 401.0 | 435.3 | 1,295.3 | 1,254.8 | 40.43 | 32.038 | | | |
| 8,700.0 | 7,811.3 | 7,837.5 | 7,823.6 | 29.7 | 16.8 | 92.10 | 400.9 | 435.1 | 1,385.9 | 1,344.2 | 41.69 | 33.245 | | | |
| 8,800.0 | 7,812.1 | 7,834.9 | 7,821.0 | 30.9 | 16.8 | 91.83 | 400.8 | 434.8 | 1,477.8 | 1,434.7 | 43.02 | 34.347 | | | |
| 8,900.0 | 7,813.0 | 7,832.3 | 7,818.4 | 32.0 | 16.8 | 91.56 | 400.7 | 434.5 | 1,570.6 | 1,526.2 | 44.43 | 35.354 | | | |
| 9,000.0 | 7,813.8 | 7,829.7 | 7,815.8 | 33.3 | 16.8 | 91.30 | 400.6 | 434.3 | 1,664.3 | 1,618.4 | 45.88 | 36.272 | | | |
| 9,100.0 | 7,814.6 | 7,827.1 | 7,813.3 | 34.6 | 16.8 | 91.05 | 400.5 | 434.0 | 1,758.6 | 1,711.3 | 47.39 | 37.110 | | | |
| 9,200.0 | 7,815.4 | 7,824.6 | 7,810.8 | 36.0 | 16.8 | 90.79 | 400.5 | 433.8 | 1,853.6 | 1,804.7 | 48.94 | 37.877 | | | |
| 9,300.0 | 7,816.2 | 7,822.1 | 7,808.3 | 37.5 | 16.8 | 90.54 | 400.4 | 433.5 | 1,949.0 | 1,898.5 | 50.52 | 38.580 | | | |
| 9,400.0 | 7,817.1 | 7,819.7 | 7,805.9 | 38.9 | 16.8 | 90.30 | 400.3 | 433.3 | 2,044.9 | 1,992.8 | 52.13 | 39.225 | | | |
| 9,500.0 | 7,817.9 | 7,817.2 | 7,803.4 | 40.4 | 16.8 | 90.05 | 400.2 | 433.0 | 2,141.2 | 2,087.4 | 53.77 | 39.819 | | | |
| 9,600.0 | 7,818.7 | 7,814.8 | 7,801.1 | 42.0 | 16.8 | 89.81 | 400.1 | 432.8 | 2,237.8 | 2,182.3 | 55.44 | 40.366 | | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|---------|--------------------|--------|
| Survey Program: 15-MWD | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | | | | | | | | | | | | | | |
| Existing Sec.32-T1N-R67W - Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | | | |
| Semi Major Axis | | | | | | | | | | | | | | | |
| Distance | | | | | | | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning | | |
| 9,700.0 | 7,819.5 | 7,812.5 | 7,798.7 | 43.6 | 16.8 | 89.57 | 400.0 | 432.5 | 2,334.6 | 2,277.5 | 57.12 | 40.872 | | | |
| 9,800.0 | 7,820.3 | 7,810.1 | 7,796.4 | 45.2 | 16.8 | 89.34 | 399.9 | 432.3 | 2,431.7 | 2,372.9 | 58.82 | 41.342 | | | |
| 9,900.0 | 7,821.2 | 7,807.8 | 7,794.1 | 46.8 | 16.8 | 89.11 | 399.9 | 432.1 | 2,529.1 | 2,468.5 | 60.54 | 41.777 | | | |
| 10,000.0 | 7,822.0 | 7,805.5 | 7,791.8 | 48.5 | 16.8 | 88.88 | 399.8 | 431.9 | 2,626.6 | 2,564.4 | 62.27 | 42.183 | | | |
| 10,100.0 | 7,822.8 | 7,803.2 | 7,789.5 | 50.1 | 16.8 | 88.65 | 399.7 | 431.6 | 2,724.3 | 2,660.3 | 64.01 | 42.561 | | | |
| 10,200.0 | 7,823.6 | 7,801.0 | 7,787.3 | 51.8 | 16.8 | 88.43 | 399.6 | 431.4 | 2,822.2 | 2,756.4 | 65.76 | 42.915 | | | |
| 10,300.0 | 7,824.4 | 7,798.8 | 7,785.1 | 53.5 | 16.8 | 88.21 | 399.5 | 431.2 | 2,920.2 | 2,852.7 | 67.52 | 43.247 | | | |
| 10,400.0 | 7,825.3 | 7,796.6 | 7,782.9 | 55.3 | 16.7 | 87.99 | 399.5 | 431.0 | 3,018.4 | 2,949.1 | 69.29 | 43.559 | | | |
| 10,500.0 | 7,826.1 | 7,794.5 | 7,780.8 | 57.0 | 16.7 | 87.77 | 399.4 | 430.7 | 3,116.6 | 3,045.5 | 71.07 | 43.852 | | | |
| 10,600.0 | 7,826.9 | 7,792.3 | 7,778.7 | 58.7 | 16.7 | 87.56 | 399.3 | 430.5 | 3,215.0 | 3,142.1 | 72.86 | 44.128 | | | |
| 10,700.0 | 7,827.7 | 7,790.2 | 7,776.6 | 60.5 | 16.7 | 87.35 | 399.3 | 430.3 | 3,313.4 | 3,238.8 | 74.65 | 44.389 | | | |
| 10,800.0 | 7,828.5 | 7,788.1 | 7,774.5 | 62.2 | 16.7 | 87.14 | 399.2 | 430.1 | 3,412.0 | 3,335.6 | 76.44 | 44.636 | | | |
| 10,900.0 | 7,829.4 | 7,786.0 | 7,772.4 | 64.0 | 16.7 | 86.94 | 399.1 | 429.9 | 3,510.6 | 3,432.4 | 78.24 | 44.870 | | | |
| 11,000.0 | 7,830.2 | 7,784.0 | 7,770.4 | 65.8 | 16.7 | 86.74 | 399.0 | 429.7 | 3,609.3 | 3,529.3 | 80.04 | 45.092 | | | |
| 11,100.0 | 7,831.0 | 7,782.0 | 7,768.4 | 67.6 | 16.7 | 86.54 | 399.0 | 429.5 | 3,708.1 | 3,626.2 | 81.85 | 45.303 | | | |
| 11,200.0 | 7,831.8 | 7,768.0 | 7,754.5 | 69.4 | 16.7 | 85.16 | 398.5 | 428.1 | 3,807.0 | 3,723.5 | 83.47 | 45.611 | | | |
| 11,300.0 | 7,832.6 | 7,768.0 | 7,754.5 | 71.2 | 16.7 | 85.16 | 398.5 | 428.1 | 3,905.8 | 3,820.5 | 85.31 | 45.785 | | | |
| 11,400.0 | 7,833.5 | 7,768.0 | 7,754.5 | 73.0 | 16.7 | 85.16 | 398.5 | 428.1 | 4,004.8 | 3,917.6 | 87.15 | 45.951 | | | |
| 11,500.0 | 7,834.3 | 7,768.0 | 7,754.5 | 74.8 | 16.7 | 85.16 | 398.5 | 428.1 | 4,103.8 | 4,014.8 | 89.00 | 46.109 | | | |
| 11,600.0 | 7,835.1 | 7,768.0 | 7,754.5 | 76.6 | 16.7 | 85.16 | 398.5 | 428.1 | 4,202.8 | 4,112.0 | 90.85 | 46.259 | | | |
| 11,700.0 | 7,835.9 | 7,768.0 | 7,754.5 | 78.4 | 16.7 | 85.16 | 398.5 | 428.1 | 4,301.9 | 4,209.2 | 92.71 | 46.402 | | | |
| 11,800.0 | 7,836.7 | 7,768.0 | 7,754.5 | 80.3 | 16.7 | 85.16 | 398.5 | 428.1 | 4,401.0 | 4,306.5 | 94.57 | 46.539 | | | |
| 11,900.0 | 7,837.6 | 7,765.5 | 7,752.0 | 82.1 | 16.7 | 84.91 | 398.4 | 427.9 | 4,500.2 | 4,403.8 | 96.38 | 46.694 | | | |
| 12,000.0 | 7,838.4 | 7,762.2 | 7,748.7 | 83.9 | 16.7 | 84.59 | 398.3 | 427.5 | 4,599.4 | 4,501.2 | 98.17 | 46.850 | | | |
| 12,100.0 | 7,839.2 | 7,758.9 | 7,745.4 | 85.8 | 16.7 | 84.27 | 398.2 | 427.2 | 4,698.6 | 4,598.6 | 99.97 | 47.002 | | | |
| 12,200.0 | 7,840.0 | 7,755.6 | 7,742.1 | 87.6 | 16.7 | 83.95 | 398.1 | 426.9 | 4,797.9 | 4,696.1 | 101.76 | 47.150 | | | |
| 12,300.0 | 7,840.8 | 7,752.3 | 7,738.8 | 89.4 | 16.6 | 83.62 | 398.0 | 426.6 | 4,897.2 | 4,793.6 | 103.55 | 47.295 | | | |
| 12,400.0 | 7,841.7 | 7,749.0 | 7,735.5 | 91.3 | 16.6 | 83.30 | 397.9 | 426.3 | 4,996.5 | 4,891.1 | 105.33 | 47.436 | | | |
| 12,500.0 | 7,842.5 | 7,745.6 | 7,732.2 | 93.1 | 16.6 | 82.98 | 397.8 | 426.0 | 5,095.8 | 4,988.7 | 107.11 | 47.574 | | | |
| 12,600.0 | 7,843.3 | 7,742.3 | 7,728.9 | 95.0 | 16.6 | 82.66 | 397.7 | 425.7 | 5,195.2 | 5,086.3 | 108.89 | 47.709 | | | |
| 12,700.0 | 7,844.1 | 7,739.0 | 7,725.6 | 96.8 | 16.6 | 82.34 | 397.6 | 425.4 | 5,294.6 | 5,183.9 | 110.67 | 47.842 | | | |
| 12,800.0 | 7,844.9 | 7,735.6 | 7,722.3 | 98.7 | 16.6 | 82.02 | 397.5 | 425.1 | 5,394.0 | 5,281.5 | 112.44 | 47.972 | | | |
| 12,900.0 | 7,845.8 | 7,732.3 | 7,719.0 | 100.6 | 16.6 | 81.70 | 397.4 | 424.8 | 5,493.4 | 5,379.2 | 114.21 | 48.100 | | | |
| 13,000.0 | 7,846.6 | 7,728.9 | 7,715.6 | 102.4 | 16.6 | 81.37 | 397.3 | 424.5 | 5,592.9 | 5,476.9 | 115.97 | 48.226 | | | |
| 13,100.0 | 7,847.4 | 7,725.6 | 7,712.3 | 104.3 | 16.6 | 81.05 | 397.2 | 424.3 | 5,692.3 | 5,574.6 | 117.73 | 48.350 | | | |
| 13,200.0 | 7,848.2 | 7,722.2 | 7,708.9 | 106.1 | 16.6 | 80.73 | 397.0 | 424.0 | 5,791.8 | 5,672.3 | 119.49 | 48.472 | | | |
| 13,300.0 | 7,849.0 | 7,718.9 | 7,705.6 | 108.0 | 16.6 | 80.41 | 396.9 | 423.7 | 5,891.3 | 5,770.1 | 121.24 | 48.593 | | | |
| 13,400.0 | 7,849.9 | 7,715.5 | 7,702.2 | 109.9 | 16.6 | 80.09 | 396.8 | 423.5 | 5,990.8 | 5,867.8 | 122.98 | 48.713 | | | |
| 13,500.0 | 7,850.7 | 7,712.1 | 7,698.8 | 111.7 | 16.6 | 79.77 | 396.7 | 423.2 | 6,090.3 | 5,965.6 | 124.72 | 48.831 | | | |
| 13,600.0 | 7,851.5 | 7,708.7 | 7,695.5 | 113.6 | 16.6 | 79.45 | 396.6 | 423.0 | 6,189.9 | 6,063.4 | 126.46 | 48.949 | | | |
| 13,700.0 | 7,852.3 | 7,705.3 | 7,692.1 | 115.5 | 16.5 | 79.13 | 396.5 | 422.7 | 6,289.4 | 6,161.3 | 128.19 | 49.065 | | | |
| 13,800.0 | 7,853.1 | 7,701.9 | 7,688.7 | 117.4 | 16.5 | 78.82 | 396.4 | 422.5 | 6,389.0 | 6,259.1 | 129.91 | 49.181 | | | |
| 13,900.0 | 7,854.0 | 7,698.5 | 7,685.3 | 119.2 | 16.5 | 78.50 | 396.3 | 422.2 | 6,488.6 | 6,357.0 | 131.63 | 49.296 | | | |
| 14,000.0 | 7,854.8 | 7,695.1 | 7,681.9 | 121.1 | 16.5 | 78.18 | 396.2 | 422.0 | 6,588.2 | 6,454.8 | 133.34 | 49.410 | | | |
| 14,100.0 | 7,855.6 | 7,691.7 | 7,678.5 | 123.0 | 16.5 | 77.86 | 396.1 | 421.8 | 6,687.8 | 6,552.7 | 135.04 | 49.524 | | | |
| 14,200.0 | 7,856.4 | 7,688.3 | 7,675.1 | 124.9 | 16.5 | 77.54 | 395.9 | 421.5 | 6,787.4 | 6,650.6 | 136.74 | 49.637 | | | |
| 14,300.0 | 7,857.2 | 7,684.9 | 7,671.7 | 126.7 | 16.5 | 77.22 | 395.8 | 421.3 | 6,887.0 | 6,748.6 | 138.43 | 49.749 | | | |
| 14,400.0 | 7,858.1 | 7,681.4 | 7,668.3 | 128.6 | 16.5 | 76.91 | 395.7 | 421.1 | 6,986.6 | 6,846.5 | 140.12 | 49.862 | | | |
| 14,500.0 | 7,858.9 | 7,678.0 | 7,664.8 | 130.5 | 16.5 | 76.59 | 395.6 | 420.9 | 7,086.3 | 6,944.5 | 141.80 | 49.974 | | | |
| 14,600.0 | 7,859.7 | 7,674.5 | 7,661.4 | 132.4 | 16.5 | 76.27 | 395.5 | 420.7 | 7,185.9 | 7,042.5 | 143.47 | 50.086 | | | |
| 14,700.0 | 7,860.5 | 7,671.1 | 7,657.9 | 134.3 | 16.5 | 75.96 | 395.4 | 420.5 | 7,285.6 | 7,140.5 | 145.14 | 50.198 | | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| | | | | | | | | | | | | | | |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|----------------------------|----------------------------|----------------------|-----------------------|-------------------------|-------------------|---------------------------|--------|
| Offset Design Existings Sec.32-T1N-R67W - Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
| Survey Program: 15-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 +N/-S (ft) | Wellbore Centre +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 14,757.2 | 7,861.0 | 7,669.1 | 7,656.0 | 135.4 | 16.5 | 75.78 | 395.3 | 420.4 | 7,342.6 | 7,196.5 | 146.09 | 50.262 | | |

| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|---------|--------------------|--------|
| Survey Program: 1105-MWD | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Existings Sec.32-T1N-R67W - Jacobucci 43-32 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | | | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -147.13 | -342.4 | -221.3 | 407.7 | | | | | | |
| 100.0 | 100.0 | 95.8 | 95.8 | 0.1 | 0.1 | -147.15 | -342.6 | -221.2 | 407.9 | 407.6 | 0.22 | 1,821.608 | | | |
| 200.0 | 200.0 | 194.6 | 194.6 | 0.3 | 0.2 | -147.23 | -343.3 | -221.0 | 408.3 | 407.7 | 0.56 | 724.651 | | | |
| 300.0 | 300.0 | 293.4 | 293.4 | 0.6 | 0.4 | -147.37 | -344.5 | -220.5 | 409.0 | 408.1 | 0.90 | 452.965 | | | |
| 400.0 | 400.0 | 392.1 | 392.1 | 0.8 | 0.5 | -147.56 | -346.1 | -219.9 | 410.1 | 408.8 | 1.24 | 330.000 | | | |
| 500.0 | 500.0 | 490.9 | 490.8 | 1.0 | 0.6 | -147.81 | -348.1 | -219.2 | 411.4 | 409.8 | 1.58 | 260.005 | | | |
| 600.0 | 600.0 | 589.6 | 589.5 | 1.2 | 0.7 | -148.10 | -350.7 | -218.2 | 413.1 | 411.2 | 1.92 | 214.903 | | | |
| 700.0 | 700.0 | 688.3 | 688.1 | 1.5 | 0.9 | -148.45 | -353.6 | -217.1 | 415.1 | 412.8 | 2.26 | 183.484 | | | |
| 800.0 | 800.0 | 786.9 | 786.7 | 1.7 | 1.0 | -148.85 | -357.1 | -215.8 | 417.4 | 414.8 | 2.60 | 160.390 | | | |
| 900.0 | 900.0 | 885.5 | 885.2 | 1.9 | 1.1 | -149.30 | -361.0 | -214.4 | 420.0 | 417.1 | 2.94 | 142.739 | | | |
| 1,000.0 | 1,000.0 | 984.1 | 983.7 | 2.1 | 1.2 | -149.79 | -365.3 | -212.7 | 423.0 | 419.7 | 3.28 | 128.845 | | | |
| 1,100.0 | 1,100.0 | 1,082.6 | 1,082.0 | 2.4 | 1.4 | 133.92 | -370.2 | -210.9 | 427.5 | 423.9 | 3.66 | 116.891 | | | |
| 1,200.0 | 1,199.8 | 1,181.8 | 1,181.1 | 2.6 | 1.6 | 133.76 | -375.3 | -209.1 | 434.7 | 430.7 | 4.06 | 107.039 | | | |
| 1,300.0 | 1,299.5 | 1,281.1 | 1,280.2 | 2.8 | 1.8 | 133.93 | -380.3 | -207.6 | 444.4 | 439.9 | 4.50 | 98.860 | | | |
| 1,400.0 | 1,398.7 | 1,380.4 | 1,379.5 | 3.0 | 2.0 | 134.42 | -385.3 | -206.3 | 456.6 | 451.6 | 4.94 | 92.506 | | | |
| 1,500.0 | 1,497.5 | 1,481.0 | 1,479.9 | 3.3 | 2.2 | 135.19 | -389.8 | -205.2 | 471.0 | 465.6 | 5.38 | 87.601 | | | |
| 1,600.0 | 1,595.6 | 1,581.0 | 1,579.8 | 3.6 | 2.4 | 136.21 | -393.9 | -204.1 | 487.6 | 481.8 | 5.84 | 83.536 | | | |
| 1,700.0 | 1,693.5 | 1,679.5 | 1,678.3 | 4.0 | 2.6 | 137.52 | -397.5 | -203.2 | 505.3 | 498.9 | 6.32 | 79.939 | | | |
| 1,800.0 | 1,791.3 | 1,777.5 | 1,776.2 | 4.3 | 2.8 | 138.77 | -400.8 | -202.5 | 523.1 | 516.3 | 6.81 | 76.804 | | | |
| 1,900.0 | 1,889.2 | 1,875.2 | 1,873.9 | 4.7 | 3.0 | 139.99 | -403.8 | -202.2 | 541.1 | 533.8 | 7.31 | 74.073 | | | |
| 2,000.0 | 1,987.1 | 1,974.9 | 1,973.5 | 5.1 | 3.2 | 141.17 | -406.8 | -202.1 | 559.5 | 551.7 | 7.81 | 71.613 | | | |
| 2,100.0 | 2,084.9 | 2,080.8 | 2,079.4 | 5.5 | 3.4 | 142.33 | -408.8 | -200.9 | 576.6 | 568.3 | 8.33 | 69.244 | | | |
| 2,200.0 | 2,182.8 | 2,191.2 | 2,189.5 | 5.9 | 3.7 | 142.97 | -412.4 | -194.4 | 591.9 | 583.0 | 8.89 | 66.604 | | | |
| 2,300.0 | 2,280.6 | 2,291.5 | 2,289.3 | 6.3 | 3.9 | 143.23 | -417.2 | -185.8 | 606.7 | 597.2 | 9.45 | 64.197 | | | |
| 2,400.0 | 2,378.5 | 2,401.9 | 2,399.1 | 6.7 | 4.2 | 143.44 | -422.4 | -175.3 | 620.9 | 610.9 | 10.05 | 61.776 | | | |
| 2,500.0 | 2,476.3 | 2,519.0 | 2,514.9 | 7.2 | 4.5 | 143.30 | -427.9 | -159.2 | 632.4 | 621.7 | 10.71 | 59.066 | | | |
| 2,600.0 | 2,574.2 | 2,641.8 | 2,635.5 | 7.6 | 4.9 | 142.74 | -433.7 | -136.4 | 640.9 | 629.5 | 11.44 | 56.004 | | | |
| 2,700.0 | 2,672.1 | 2,775.0 | 2,765.3 | 8.0 | 5.4 | 142.05 | -435.7 | -106.9 | 644.6 | 632.4 | 12.25 | 52.636 | | | |
| 2,800.0 | 2,769.9 | 2,884.6 | 2,871.7 | 8.5 | 5.8 | 141.48 | -434.6 | -80.5 | 645.2 | 632.2 | 13.00 | 49.641 | | | |
| 2,900.0 | 2,867.8 | 2,991.7 | 2,975.1 | 8.9 | 6.2 | 140.80 | -433.2 | -52.6 | 644.3 | 630.6 | 13.78 | 46.745 | | | |
| 3,000.0 | 2,965.6 | 3,103.5 | 3,082.2 | 9.3 | 6.7 | 139.81 | -432.7 | -20.4 | 642.7 | 628.0 | 14.66 | 43.844 | | | |
| 3,100.0 | 3,063.5 | 3,207.6 | 3,181.2 | 9.8 | 7.2 | 138.80 | -430.8 | 11.5 | 638.8 | 623.3 | 15.52 | 41.152 | | | |
| 3,200.0 | 3,161.4 | 3,307.2 | 3,276.3 | 10.2 | 7.7 | 137.94 | -428.4 | 40.9 | 635.4 | 619.1 | 16.34 | 38.876 | | | |
| 3,300.0 | 3,259.2 | 3,411.7 | 3,376.2 | 10.7 | 8.2 | 137.05 | -425.6 | 71.7 | 631.9 | 614.6 | 17.22 | 36.690 | | | |
| 3,400.0 | 3,357.1 | 3,514.4 | 3,473.9 | 11.1 | 8.7 | 136.09 | -422.3 | 103.2 | 627.4 | 609.3 | 18.14 | 34.592 | | | |
| 3,500.0 | 3,454.9 | 3,615.6 | 3,570.0 | 11.5 | 9.3 | 135.07 | -419.3 | 134.8 | 623.0 | 603.9 | 19.08 | 32.656 | | | |
| 3,600.0 | 3,552.8 | 3,718.4 | 3,667.5 | 12.0 | 9.9 | 134.02 | -416.0 | 167.1 | 618.4 | 598.4 | 20.05 | 30.838 | | | |
| 3,700.0 | 3,650.6 | 3,816.9 | 3,761.2 | 12.4 | 10.4 | 133.10 | -411.8 | 197.3 | 613.6 | 592.6 | 20.98 | 29.249 | | | |
| 3,800.0 | 3,748.5 | 3,902.0 | 3,842.4 | 12.9 | 10.8 | 132.35 | -408.9 | 222.5 | 610.3 | 588.4 | 21.82 | 27.965 | | | |
| 3,840.2 | 3,787.8 | 3,929.8 | 3,869.0 | 13.1 | 11.0 | 132.12 | -408.5 | 230.2 | 609.9 | 587.8 | 22.13 | 27.564 | | | |
| 3,900.0 | 3,846.4 | 3,977.8 | 3,915.2 | 13.3 | 11.2 | 131.68 | -408.8 | 243.5 | 610.6 | 588.0 | 22.63 | 26.985 | | | |
| 4,000.0 | 3,944.2 | 4,087.1 | 4,019.6 | 13.8 | 11.8 | 130.49 | -410.7 | 275.6 | 612.2 | 588.5 | 23.71 | 25.821 | | | |
| 4,100.0 | 4,042.1 | 4,182.4 | 4,110.8 | 14.2 | 12.4 | 129.50 | -411.3 | 303.5 | 613.1 | 588.4 | 24.69 | 24.835 | | | |
| 4,200.0 | 4,139.9 | 4,281.5 | 4,205.9 | 14.7 | 12.9 | 128.57 | -412.2 | 331.4 | 614.9 | 589.2 | 25.68 | 23.942 | | | |
| 4,300.0 | 4,237.8 | 4,404.7 | 4,323.6 | 15.1 | 13.6 | 127.33 | -412.0 | 367.6 | 615.5 | 588.6 | 26.88 | 22.898 | | | |
| 4,400.0 | 4,335.7 | 4,515.6 | 4,428.8 | 15.6 | 14.3 | 126.10 | -408.2 | 402.8 | 612.2 | 584.1 | 28.05 | 21.826 | | | |
| 4,500.0 | 4,433.5 | 4,610.5 | 4,518.2 | 16.0 | 14.9 | 124.92 | -405.3 | 434.2 | 608.9 | 579.8 | 29.13 | 20.902 | | | |
| 4,600.0 | 4,531.4 | 4,709.3 | 4,612.0 | 16.4 | 15.5 | 123.82 | -402.4 | 465.2 | 606.6 | 576.4 | 30.21 | 20.078 | | | |
| 4,700.0 | 4,629.2 | 4,797.7 | 4,695.9 | 16.9 | 16.0 | 122.84 | -400.1 | 492.8 | 605.1 | 573.8 | 31.23 | 19.372 | | | |
| 4,711.0 | 4,640.0 | 4,806.5 | 4,704.3 | 16.9 | 16.0 | 122.75 | -400.0 | 495.5 | 605.0 | 573.7 | 31.34 | 19.308 | | | |
| 4,800.0 | 4,727.1 | 4,887.6 | 4,782.0 | 17.3 | 16.5 | 121.97 | -399.3 | 519.0 | 606.0 | 573.7 | 32.23 | 18.800 | | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|---------|--------------------|--------|
| Survey Program: 1105-MWD | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Existings Sec.32-T1N-R67W - Jacobucci 43-32 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | | | |
| 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 | | |
| 4,900.0 | 4,824.9 | 5,001.8 | 4,890.4 | 17.8 | 17.2 | 120.62 | -398.5 | 554.8 | 606.5 | 573.1 | 33.49 | 18.111 | | | |
| 5,000.0 | 4,922.8 | 5,108.2 | 4,990.2 | 18.2 | 17.9 | 119.10 | -396.0 | 591.4 | 604.9 | 570.1 | 34.78 | 17.394 | | | |
| 5,100.0 | 5,020.7 | 5,200.3 | 5,076.6 | 18.7 | 18.5 | 117.76 | -394.1 | 623.2 | 603.9 | 568.0 | 35.94 | 16.804 | | | |
| 5,110.6 | 5,031.0 | 5,209.9 | 5,085.7 | 18.7 | 18.6 | 117.62 | -394.0 | 626.5 | 603.9 | 567.9 | 36.06 | 16.747 | | | |
| 5,200.0 | 5,118.5 | 5,295.6 | 5,166.5 | 19.1 | 19.1 | 116.47 | -392.8 | 655.0 | 604.3 | 567.2 | 37.09 | 16.290 | | | |
| 5,300.0 | 5,216.4 | 5,387.6 | 5,254.1 | 19.6 | 19.7 | 115.46 | -391.6 | 683.2 | 605.6 | 567.5 | 38.16 | 15.871 | | | |
| 5,400.0 | 5,314.2 | 5,500.4 | 5,361.6 | 20.0 | 20.3 | 114.32 | -389.9 | 717.0 | 607.1 | 567.7 | 39.37 | 15.421 | | | |
| 5,500.0 | 5,412.1 | 5,624.5 | 5,478.9 | 20.5 | 21.1 | 112.83 | -384.0 | 757.2 | 605.0 | 564.3 | 40.72 | 14.858 | | | |
| 5,600.0 | 5,509.9 | 5,718.0 | 5,567.4 | 20.9 | 21.7 | 111.80 | -378.2 | 786.6 | 602.1 | 560.3 | 41.81 | 14.401 | | | |
| 5,700.0 | 5,607.8 | 5,809.0 | 5,654.0 | 21.4 | 22.3 | 110.86 | -374.0 | 814.3 | 601.0 | 558.1 | 42.87 | 14.019 | | | |
| 5,800.0 | 5,705.7 | 5,909.1 | 5,749.0 | 21.8 | 22.9 | 109.73 | -369.4 | 845.8 | 600.1 | 556.1 | 44.02 | 13.632 | | | |
| 5,850.8 | 5,755.4 | 5,955.5 | 5,793.1 | 22.1 | 23.1 | 109.27 | -367.4 | 859.7 | 599.9 | 555.3 | 44.55 | 13.466 | | | |
| 5,900.0 | 5,803.5 | 6,001.7 | 5,837.3 | 22.3 | 23.4 | 108.85 | -365.6 | 873.3 | 600.0 | 555.0 | 45.06 | 13.316 | | | |
| 6,000.0 | 5,901.4 | 6,109.0 | 5,939.6 | 22.7 | 24.0 | 107.80 | -361.3 | 905.2 | 600.3 | 554.1 | 46.21 | 12.990 | | | |
| 6,100.0 | 5,999.5 | 6,207.1 | 6,033.4 | 23.1 | 24.6 | 106.80 | -356.2 | 933.6 | 599.1 | 551.8 | 47.23 | 12.684 | | | |
| 6,158.8 | 6,057.6 | 6,256.1 | 6,080.4 | 23.3 | 24.9 | 106.22 | -354.2 | 947.2 | 598.7 | 551.0 | 47.71 | 12.549 | | | |
| 6,200.0 | 6,098.3 | 6,290.6 | 6,113.5 | 23.4 | 25.1 | 105.77 | -353.3 | 956.8 | 598.9 | 550.8 | 48.04 | 12.465 | | | |
| 6,300.0 | 6,197.5 | 6,383.5 | 6,202.9 | 23.7 | 25.6 | 104.39 | -351.7 | 982.2 | 599.8 | 551.0 | 48.88 | 12.273 | | | |
| 6,400.0 | 6,297.1 | 6,480.3 | 6,296.3 | 23.9 | 26.1 | 102.76 | -350.7 | 1,007.7 | 601.1 | 551.5 | 49.66 | 12.104 | | | |
| 6,500.0 | 6,397.0 | 6,592.9 | 6,405.6 | 24.0 | 26.6 | 100.77 | -349.1 | 1,034.3 | 601.8 | 551.4 | 50.43 | 11.935 | | | |
| 6,600.0 | 6,496.9 | 6,694.9 | 6,505.7 | 24.2 | 27.0 | 99.03 | -345.7 | 1,053.8 | 600.2 | 549.3 | 50.98 | 11.774 | | | |
| 6,700.0 | 6,596.9 | 6,794.3 | 6,604.0 | 24.3 | 27.3 | 173.49 | -342.4 | 1,068.2 | 598.3 | 546.9 | 51.42 | 11.636 | | | |
| 6,800.0 | 6,696.9 | 6,895.1 | 6,704.1 | 24.4 | 27.6 | 172.35 | -339.3 | 1,079.8 | 596.7 | 544.8 | 51.82 | 11.515 | | | |
| 6,900.0 | 6,796.9 | 6,996.4 | 6,804.9 | 24.5 | 27.8 | 171.42 | -336.0 | 1,089.0 | 594.8 | 542.6 | 52.17 | 11.401 | | | |
| 7,000.0 | 6,896.9 | 7,092.4 | 6,900.6 | 24.7 | 28.0 | 170.75 | -333.6 | 1,095.8 | 593.3 | 540.9 | 52.48 | 11.306 | | | |
| 7,100.0 | 6,996.9 | 7,192.2 | 7,000.2 | 24.8 | 28.2 | 170.11 | -331.4 | 1,102.1 | 592.3 | 539.5 | 52.79 | 11.219 | | | |
| 7,200.0 | 7,096.9 | 7,291.9 | 7,099.7 | 24.9 | 28.4 | -10.59 | -329.3 | 1,108.4 | 589.5 | 536.5 | 52.98 | 11.126 | | | |
| 7,300.0 | 7,195.9 | 7,390.4 | 7,198.0 | 25.0 | 28.6 | -11.70 | -327.1 | 1,114.6 | 575.4 | 523.0 | 52.42 | 10.977 | | | |
| 7,400.0 | 7,292.4 | 7,486.1 | 7,293.4 | 25.1 | 28.8 | -13.39 | -325.0 | 1,120.7 | 549.1 | 498.0 | 51.04 | 10.757 | | | |
| 7,500.0 | 7,384.6 | 7,577.2 | 7,384.3 | 25.1 | 29.0 | -15.92 | -323.1 | 1,126.5 | 511.0 | 462.1 | 48.89 | 10.453 | | | |
| 7,600.0 | 7,470.9 | 7,662.3 | 7,469.2 | 25.1 | 29.2 | -19.72 | -321.2 | 1,131.9 | 462.2 | 416.1 | 46.05 | 10.037 | | | |
| 7,700.0 | 7,550.0 | 7,739.9 | 7,546.6 | 25.1 | 29.3 | -25.55 | -319.5 | 1,136.8 | 404.0 | 361.3 | 42.73 | 9.454 | | | |
| 7,800.0 | 7,620.5 | 7,808.6 | 7,615.2 | 25.1 | 29.5 | -34.61 | -318.0 | 1,141.1 | 338.6 | 299.1 | 39.43 | 8.586 | | | |
| 7,900.0 | 7,681.0 | 7,867.3 | 7,673.8 | 25.2 | 29.6 | -48.22 | -316.7 | 1,144.9 | 269.3 | 232.1 | 37.17 | 7.243 | | | |
| 8,000.0 | 7,730.7 | 7,915.0 | 7,721.4 | 25.4 | 29.7 | -65.59 | -315.7 | 1,147.9 | 203.1 | 166.3 | 36.81 | 5.517 | | | |
| 8,100.0 | 7,768.6 | 7,950.9 | 7,757.1 | 25.6 | 29.7 | -81.36 | -314.9 | 1,150.1 | 157.0 | 119.8 | 37.22 | 4.218 | | | |
| 8,145.3 | 7,781.8 | 7,963.0 | 7,769.3 | 25.7 | 29.8 | -86.26 | -314.7 | 1,150.9 | 150.9 | 113.5 | 37.34 | 4.040 CC, ES, SF | | | |
| 8,200.0 | 7,794.2 | 7,974.3 | 7,780.5 | 26.0 | 29.8 | -89.72 | -314.4 | 1,151.6 | 160.0 | 122.5 | 37.50 | 4.266 | | | |
| 8,300.0 | 7,806.9 | 7,984.8 | 7,791.0 | 26.5 | 29.8 | -88.66 | -314.2 | 1,152.3 | 214.1 | 175.6 | 38.45 | 5.567 | | | |
| 8,400.0 | 7,808.9 | 7,984.6 | 7,790.8 | 27.1 | 29.8 | -85.09 | -314.2 | 1,152.3 | 293.1 | 253.4 | 39.71 | 7.382 | | | |
| 8,500.0 | 7,809.7 | 7,983.2 | 7,789.4 | 27.9 | 29.8 | -84.59 | -314.2 | 1,152.2 | 382.1 | 341.3 | 40.82 | 9.361 | | | |
| 8,600.0 | 7,810.5 | 7,981.8 | 7,788.1 | 28.7 | 29.8 | -84.08 | -314.3 | 1,152.1 | 475.4 | 433.4 | 42.03 | 11.312 | | | |
| 8,700.0 | 7,811.3 | 7,980.5 | 7,786.7 | 29.7 | 29.8 | -83.57 | -314.3 | 1,152.0 | 571.1 | 527.7 | 43.33 | 13.181 | | | |
| 8,800.0 | 7,812.1 | 7,979.1 | 7,785.4 | 30.9 | 29.8 | -83.06 | -314.3 | 1,151.9 | 668.0 | 623.3 | 44.69 | 14.946 | | | |
| 8,900.0 | 7,813.0 | 7,977.8 | 7,784.0 | 32.0 | 29.8 | -82.55 | -314.3 | 1,151.9 | 765.6 | 719.5 | 46.12 | 16.602 | | | |
| 9,000.0 | 7,813.8 | 7,976.4 | 7,782.7 | 33.3 | 29.8 | -82.05 | -314.4 | 1,151.8 | 863.9 | 816.3 | 47.60 | 18.150 | | | |
| 9,100.0 | 7,814.6 | 7,975.1 | 7,781.3 | 34.6 | 29.8 | -81.54 | -314.4 | 1,151.7 | 962.5 | 913.3 | 49.11 | 19.597 | | | |
| 9,200.0 | 7,815.4 | 7,973.7 | 7,779.9 | 36.0 | 29.8 | -81.04 | -314.4 | 1,151.6 | 1,061.3 | 1,010.6 | 50.66 | 20.947 | | | |
| 9,300.0 | 7,816.2 | 7,972.4 | 7,778.6 | 37.5 | 29.8 | -80.53 | -314.5 | 1,151.5 | 1,160.3 | 1,108.1 | 52.24 | 22.210 | | | |
| 9,400.0 | 7,817.1 | 7,971.0 | 7,777.2 | 38.9 | 29.8 | -80.03 | -314.5 | 1,151.4 | 1,259.5 | 1,205.7 | 53.85 | 23.391 | | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Existings Sec.32-T1N-R67W - Jacobucci 43-32 (Exist.) - Wellbore #1 - Wellbore #1 | | Offset Site Error: | 0.0 ft |
|---------------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--|---------|--------------------|--------|
| Survey Program: 1105-MWDD | | | | | | | | | | | | | 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 | | | | |
| 9,500.0 | 7,817.9 | 7,969.7 | 7,775.9 | 40.4 | 29.8 | -79.53 | -314.5 | 1,151.3 | 1,358.8 | 1,303.4 | 55.47 | 24.497 | | | | |
| 9,600.0 | 7,818.7 | 7,968.3 | 7,774.5 | 42.0 | 29.8 | -79.03 | -314.6 | 1,151.3 | 1,458.2 | 1,401.1 | 57.11 | 25.536 | | | | |
| 9,700.0 | 7,819.5 | 7,966.9 | 7,773.2 | 43.6 | 29.8 | -78.53 | -314.6 | 1,151.2 | 1,557.7 | 1,499.0 | 58.75 | 26.513 | | | | |
| 9,800.0 | 7,820.3 | 7,965.6 | 7,771.8 | 45.2 | 29.8 | -78.03 | -314.6 | 1,151.1 | 1,657.3 | 1,596.9 | 60.41 | 27.433 | | | | |
| 9,900.0 | 7,821.2 | 7,964.2 | 7,770.5 | 46.8 | 29.8 | -77.53 | -314.6 | 1,151.0 | 1,756.9 | 1,694.8 | 62.07 | 28.303 | | | | |
| 10,000.0 | 7,822.0 | 7,962.9 | 7,769.1 | 48.5 | 29.8 | -77.03 | -314.7 | 1,150.9 | 1,856.5 | 1,792.7 | 63.74 | 29.125 | | | | |
| 10,100.0 | 7,822.8 | 7,961.5 | 7,767.8 | 50.1 | 29.8 | -76.54 | -314.7 | 1,150.8 | 1,956.2 | 1,890.7 | 65.41 | 29.905 | | | | |
| 10,200.0 | 7,823.6 | 7,960.2 | 7,766.4 | 51.8 | 29.8 | -76.05 | -314.7 | 1,150.7 | 2,055.9 | 1,988.8 | 67.08 | 30.646 | | | | |
| 10,300.0 | 7,824.4 | 7,958.8 | 7,765.1 | 53.5 | 29.8 | -75.55 | -314.8 | 1,150.7 | 2,155.6 | 2,086.8 | 68.76 | 31.351 | | | | |
| 10,400.0 | 7,825.3 | 7,957.5 | 7,763.7 | 55.3 | 29.8 | -75.06 | -314.8 | 1,150.6 | 2,255.3 | 2,184.9 | 70.43 | 32.024 | | | | |
| 10,500.0 | 7,826.1 | 7,956.1 | 7,762.4 | 57.0 | 29.8 | -74.58 | -314.8 | 1,150.5 | 2,355.1 | 2,283.0 | 72.09 | 32.668 | | | | |
| 10,600.0 | 7,826.9 | 7,954.8 | 7,761.0 | 58.7 | 29.8 | -74.09 | -314.8 | 1,150.4 | 2,454.9 | 2,381.1 | 73.76 | 33.284 | | | | |
| 10,700.0 | 7,827.7 | 7,953.4 | 7,759.7 | 60.5 | 29.8 | -73.60 | -314.9 | 1,150.3 | 2,554.7 | 2,479.3 | 75.42 | 33.875 | | | | |
| 10,800.0 | 7,828.5 | 7,952.1 | 7,758.3 | 62.2 | 29.7 | -73.12 | -314.9 | 1,150.2 | 2,654.5 | 2,577.5 | 77.07 | 34.444 | | | | |
| 10,900.0 | 7,829.4 | 7,950.7 | 7,757.0 | 64.0 | 29.7 | -72.64 | -314.9 | 1,150.1 | 2,754.4 | 2,675.6 | 78.72 | 34.991 | | | | |
| 11,000.0 | 7,830.2 | 7,949.3 | 7,755.6 | 65.8 | 29.7 | -72.16 | -315.0 | 1,150.1 | 2,854.2 | 2,773.8 | 80.36 | 35.519 | | | | |
| 11,100.0 | 7,831.0 | 7,948.0 | 7,754.3 | 67.6 | 29.7 | -71.68 | -315.0 | 1,150.0 | 2,954.1 | 2,872.1 | 81.99 | 36.030 | | | | |
| 11,200.0 | 7,831.8 | 7,946.6 | 7,752.9 | 69.4 | 29.7 | -71.21 | -315.0 | 1,149.9 | 3,053.9 | 2,970.3 | 83.61 | 36.524 | | | | |
| 11,300.0 | 7,832.6 | 7,945.3 | 7,751.6 | 71.2 | 29.7 | -70.74 | -315.1 | 1,149.8 | 3,153.8 | 3,068.6 | 85.23 | 37.003 | | | | |
| 11,400.0 | 7,833.5 | 7,943.9 | 7,750.2 | 73.0 | 29.7 | -70.26 | -315.1 | 1,149.7 | 3,253.7 | 3,166.8 | 86.84 | 37.468 | | | | |
| 11,500.0 | 7,834.3 | 7,942.6 | 7,748.9 | 74.8 | 29.7 | -69.80 | -315.1 | 1,149.6 | 3,353.5 | 3,265.1 | 88.44 | 37.921 | | | | |
| 11,600.0 | 7,835.1 | 7,941.2 | 7,747.5 | 76.6 | 29.7 | -69.33 | -315.1 | 1,149.5 | 3,453.4 | 3,363.4 | 90.02 | 38.361 | | | | |
| 11,700.0 | 7,835.9 | 7,939.9 | 7,746.2 | 78.4 | 29.7 | -68.87 | -315.2 | 1,149.5 | 3,553.3 | 3,461.7 | 91.60 | 38.791 | | | | |
| 11,800.0 | 7,836.7 | 7,938.5 | 7,744.8 | 80.3 | 29.7 | -68.40 | -315.2 | 1,149.4 | 3,653.2 | 3,560.1 | 93.17 | 39.211 | | | | |
| 11,900.0 | 7,837.6 | 7,937.2 | 7,743.5 | 82.1 | 29.7 | -67.94 | -315.2 | 1,149.3 | 3,753.1 | 3,658.4 | 94.73 | 39.621 | | | | |
| 12,000.0 | 7,838.4 | 7,935.8 | 7,742.1 | 83.9 | 29.7 | -67.49 | -315.3 | 1,149.2 | 3,853.1 | 3,756.8 | 96.27 | 40.022 | | | | |
| 12,100.0 | 7,839.2 | 7,934.4 | 7,740.8 | 85.8 | 29.7 | -67.03 | -315.3 | 1,149.1 | 3,953.0 | 3,855.2 | 97.81 | 40.416 | | | | |
| 12,200.0 | 7,840.0 | 7,933.1 | 7,739.4 | 87.6 | 29.7 | -66.58 | -315.3 | 1,149.0 | 4,052.9 | 3,953.6 | 99.33 | 40.802 | | | | |
| 12,300.0 | 7,840.8 | 7,931.7 | 7,738.1 | 89.4 | 29.7 | -66.13 | -315.4 | 1,148.9 | 4,152.8 | 4,052.0 | 100.84 | 41.181 | | | | |
| 12,400.0 | 7,841.7 | 7,930.4 | 7,736.7 | 91.3 | 29.7 | -65.69 | -315.4 | 1,148.9 | 4,252.7 | 4,150.4 | 102.34 | 41.554 | | | | |
| 12,500.0 | 7,842.5 | 7,929.0 | 7,735.4 | 93.1 | 29.7 | -65.24 | -315.4 | 1,148.8 | 4,352.7 | 4,248.8 | 103.83 | 41.921 | | | | |
| 12,600.0 | 7,843.3 | 7,927.7 | 7,734.0 | 95.0 | 29.7 | -64.80 | -315.4 | 1,148.7 | 4,452.6 | 4,347.3 | 105.31 | 42.283 | | | | |
| 12,700.0 | 7,844.1 | 7,926.3 | 7,732.7 | 96.8 | 29.7 | -64.36 | -315.5 | 1,148.6 | 4,552.5 | 4,445.8 | 106.77 | 42.639 | | | | |
| 12,800.0 | 7,844.9 | 7,925.0 | 7,731.3 | 98.7 | 29.7 | -63.92 | -315.5 | 1,148.5 | 4,652.5 | 4,544.2 | 108.22 | 42.991 | | | | |
| 12,900.0 | 7,845.8 | 7,923.6 | 7,730.0 | 100.6 | 29.7 | -63.49 | -315.5 | 1,148.4 | 4,752.4 | 4,642.7 | 109.66 | 43.338 | | | | |
| 13,000.0 | 7,846.6 | 7,922.3 | 7,728.6 | 102.4 | 29.7 | -63.06 | -315.6 | 1,148.3 | 4,852.3 | 4,741.3 | 111.09 | 43.681 | | | | |
| 13,100.0 | 7,847.4 | 7,920.9 | 7,727.3 | 104.3 | 29.7 | -62.63 | -315.6 | 1,148.3 | 4,952.3 | 4,839.8 | 112.50 | 44.021 | | | | |
| 13,200.0 | 7,848.2 | 7,919.6 | 7,725.9 | 106.1 | 29.7 | -62.21 | -315.6 | 1,148.2 | 5,052.2 | 4,938.3 | 113.90 | 44.357 | | | | |
| 13,300.0 | 7,849.0 | 7,918.2 | 7,724.6 | 108.0 | 29.7 | -61.79 | -315.6 | 1,148.1 | 5,152.2 | 5,036.9 | 115.29 | 44.689 | | | | |
| 13,400.0 | 7,849.9 | 7,916.8 | 7,723.2 | 109.9 | 29.7 | -61.37 | -315.7 | 1,148.0 | 5,252.1 | 5,135.5 | 116.66 | 45.019 | | | | |
| 13,500.0 | 7,850.7 | 7,915.5 | 7,721.9 | 111.7 | 29.7 | -60.95 | -315.7 | 1,147.9 | 5,352.1 | 5,234.0 | 118.03 | 45.346 | | | | |
| 13,600.0 | 7,851.5 | 7,914.1 | 7,720.5 | 113.6 | 29.7 | -60.54 | -315.7 | 1,147.8 | 5,452.0 | 5,332.6 | 119.38 | 45.670 | | | | |
| 13,700.0 | 7,852.3 | 7,912.8 | 7,719.2 | 115.5 | 29.7 | -60.13 | -315.8 | 1,147.7 | 5,552.0 | 5,431.3 | 120.72 | 45.992 | | | | |
| 13,800.0 | 7,853.1 | 7,911.4 | 7,717.8 | 117.4 | 29.7 | -59.72 | -315.8 | 1,147.7 | 5,651.9 | 5,529.9 | 122.04 | 46.312 | | | | |
| 13,900.0 | 7,854.0 | 7,910.1 | 7,716.5 | 119.2 | 29.7 | -59.31 | -315.8 | 1,147.6 | 5,751.9 | 5,628.5 | 123.35 | 46.629 | | | | |
| 14,000.0 | 7,854.8 | 7,908.7 | 7,715.1 | 121.1 | 29.7 | -58.91 | -315.9 | 1,147.5 | 5,851.8 | 5,727.2 | 124.65 | 46.945 | | | | |
| 14,100.0 | 7,855.6 | 7,907.4 | 7,713.7 | 123.0 | 29.7 | -58.51 | -315.9 | 1,147.4 | 5,951.8 | 5,825.9 | 125.94 | 47.259 | | | | |
| 14,200.0 | 7,856.4 | 7,906.0 | 7,712.4 | 124.9 | 29.7 | -58.11 | -315.9 | 1,147.3 | 6,051.8 | 5,924.5 | 127.22 | 47.571 | | | | |
| 14,300.0 | 7,857.2 | 7,904.7 | 7,711.0 | 126.7 | 29.7 | -57.72 | -315.9 | 1,147.2 | 6,151.7 | 6,023.2 | 128.48 | 47.882 | | | | |
| 14,400.0 | 7,858.1 | 7,903.3 | 7,709.7 | 128.6 | 29.7 | -57.33 | -316.0 | 1,147.1 | 6,251.7 | 6,121.9 | 129.73 | 48.191 | | | | |
| 14,500.0 | 7,858.9 | 7,902.0 | 7,708.3 | 130.5 | 29.7 | -56.94 | -316.0 | 1,147.1 | 6,351.6 | 6,220.7 | 130.96 | 48.499 | | | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | Existings Sec.32-T1N-R67W - Jacobucci 43-32 (Exist.) - Wellbore #1 - Wellbore #1 | | Offset Site Error: | 0.0 ft |
|--------------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|----------------------------|----------------------|-----------------------|--|---------|--------------------|-------------------|
| Survey Program: 1105-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) | Wellbore Centre +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | | | Separation Factor |
| 14,600.0 | 7,859.7 | 7,900.6 | 7,707.0 | 132.4 | 29.6 | -56.56 | -316.0 | 1,147.0 | 6,451.6 | 6,319.4 | 132.19 | 48.805 | | |
| 14,700.0 | 7,860.5 | 7,899.2 | 7,705.6 | 134.3 | 29.6 | -56.18 | -316.1 | 1,146.9 | 6,551.6 | 6,418.2 | 133.40 | 49.111 | | |
| 14,757.2 | 7,861.0 | 7,898.5 | 7,704.9 | 135.4 | 29.6 | -55.96 | -316.1 | 1,146.8 | 6,608.7 | 6,474.7 | 134.09 | 49.285 | | |

| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -90.01 | 0.0 | -86.8 | 86.8 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -90.01 | 0.0 | -86.8 | 86.8 | 86.6 | 0.22 | 386.367 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -90.01 | 0.0 | -86.8 | 86.8 | 86.2 | 0.67 | 128.789 | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.6 | 0.6 | -90.01 | 0.0 | -86.8 | 86.8 | 85.7 | 1.12 | 77.273 | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -90.01 | 0.0 | -86.8 | 86.8 | 85.3 | 1.57 | 55.195 | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | -90.01 | 0.0 | -86.8 | 86.8 | 84.8 | 2.02 | 42.930 | | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | -90.01 | 0.0 | -86.8 | 86.8 | 84.4 | 2.47 | 35.124 | | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.5 | 1.5 | -90.01 | 0.0 | -86.8 | 86.8 | 83.9 | 2.92 | 29.721 | | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | -90.01 | 0.0 | -86.8 | 86.8 | 83.5 | 3.37 | 25.758 | | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | -90.01 | 0.0 | -86.8 | 86.8 | 83.0 | 3.82 | 22.727 | | |
| 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 2.1 | 2.1 | -90.01 | 0.0 | -86.8 | 86.8 | 82.6 | 4.27 | 20.335 CC, ES | | |
| 1,100.0 | 1,100.0 | 1,100.0 | 1,100.0 | 2.4 | 2.4 | -166.14 | 0.0 | -86.8 | 88.5 | 83.8 | 4.71 | 18.803 | | |
| 1,200.0 | 1,199.8 | 1,199.8 | 1,199.8 | 2.6 | 2.6 | -166.88 | 0.0 | -86.8 | 93.6 | 88.5 | 5.14 | 18.231 | | |
| 1,300.0 | 1,299.5 | 1,299.5 | 1,299.5 | 2.8 | 2.8 | -167.95 | 0.0 | -86.8 | 102.1 | 96.6 | 5.56 | 18.368 | | |
| 1,400.0 | 1,398.7 | 1,398.7 | 1,398.7 | 3.0 | 3.0 | -169.19 | 0.0 | -86.8 | 114.1 | 108.1 | 5.98 | 19.069 | | |
| 1,500.0 | 1,497.5 | 1,497.5 | 1,497.5 | 3.3 | 3.3 | -170.43 | 0.0 | -86.8 | 129.5 | 123.1 | 6.40 | 20.229 | | |
| 1,600.0 | 1,595.6 | 1,595.6 | 1,595.6 | 3.6 | 3.5 | -171.61 | 0.0 | -86.8 | 148.3 | 141.5 | 6.82 | 21.758 | | |
| 1,700.0 | 1,693.5 | 1,693.5 | 1,693.5 | 4.0 | 3.7 | -172.63 | 0.0 | -86.8 | 168.7 | 161.5 | 7.26 | 23.231 | | |
| 1,800.0 | 1,791.3 | 1,791.3 | 1,791.3 | 4.3 | 3.9 | -173.43 | 0.0 | -86.8 | 189.2 | 181.5 | 7.71 | 24.525 | | |
| 1,900.0 | 1,889.2 | 1,889.2 | 1,889.2 | 4.7 | 4.1 | -174.07 | 0.0 | -86.8 | 209.6 | 201.5 | 8.17 | 25.666 | | |
| 2,000.0 | 1,987.1 | 1,987.1 | 1,987.1 | 5.1 | 4.4 | -174.60 | 0.0 | -86.8 | 230.1 | 221.5 | 8.63 | 26.679 | | |
| 2,100.0 | 2,084.9 | 2,088.0 | 2,088.0 | 5.5 | 4.6 | -174.77 | 1.3 | -86.5 | 250.1 | 241.0 | 9.09 | 27.509 | | |
| 2,200.0 | 2,182.8 | 2,190.0 | 2,189.9 | 5.9 | 4.8 | -174.20 | 6.1 | -85.2 | 268.7 | 259.1 | 9.56 | 28.101 | | |
| 2,300.0 | 2,280.6 | 2,292.2 | 2,291.7 | 6.3 | 5.0 | -173.03 | 14.4 | -83.0 | 285.9 | 275.9 | 10.04 | 28.483 | | |
| 2,400.0 | 2,378.5 | 2,393.3 | 2,392.1 | 6.7 | 5.3 | -171.39 | 25.9 | -79.9 | 302.1 | 291.6 | 10.53 | 28.691 | | |
| 2,500.0 | 2,476.3 | 2,491.6 | 2,489.6 | 7.2 | 5.5 | -169.81 | 38.0 | -76.7 | 318.1 | 307.1 | 11.03 | 28.843 | | |
| 2,600.0 | 2,574.2 | 2,590.0 | 2,587.2 | 7.6 | 5.7 | -168.37 | 50.1 | -73.5 | 334.4 | 322.9 | 11.54 | 28.967 | | |
| 2,700.0 | 2,672.1 | 2,688.3 | 2,684.7 | 8.0 | 6.0 | -167.07 | 62.2 | -70.3 | 350.9 | 338.8 | 12.07 | 29.068 | | |
| 2,800.0 | 2,769.9 | 2,786.6 | 2,782.2 | 8.5 | 6.3 | -165.89 | 74.2 | -67.0 | 367.5 | 354.9 | 12.61 | 29.148 | | |
| 2,900.0 | 2,867.8 | 2,885.0 | 2,879.8 | 8.9 | 6.5 | -164.80 | 86.3 | -63.8 | 384.2 | 371.1 | 13.15 | 29.209 | | |
| 3,000.0 | 2,965.6 | 2,983.3 | 2,977.3 | 9.3 | 6.8 | -163.81 | 98.4 | -60.6 | 401.1 | 387.4 | 13.71 | 29.256 | | |
| 3,100.0 | 3,063.5 | 3,081.7 | 3,074.9 | 9.8 | 7.1 | -162.90 | 110.5 | -57.4 | 418.1 | 403.8 | 14.28 | 29.290 | | |
| 3,200.0 | 3,161.4 | 3,180.0 | 3,172.4 | 10.2 | 7.3 | -162.06 | 122.6 | -54.1 | 435.2 | 420.4 | 14.85 | 29.313 | | |
| 3,300.0 | 3,259.2 | 3,278.3 | 3,269.9 | 10.7 | 7.6 | -161.28 | 134.7 | -50.9 | 452.4 | 436.9 | 15.42 | 29.328 | | |
| 3,400.0 | 3,357.1 | 3,376.7 | 3,367.5 | 11.1 | 7.9 | -160.56 | 146.7 | -47.7 | 469.6 | 453.6 | 16.01 | 29.335 | | |
| 3,500.0 | 3,454.9 | 3,475.0 | 3,465.0 | 11.5 | 8.2 | -159.89 | 158.8 | -44.5 | 486.9 | 470.3 | 16.60 | 29.337 | | |
| 3,600.0 | 3,552.8 | 3,573.3 | 3,562.5 | 12.0 | 8.5 | -159.27 | 170.9 | -41.2 | 504.3 | 487.1 | 17.19 | 29.334 | | |
| 3,700.0 | 3,650.6 | 3,671.7 | 3,660.1 | 12.4 | 8.7 | -158.69 | 183.0 | -38.0 | 521.7 | 503.9 | 17.79 | 29.327 | | |
| 3,800.0 | 3,748.5 | 3,770.0 | 3,757.6 | 12.9 | 9.0 | -158.14 | 195.1 | -34.8 | 539.2 | 520.8 | 18.39 | 29.316 | | |
| 3,900.0 | 3,846.4 | 3,868.3 | 3,855.2 | 13.3 | 9.3 | -157.63 | 207.1 | -31.6 | 556.7 | 537.7 | 19.00 | 29.303 | | |
| 4,000.0 | 3,944.2 | 3,966.7 | 3,952.7 | 13.8 | 9.6 | -157.15 | 219.2 | -28.3 | 574.3 | 554.7 | 19.61 | 29.288 | | |
| 4,100.0 | 4,042.1 | 4,064.7 | 4,049.9 | 14.2 | 9.9 | -156.71 | 231.2 | -25.1 | 591.9 | 571.6 | 20.21 | 29.281 | | |
| 4,200.0 | 4,139.9 | 4,160.9 | 4,145.6 | 14.7 | 10.1 | -156.49 | 241.1 | -22.5 | 609.7 | 589.0 | 20.75 | 29.387 | | |
| 4,300.0 | 4,237.8 | 4,257.1 | 4,241.5 | 15.1 | 10.3 | -156.58 | 247.7 | -20.7 | 627.9 | 606.7 | 21.23 | 29.572 | | |
| 4,400.0 | 4,335.7 | 4,352.9 | 4,337.2 | 15.6 | 10.5 | -156.96 | 251.3 | -19.8 | 646.5 | 624.8 | 21.68 | 29.822 | | |
| 4,500.0 | 4,433.5 | 4,449.2 | 4,433.5 | 16.0 | 10.7 | -157.58 | 252.0 | -19.6 | 665.4 | 643.3 | 22.09 | 30.119 | | |
| 4,600.0 | 4,531.4 | 4,547.0 | 4,531.4 | 16.4 | 10.9 | -158.23 | 252.0 | -19.6 | 684.6 | 662.0 | 22.52 | 30.396 | | |
| 4,700.0 | 4,629.2 | 4,644.9 | 4,629.2 | 16.9 | 11.1 | -158.85 | 252.0 | -19.6 | 703.8 | 680.8 | 22.96 | 30.651 | | |
| 4,800.0 | 4,727.1 | 4,742.7 | 4,727.1 | 17.3 | 11.3 | -159.44 | 252.0 | -19.6 | 723.1 | 699.7 | 23.40 | 30.898 | | |
| 4,900.0 | 4,824.9 | 4,840.6 | 4,824.9 | 17.8 | 11.5 | -160.00 | 252.0 | -19.6 | 742.4 | 718.6 | 23.84 | 31.137 | | |
| 5,000.0 | 4,922.8 | 4,938.5 | 4,922.8 | 18.2 | 11.7 | -160.53 | 252.0 | -19.6 | 761.9 | 737.6 | 24.29 | 31.368 | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-203 - Wellbore #1 - Plan #2 (10-8-14) | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|--|-------------------------|-------------------|--|--------------------|--|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | | |
| 5,100.0 | 5,020.7 | 5,036.3 | 5,020.7 | 18.7 | 11.9 | -161.03 | 252.0 | -19.6 | 781.3 | 756.6 | 24.73 | 31.592 | | | | |
| 5,200.0 | 5,118.5 | 5,134.2 | 5,118.5 | 19.1 | 12.1 | -161.51 | 252.0 | -19.6 | 800.9 | 775.7 | 25.18 | 31.808 | | | | |
| 5,300.0 | 5,216.4 | 5,232.0 | 5,216.4 | 19.6 | 12.3 | -161.96 | 252.0 | -19.6 | 820.5 | 794.8 | 25.63 | 32.017 | | | | |
| 5,400.0 | 5,314.2 | 5,329.9 | 5,314.2 | 20.0 | 12.5 | -162.39 | 252.0 | -19.6 | 840.1 | 814.0 | 26.07 | 32.219 | | | | |
| 5,500.0 | 5,412.1 | 5,427.8 | 5,412.1 | 20.5 | 12.7 | -162.81 | 252.0 | -19.6 | 859.8 | 833.3 | 26.52 | 32.414 | | | | |
| 5,600.0 | 5,509.9 | 5,525.6 | 5,509.9 | 20.9 | 12.9 | -163.20 | 252.0 | -19.6 | 879.5 | 852.5 | 26.98 | 32.603 | | | | |
| 5,700.0 | 5,607.8 | 5,623.5 | 5,607.8 | 21.4 | 13.1 | -163.58 | 252.0 | -19.6 | 899.3 | 871.8 | 27.43 | 32.786 | | | | |
| 5,800.0 | 5,705.7 | 5,721.3 | 5,705.7 | 21.8 | 13.3 | -163.94 | 252.0 | -19.6 | 919.1 | 891.2 | 27.88 | 32.963 | | | | |
| 5,900.0 | 5,803.5 | 5,819.2 | 5,803.5 | 22.3 | 13.5 | -164.29 | 252.0 | -19.6 | 938.9 | 910.6 | 28.34 | 33.134 | | | | |
| 6,000.0 | 5,901.4 | 5,917.0 | 5,901.4 | 22.7 | 13.7 | -164.62 | 252.0 | -19.6 | 958.8 | 930.0 | 28.79 | 33.300 | | | | |
| 6,100.0 | 5,999.5 | 6,015.2 | 5,999.5 | 23.1 | 13.9 | -165.01 | 252.0 | -19.6 | 977.3 | 948.0 | 29.29 | 33.371 | | | | |
| 6,200.0 | 6,098.3 | 6,113.9 | 6,098.3 | 23.4 | 14.1 | -165.32 | 252.0 | -19.6 | 992.5 | 962.8 | 29.73 | 33.381 | | | | |
| 6,300.0 | 6,197.5 | 6,213.2 | 6,197.5 | 23.7 | 14.3 | -165.56 | 252.0 | -19.6 | 1,004.4 | 974.3 | 30.15 | 33.316 | | | | |
| 6,400.0 | 6,297.1 | 6,312.8 | 6,297.1 | 23.9 | 14.5 | -165.73 | 252.0 | -19.6 | 1,013.0 | 982.4 | 30.53 | 33.179 | | | | |
| 6,500.0 | 6,397.0 | 6,412.6 | 6,397.0 | 24.0 | 14.7 | -165.83 | 252.0 | -19.6 | 1,018.2 | 987.3 | 30.88 | 32.973 | | | | |
| 6,600.0 | 6,496.9 | 6,512.6 | 6,496.9 | 24.2 | 14.9 | -165.86 | 252.0 | -19.6 | 1,020.0 | 988.8 | 31.20 | 32.695 | | | | |
| 6,700.0 | 6,596.9 | 6,612.6 | 6,596.9 | 24.3 | 15.2 | -90.00 | 252.0 | -19.6 | 1,020.0 | 988.4 | 31.58 | 32.299 | | | | |
| 6,800.0 | 6,696.9 | 6,712.6 | 6,696.9 | 24.4 | 15.4 | -90.00 | 252.0 | -19.6 | 1,020.0 | 988.0 | 31.97 | 31.902 | | | | |
| 6,900.0 | 6,796.9 | 6,812.6 | 6,796.9 | 24.5 | 15.6 | -90.00 | 252.0 | -19.6 | 1,020.0 | 987.6 | 32.37 | 31.513 | | | | |
| 6,946.6 | 6,843.5 | 6,859.2 | 6,843.5 | 24.6 | 15.7 | -90.00 | 252.0 | -19.6 | 1,020.0 | 987.4 | 32.55 | 31.338 | | | | |
| 7,000.0 | 6,896.9 | 6,912.5 | 6,896.8 | 24.7 | 15.8 | -90.13 | 249.6 | -19.6 | 1,020.0 | 987.2 | 32.72 | 31.172 | | | | |
| 7,100.0 | 6,996.9 | 7,010.3 | 6,993.5 | 24.8 | 15.9 | -90.92 | 235.7 | -19.6 | 1,020.1 | 987.1 | 32.94 | 30.965 | | | | |
| 7,200.0 | 7,096.9 | 7,103.7 | 7,083.5 | 24.9 | 15.9 | 87.75 | 211.0 | -19.6 | 1,020.8 | 987.7 | 33.07 | 30.872 | | | | |
| 7,300.0 | 7,195.9 | 7,194.1 | 7,167.1 | 25.0 | 15.9 | 86.38 | 176.8 | -19.6 | 1,022.1 | 989.0 | 33.11 | 30.869 | | | | |
| 7,400.0 | 7,292.4 | 7,282.1 | 7,244.2 | 25.1 | 16.0 | 85.07 | 134.2 | -19.6 | 1,024.0 | 990.8 | 33.14 | 30.902 | | | | |
| 7,500.0 | 7,384.6 | 7,368.2 | 7,314.2 | 25.1 | 16.0 | 83.85 | 84.3 | -19.6 | 1,026.1 | 993.0 | 33.18 | 30.925 | | | | |
| 7,600.0 | 7,470.9 | 7,450.0 | 7,375.2 | 25.1 | 16.1 | 82.75 | 29.8 | -19.6 | 1,028.6 | 995.3 | 33.29 | 30.901 | | | | |
| 7,700.0 | 7,550.0 | 7,535.5 | 7,432.3 | 25.1 | 16.2 | 81.70 | -33.7 | -19.6 | 1,031.1 | 997.6 | 33.50 | 30.773 | | | | |
| 7,800.0 | 7,620.5 | 7,617.2 | 7,480.0 | 25.1 | 16.5 | 80.81 | -100.0 | -19.6 | 1,033.5 | 999.6 | 33.86 | 30.524 | | | | |
| 7,900.0 | 7,681.0 | 7,700.0 | 7,520.8 | 25.2 | 16.8 | 80.04 | -172.0 | -19.6 | 1,035.8 | 1,001.4 | 34.39 | 30.122 | | | | |
| 8,000.0 | 7,730.7 | 7,777.9 | 7,551.8 | 25.4 | 17.3 | 79.44 | -243.5 | -19.6 | 1,037.7 | 1,002.6 | 35.10 | 29.568 | | | | |
| 8,100.0 | 7,768.6 | 7,857.3 | 7,575.8 | 25.6 | 17.8 | 78.97 | -319.1 | -19.6 | 1,039.2 | 1,003.2 | 36.01 | 28.858 | | | | |
| 8,200.0 | 7,794.2 | 7,936.2 | 7,591.8 | 26.0 | 18.5 | 78.66 | -396.3 | -19.6 | 1,040.3 | 1,003.2 | 37.14 | 28.009 | | | | |
| 8,300.0 | 7,806.9 | 8,014.9 | 7,599.6 | 26.5 | 19.2 | 78.50 | -474.6 | -19.6 | 1,040.9 | 1,002.4 | 38.48 | 27.053 | | | | |
| 8,400.0 | 7,808.9 | 8,105.2 | 7,600.7 | 27.1 | 20.2 | 78.46 | -564.9 | -19.6 | 1,041.0 | 1,000.7 | 40.24 | 25.869 | | | | |
| 8,500.0 | 7,809.7 | 8,205.2 | 7,600.9 | 27.9 | 21.3 | 78.43 | -664.9 | -19.6 | 1,041.1 | 998.7 | 42.42 | 24.543 | | | | |
| 8,600.0 | 7,810.5 | 8,305.2 | 7,601.1 | 28.7 | 22.6 | 78.40 | -764.9 | -19.6 | 1,041.2 | 996.4 | 44.81 | 23.238 | | | | |
| 8,700.0 | 7,811.3 | 8,405.2 | 7,601.3 | 29.7 | 23.9 | 78.37 | -864.9 | -19.6 | 1,041.4 | 994.0 | 47.37 | 21.982 | | | | |
| 8,800.0 | 7,812.1 | 8,505.2 | 7,601.5 | 30.9 | 25.4 | 78.33 | -964.9 | -19.6 | 1,041.5 | 991.4 | 50.09 | 20.793 | | | | |
| 8,900.0 | 7,813.0 | 8,605.2 | 7,601.7 | 32.0 | 26.8 | 78.30 | -1,064.9 | -19.6 | 1,041.6 | 988.7 | 52.93 | 19.678 | | | | |
| 9,000.0 | 7,813.8 | 8,705.2 | 7,601.9 | 33.3 | 28.4 | 78.27 | -1,164.9 | -19.6 | 1,041.7 | 985.8 | 55.88 | 18.642 | | | | |
| 9,100.0 | 7,814.6 | 8,805.2 | 7,602.1 | 34.6 | 30.0 | 78.23 | -1,264.9 | -19.6 | 1,041.8 | 982.9 | 58.92 | 17.682 | | | | |
| 9,200.0 | 7,815.4 | 8,905.2 | 7,602.3 | 36.0 | 31.6 | 78.20 | -1,364.8 | -19.6 | 1,042.0 | 979.9 | 62.04 | 16.795 | | | | |
| 9,300.0 | 7,816.2 | 9,005.2 | 7,602.6 | 37.5 | 33.2 | 78.17 | -1,464.8 | -19.6 | 1,042.1 | 976.9 | 65.23 | 15.977 | | | | |
| 9,400.0 | 7,817.1 | 9,105.2 | 7,602.8 | 38.9 | 34.9 | 78.14 | -1,564.8 | -19.6 | 1,042.2 | 973.8 | 68.47 | 15.222 | | | | |
| 9,500.0 | 7,817.9 | 9,205.2 | 7,603.0 | 40.4 | 36.6 | 78.10 | -1,664.8 | -19.6 | 1,042.3 | 970.6 | 71.76 | 14.526 | | | | |
| 9,600.0 | 7,818.7 | 9,305.2 | 7,603.2 | 42.0 | 38.3 | 78.07 | -1,764.8 | -19.6 | 1,042.5 | 967.4 | 75.09 | 13.882 | | | | |
| 9,700.0 | 7,819.5 | 9,405.2 | 7,603.4 | 43.6 | 40.0 | 78.04 | -1,864.8 | -19.6 | 1,042.6 | 964.1 | 78.46 | 13.288 | | | | |
| 9,800.0 | 7,820.3 | 9,505.2 | 7,603.6 | 45.2 | 41.8 | 78.00 | -1,964.8 | -19.6 | 1,042.7 | 960.9 | 81.87 | 12.737 | | | | |
| 9,900.0 | 7,821.2 | 9,605.2 | 7,603.8 | 46.8 | 43.6 | 77.97 | -2,064.8 | -19.6 | 1,042.9 | 957.6 | 85.30 | 12.226 | | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-203 - Wellbore #1 - Plan #2 (10-8-14) | | | Offset Site Error: | | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|--|-------------------------|-------------------|--------------------|---------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | |
| 10,000.0 | 7,822.0 | 9,705.2 | 7,604.0 | 48.5 | 45.3 | 77.94 | -2,164.8 | -19.6 | 1,043.0 | 954.2 | 88.75 | 11.751 | | | |
| 10,100.0 | 7,822.8 | 9,805.2 | 7,604.2 | 50.1 | 47.1 | 77.91 | -2,264.8 | -19.6 | 1,043.1 | 950.9 | 92.23 | 11.310 | | | |
| 10,200.0 | 7,823.6 | 9,905.2 | 7,604.4 | 51.8 | 48.9 | 77.87 | -2,364.8 | -19.6 | 1,043.2 | 947.5 | 95.73 | 10.898 | | | |
| 10,300.0 | 7,824.4 | 10,005.2 | 7,604.7 | 53.5 | 50.7 | 77.84 | -2,464.8 | -19.6 | 1,043.4 | 944.1 | 99.25 | 10.513 | | | |
| 10,400.0 | 7,825.3 | 10,105.1 | 7,604.9 | 55.3 | 52.6 | 77.81 | -2,564.8 | -19.6 | 1,043.5 | 940.7 | 102.78 | 10.153 | | | |
| 10,500.0 | 7,826.1 | 10,205.1 | 7,605.1 | 57.0 | 54.4 | 77.77 | -2,664.8 | -19.6 | 1,043.6 | 937.3 | 106.32 | 9.816 | | | |
| 10,600.0 | 7,826.9 | 10,305.1 | 7,605.3 | 58.7 | 56.2 | 77.74 | -2,764.8 | -19.6 | 1,043.8 | 933.9 | 109.88 | 9.499 | | | |
| 10,700.0 | 7,827.7 | 10,405.1 | 7,605.5 | 60.5 | 58.0 | 77.71 | -2,864.8 | -19.6 | 1,043.9 | 930.4 | 113.45 | 9.202 | | | |
| 10,800.0 | 7,828.5 | 10,505.1 | 7,605.7 | 62.2 | 59.9 | 77.68 | -2,964.8 | -19.6 | 1,044.0 | 927.0 | 117.03 | 8.921 | | | |
| 10,900.0 | 7,829.4 | 10,605.1 | 7,605.9 | 64.0 | 61.7 | 77.64 | -3,064.8 | -19.6 | 1,044.1 | 923.5 | 120.61 | 8.657 | | | |
| 11,000.0 | 7,830.2 | 10,705.1 | 7,606.1 | 65.8 | 63.6 | 77.61 | -3,164.8 | -19.6 | 1,044.3 | 920.1 | 124.21 | 8.407 | | | |
| 11,100.0 | 7,831.0 | 10,805.1 | 7,606.3 | 67.6 | 65.4 | 77.58 | -3,264.8 | -19.6 | 1,044.4 | 916.6 | 127.81 | 8.171 | | | |
| 11,200.0 | 7,831.8 | 10,905.1 | 7,606.5 | 69.4 | 67.3 | 77.54 | -3,364.8 | -19.6 | 1,044.5 | 913.1 | 131.42 | 7.948 | | | |
| 11,300.0 | 7,832.6 | 11,005.1 | 7,606.7 | 71.2 | 69.1 | 77.51 | -3,464.8 | -19.6 | 1,044.7 | 909.6 | 135.04 | 7.736 | | | |
| 11,400.0 | 7,833.5 | 11,105.1 | 7,607.0 | 73.0 | 71.0 | 77.48 | -3,564.8 | -19.6 | 1,044.8 | 906.1 | 138.66 | 7.535 | | | |
| 11,500.0 | 7,834.3 | 11,205.1 | 7,607.2 | 74.8 | 72.9 | 77.45 | -3,664.8 | -19.6 | 1,044.9 | 902.6 | 142.29 | 7.344 | | | |
| 11,600.0 | 7,835.1 | 11,305.1 | 7,607.4 | 76.6 | 74.7 | 77.41 | -3,764.8 | -19.6 | 1,045.1 | 899.1 | 145.92 | 7.162 | | | |
| 11,700.0 | 7,835.9 | 11,405.1 | 7,607.6 | 78.4 | 76.6 | 77.38 | -3,864.8 | -19.6 | 1,045.2 | 895.6 | 149.56 | 6.989 | | | |
| 11,800.0 | 7,836.7 | 11,505.1 | 7,607.8 | 80.3 | 78.5 | 77.35 | -3,964.8 | -19.6 | 1,045.3 | 892.1 | 153.20 | 6.824 | | | |
| 11,900.0 | 7,837.6 | 11,605.1 | 7,608.0 | 82.1 | 80.3 | 77.32 | -4,064.8 | -19.6 | 1,045.5 | 888.6 | 156.84 | 6.666 | | | |
| 12,000.0 | 7,838.4 | 11,705.1 | 7,608.2 | 83.9 | 82.2 | 77.28 | -4,164.8 | -19.6 | 1,045.6 | 885.1 | 160.49 | 6.515 | | | |
| 12,100.0 | 7,839.2 | 11,805.1 | 7,608.4 | 85.8 | 84.1 | 77.25 | -4,264.8 | -19.6 | 1,045.7 | 881.6 | 164.14 | 6.371 | | | |
| 12,200.0 | 7,840.0 | 11,905.1 | 7,608.6 | 87.6 | 86.0 | 77.22 | -4,364.8 | -19.6 | 1,045.9 | 878.1 | 167.79 | 6.233 | | | |
| 12,300.0 | 7,840.8 | 12,005.1 | 7,608.8 | 89.4 | 87.8 | 77.19 | -4,464.8 | -19.6 | 1,046.0 | 874.6 | 171.44 | 6.101 | | | |
| 12,400.0 | 7,841.7 | 12,105.1 | 7,609.0 | 91.3 | 89.7 | 77.15 | -4,564.8 | -19.6 | 1,046.1 | 871.0 | 175.10 | 5.975 | | | |
| 12,500.0 | 7,842.5 | 12,205.1 | 7,609.3 | 93.1 | 91.6 | 77.12 | -4,664.8 | -19.6 | 1,046.3 | 867.5 | 178.76 | 5.853 | | | |
| 12,600.0 | 7,843.3 | 12,305.1 | 7,609.5 | 95.0 | 93.5 | 77.09 | -4,764.8 | -19.6 | 1,046.4 | 864.0 | 182.42 | 5.736 | | | |
| 12,700.0 | 7,844.1 | 12,405.1 | 7,609.7 | 96.8 | 95.4 | 77.06 | -4,864.8 | -19.6 | 1,046.6 | 860.5 | 186.08 | 5.624 | | | |
| 12,800.0 | 7,844.9 | 12,505.1 | 7,609.9 | 98.7 | 97.3 | 77.02 | -4,964.8 | -19.6 | 1,046.7 | 856.9 | 189.75 | 5.516 | | | |
| 12,900.0 | 7,845.8 | 12,605.1 | 7,610.1 | 100.6 | 99.2 | 76.99 | -5,064.8 | -19.6 | 1,046.8 | 853.4 | 193.41 | 5.412 | | | |
| 13,000.0 | 7,846.6 | 12,705.1 | 7,610.3 | 102.4 | 101.0 | 76.96 | -5,164.8 | -19.6 | 1,047.0 | 849.9 | 197.08 | 5.312 | | | |
| 13,100.0 | 7,847.4 | 12,805.1 | 7,610.5 | 104.3 | 102.9 | 76.92 | -5,264.8 | -19.6 | 1,047.1 | 846.4 | 200.75 | 5.216 | | | |
| 13,200.0 | 7,848.2 | 12,905.1 | 7,610.7 | 106.1 | 104.8 | 76.89 | -5,364.8 | -19.6 | 1,047.2 | 842.8 | 204.42 | 5.123 | | | |
| 13,300.0 | 7,849.0 | 13,005.1 | 7,610.9 | 108.0 | 106.7 | 76.86 | -5,464.8 | -19.6 | 1,047.4 | 839.3 | 208.09 | 5.033 | | | |
| 13,400.0 | 7,849.9 | 13,105.1 | 7,611.1 | 109.9 | 108.6 | 76.83 | -5,564.8 | -19.6 | 1,047.5 | 835.8 | 211.76 | 4.947 | | | |
| 13,500.0 | 7,850.7 | 13,205.1 | 7,611.4 | 111.7 | 110.5 | 76.79 | -5,664.8 | -19.6 | 1,047.7 | 832.2 | 215.43 | 4.863 | | | |
| 13,600.0 | 7,851.5 | 13,305.1 | 7,611.6 | 113.6 | 112.4 | 76.76 | -5,764.8 | -19.6 | 1,047.8 | 828.7 | 219.11 | 4.782 | | | |
| 13,700.0 | 7,852.3 | 13,405.1 | 7,611.8 | 115.5 | 114.3 | 76.73 | -5,864.8 | -19.6 | 1,047.9 | 825.2 | 222.78 | 4.704 | | | |
| 13,800.0 | 7,853.1 | 13,505.1 | 7,612.0 | 117.4 | 116.2 | 76.70 | -5,964.8 | -19.6 | 1,048.1 | 821.6 | 226.45 | 4.628 | | | |
| 13,900.0 | 7,854.0 | 13,605.1 | 7,612.2 | 119.2 | 118.1 | 76.66 | -6,064.8 | -19.6 | 1,048.2 | 818.1 | 230.13 | 4.555 | | | |
| 14,000.0 | 7,854.8 | 13,705.1 | 7,612.4 | 121.1 | 120.0 | 76.63 | -6,164.7 | -19.6 | 1,048.4 | 814.6 | 233.80 | 4.484 | | | |
| 14,100.0 | 7,855.6 | 13,805.1 | 7,612.6 | 123.0 | 121.9 | 76.60 | -6,264.7 | -19.6 | 1,048.5 | 811.0 | 237.48 | 4.415 | | | |
| 14,200.0 | 7,856.4 | 13,905.1 | 7,612.8 | 124.9 | 123.8 | 76.57 | -6,364.7 | -19.6 | 1,048.6 | 807.5 | 241.15 | 4.348 | | | |
| 14,300.0 | 7,857.2 | 14,005.1 | 7,613.0 | 126.7 | 125.7 | 76.53 | -6,464.7 | -19.6 | 1,048.8 | 804.0 | 244.83 | 4.284 | | | |
| 14,400.0 | 7,858.1 | 14,105.1 | 7,613.2 | 128.6 | 127.6 | 76.50 | -6,564.7 | -19.6 | 1,048.9 | 800.4 | 248.50 | 4.221 | | | |
| 14,500.0 | 7,858.9 | 14,205.1 | 7,613.4 | 130.5 | 129.5 | 76.47 | -6,664.7 | -19.6 | 1,049.1 | 796.9 | 252.18 | 4.160 | | | |
| 14,600.0 | 7,859.7 | 14,305.1 | 7,613.7 | 132.4 | 131.4 | 76.44 | -6,764.7 | -19.6 | 1,049.2 | 793.4 | 255.85 | 4.101 | | | |
| 14,700.0 | 7,860.5 | 14,405.1 | 7,613.9 | 134.3 | 133.3 | 76.40 | -6,864.7 | -19.6 | 1,049.4 | 789.8 | 259.53 | 4.043 | | | |
| 14,757.2 | 7,861.0 | 14,462.3 | 7,614.0 | 135.4 | 134.4 | 76.39 | -6,921.9 | -19.6 | 1,049.4 | 787.8 | 261.63 | 4.011 SF | | | |

| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | 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 | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -90.00 | 0.0 | -28.0 | 28.0 | | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -90.00 | 0.0 | -28.0 | 28.0 | 27.8 | 0.22 | 124.634 | | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -90.00 | 0.0 | -28.0 | 28.0 | 27.3 | 0.67 | 41.545 | | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.6 | 0.6 | -90.00 | 0.0 | -28.0 | 28.0 | 26.9 | 1.12 | 24.927 | | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -90.00 | 0.0 | -28.0 | 28.0 | 26.4 | 1.57 | 17.805 | | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | -90.00 | 0.0 | -28.0 | 28.0 | 26.0 | 2.02 | 13.848 | | | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | -90.00 | 0.0 | -28.0 | 28.0 | 25.5 | 2.47 | 11.330 | | | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.5 | 1.5 | -90.00 | 0.0 | -28.0 | 28.0 | 25.1 | 2.92 | 9.587 | | | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | -90.00 | 0.0 | -28.0 | 28.0 | 24.6 | 3.37 | 8.309 | | | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | -90.00 | 0.0 | -28.0 | 28.0 | 24.2 | 3.82 | 7.331 | | | |
| 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 2.1 | 2.1 | -90.00 | 0.0 | -28.0 | 28.0 | 23.7 | 4.27 | 6.560 CC, ES | | | |
| 1,100.0 | 1,100.0 | 1,100.0 | 1,100.0 | 2.4 | 2.4 | -166.68 | 0.0 | -28.0 | 29.7 | 25.0 | 4.71 | 6.309 | | | |
| 1,200.0 | 1,199.8 | 1,199.8 | 1,199.8 | 2.6 | 2.6 | -168.64 | 0.0 | -28.0 | 34.8 | 29.7 | 5.14 | 6.781 | | | |
| 1,300.0 | 1,299.5 | 1,300.9 | 1,300.9 | 2.8 | 2.8 | -170.26 | 0.6 | -26.3 | 41.7 | 36.2 | 5.55 | 7.514 | | | |
| 1,400.0 | 1,398.7 | 1,402.2 | 1,402.0 | 3.0 | 3.0 | -170.96 | 2.5 | -21.3 | 48.7 | 42.7 | 5.96 | 8.172 | | | |
| 1,500.0 | 1,497.5 | 1,503.7 | 1,503.2 | 3.3 | 3.2 | -171.07 | 5.6 | -12.9 | 55.7 | 49.3 | 6.36 | 8.748 | | | |
| 1,600.0 | 1,595.6 | 1,605.5 | 1,604.1 | 3.6 | 3.5 | -170.80 | 10.0 | -1.2 | 62.7 | 55.9 | 6.78 | 9.250 | | | |
| 1,700.0 | 1,693.5 | 1,707.4 | 1,704.8 | 4.0 | 3.8 | -169.99 | 15.7 | 14.0 | 67.8 | 60.6 | 7.23 | 9.376 | | | |
| 1,800.0 | 1,791.3 | 1,807.3 | 1,803.2 | 4.3 | 4.1 | -168.96 | 21.7 | 30.2 | 71.5 | 63.8 | 7.70 | 9.288 | | | |
| 1,900.0 | 1,889.2 | 1,907.2 | 1,901.6 | 4.7 | 4.4 | -168.04 | 27.8 | 46.4 | 75.3 | 67.1 | 8.18 | 9.199 | | | |
| 2,000.0 | 1,987.1 | 2,007.2 | 2,000.0 | 5.1 | 4.7 | -167.20 | 33.8 | 62.6 | 79.0 | 70.4 | 8.68 | 9.111 | | | |
| 2,100.0 | 2,084.9 | 2,107.1 | 2,098.4 | 5.5 | 5.0 | -166.44 | 39.9 | 78.8 | 82.8 | 73.6 | 9.18 | 9.024 | | | |
| 2,200.0 | 2,182.8 | 2,207.0 | 2,196.8 | 5.9 | 5.4 | -165.75 | 45.9 | 95.0 | 86.6 | 76.9 | 9.69 | 8.938 | | | |
| 2,300.0 | 2,280.6 | 2,306.9 | 2,295.2 | 6.3 | 5.7 | -165.11 | 52.0 | 111.2 | 90.4 | 80.2 | 10.21 | 8.856 | | | |
| 2,400.0 | 2,378.5 | 2,406.9 | 2,393.6 | 6.7 | 6.1 | -164.53 | 58.0 | 127.4 | 94.2 | 83.5 | 10.74 | 8.776 | | | |
| 2,500.0 | 2,476.3 | 2,506.8 | 2,492.1 | 7.2 | 6.4 | -163.99 | 64.1 | 143.6 | 98.1 | 86.8 | 11.27 | 8.699 | | | |
| 2,600.0 | 2,574.2 | 2,606.7 | 2,590.5 | 7.6 | 6.8 | -163.49 | 70.1 | 159.8 | 101.9 | 90.1 | 11.81 | 8.625 | | | |
| 2,700.0 | 2,672.1 | 2,706.6 | 2,688.9 | 8.0 | 7.2 | -163.03 | 76.1 | 176.1 | 105.7 | 93.4 | 12.36 | 8.555 | | | |
| 2,800.0 | 2,769.9 | 2,806.6 | 2,787.3 | 8.5 | 7.5 | -162.60 | 82.2 | 192.3 | 109.6 | 96.7 | 12.91 | 8.487 | | | |
| 2,900.0 | 2,867.8 | 2,906.5 | 2,885.7 | 8.9 | 7.9 | -162.20 | 88.2 | 208.5 | 113.4 | 100.0 | 13.47 | 8.423 | | | |
| 3,000.0 | 2,965.6 | 3,006.4 | 2,984.1 | 9.3 | 8.3 | -161.83 | 94.3 | 224.7 | 117.3 | 103.3 | 14.03 | 8.361 | | | |
| 3,100.0 | 3,063.5 | 3,106.3 | 3,082.5 | 9.8 | 8.7 | -161.48 | 100.3 | 240.9 | 121.1 | 106.6 | 14.59 | 8.303 | | | |
| 3,200.0 | 3,161.4 | 3,206.2 | 3,181.0 | 10.2 | 9.0 | -161.15 | 106.4 | 257.1 | 125.0 | 109.9 | 15.16 | 8.247 | | | |
| 3,300.0 | 3,259.2 | 3,306.2 | 3,279.4 | 10.7 | 9.4 | -160.84 | 112.4 | 273.3 | 128.9 | 113.1 | 15.73 | 8.194 | | | |
| 3,400.0 | 3,357.1 | 3,406.1 | 3,377.8 | 11.1 | 9.8 | -160.55 | 118.5 | 289.5 | 132.8 | 116.4 | 16.30 | 8.143 | | | |
| 3,500.0 | 3,454.9 | 3,506.0 | 3,476.2 | 11.5 | 10.2 | -160.27 | 124.5 | 305.7 | 136.6 | 119.7 | 16.88 | 8.094 | | | |
| 3,600.0 | 3,552.8 | 3,605.9 | 3,574.6 | 12.0 | 10.6 | -160.01 | 130.6 | 321.9 | 140.5 | 123.0 | 17.46 | 8.048 | | | |
| 3,700.0 | 3,650.6 | 3,705.9 | 3,673.0 | 12.4 | 10.9 | -159.77 | 136.6 | 338.1 | 144.4 | 126.3 | 18.04 | 8.004 | | | |
| 3,800.0 | 3,748.5 | 3,805.8 | 3,771.4 | 12.9 | 11.3 | -159.54 | 142.7 | 354.4 | 148.3 | 129.6 | 18.62 | 7.961 | | | |
| 3,900.0 | 3,846.4 | 3,905.7 | 3,869.9 | 13.3 | 11.7 | -159.32 | 148.7 | 370.6 | 152.2 | 132.9 | 19.21 | 7.921 | | | |
| 4,000.0 | 3,944.2 | 4,005.6 | 3,968.3 | 13.8 | 12.1 | -159.11 | 154.8 | 386.8 | 156.0 | 136.3 | 19.80 | 7.882 | | | |
| 4,100.0 | 4,042.1 | 4,105.5 | 4,066.7 | 14.2 | 12.5 | -158.91 | 160.8 | 403.0 | 159.9 | 139.6 | 20.39 | 7.845 | | | |
| 4,200.0 | 4,139.9 | 4,205.5 | 4,165.1 | 14.7 | 12.9 | -158.72 | 166.9 | 419.2 | 163.8 | 142.9 | 20.98 | 7.810 | | | |
| 4,300.0 | 4,237.8 | 4,305.4 | 4,263.5 | 15.1 | 13.3 | -158.53 | 172.9 | 435.4 | 167.7 | 146.2 | 21.57 | 7.776 | | | |
| 4,400.0 | 4,335.7 | 4,405.3 | 4,361.9 | 15.6 | 13.7 | -158.36 | 179.0 | 451.6 | 171.6 | 149.5 | 22.16 | 7.743 | | | |
| 4,500.0 | 4,433.5 | 4,505.2 | 4,460.3 | 16.0 | 14.0 | -158.20 | 185.0 | 467.8 | 175.5 | 152.8 | 22.76 | 7.712 | | | |
| 4,600.0 | 4,531.4 | 4,605.2 | 4,558.8 | 16.4 | 14.4 | -158.04 | 191.1 | 484.0 | 179.4 | 156.1 | 23.35 | 7.682 | | | |
| 4,700.0 | 4,629.2 | 4,705.1 | 4,657.2 | 16.9 | 14.8 | -157.89 | 197.1 | 500.2 | 183.3 | 159.4 | 23.95 | 7.653 | | | |
| 4,800.0 | 4,727.1 | 4,805.0 | 4,755.6 | 17.3 | 15.2 | -157.74 | 203.2 | 516.4 | 187.2 | 162.7 | 24.55 | 7.626 | | | |
| 4,900.0 | 4,824.9 | 4,904.9 | 4,854.0 | 17.8 | 15.6 | -157.60 | 209.2 | 532.7 | 191.1 | 166.0 | 25.15 | 7.599 | | | |
| 5,000.0 | 4,922.8 | 5,004.9 | 4,952.4 | 18.2 | 16.0 | -157.47 | 215.3 | 548.9 | 195.0 | 169.3 | 25.75 | 7.573 | | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-303 - Wellbore #1 - Plan #1 (10-8-14) | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|------------------------|------------|----------------------|--|-------------------------|-------------------|--|--------------------|--|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre | | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | | |
| | | | | | | | +N/-S (ft) | +E/-W (ft) | | | | | | | | |
| 5,100.0 | 5,020.7 | 5,104.8 | 5,050.8 | 18.7 | 16.4 | -157.34 | 221.3 | 565.1 | 198.9 | 172.6 | 26.35 | 7.549 | | | | |
| 5,200.0 | 5,118.5 | 5,204.7 | 5,149.2 | 19.1 | 16.8 | -157.22 | 227.4 | 581.3 | 202.8 | 175.9 | 26.95 | 7.525 | | | | |
| 5,300.0 | 5,216.4 | 5,304.6 | 5,247.6 | 19.6 | 17.2 | -157.10 | 233.4 | 597.5 | 206.7 | 179.2 | 27.56 | 7.502 | | | | |
| 5,400.0 | 5,314.2 | 5,400.0 | 5,341.6 | 20.0 | 17.5 | -157.02 | 239.1 | 612.7 | 210.9 | 182.8 | 28.13 | 7.497 | | | | |
| 5,500.0 | 5,412.1 | 5,495.6 | 5,436.3 | 20.5 | 17.8 | -157.29 | 243.9 | 625.6 | 217.5 | 188.9 | 28.60 | 7.603 | | | | |
| 5,600.0 | 5,509.9 | 5,588.8 | 5,528.9 | 20.9 | 18.0 | -157.91 | 247.5 | 635.3 | 226.9 | 197.9 | 28.99 | 7.827 | | | | |
| 5,700.0 | 5,607.8 | 5,681.3 | 5,621.1 | 21.4 | 18.2 | -158.81 | 250.0 | 642.1 | 239.2 | 209.9 | 29.31 | 8.162 | | | | |
| 5,800.0 | 5,705.7 | 5,773.0 | 5,712.6 | 21.8 | 18.4 | -159.93 | 251.5 | 646.1 | 254.4 | 224.8 | 29.57 | 8.603 | | | | |
| 5,900.0 | 5,803.5 | 5,863.9 | 5,803.5 | 22.3 | 18.5 | -161.18 | 252.0 | 647.3 | 272.6 | 242.7 | 29.81 | 9.143 | | | | |
| 6,000.0 | 5,901.4 | 5,961.7 | 5,901.4 | 22.7 | 18.6 | -162.48 | 252.0 | 647.3 | 292.2 | 262.1 | 30.07 | 9.717 | | | | |
| 6,100.0 | 5,999.5 | 6,059.9 | 5,999.5 | 23.1 | 18.8 | -163.64 | 252.0 | 647.3 | 310.5 | 280.2 | 30.36 | 10.228 | | | | |
| 6,200.0 | 6,098.3 | 6,158.6 | 6,098.3 | 23.4 | 18.9 | -164.50 | 252.0 | 647.3 | 325.7 | 295.0 | 30.65 | 10.626 | | | | |
| 6,300.0 | 6,197.5 | 6,257.9 | 6,197.5 | 23.7 | 19.1 | -165.12 | 252.0 | 647.3 | 337.6 | 306.6 | 30.94 | 10.911 | | | | |
| 6,400.0 | 6,297.1 | 6,357.5 | 6,297.1 | 23.9 | 19.2 | -165.54 | 252.0 | 647.3 | 346.1 | 314.9 | 31.22 | 11.087 | | | | |
| 6,500.0 | 6,397.0 | 6,457.3 | 6,397.0 | 24.0 | 19.4 | -165.78 | 252.0 | 647.3 | 351.3 | 319.8 | 31.48 | 11.158 | | | | |
| 6,600.0 | 6,496.9 | 6,557.3 | 6,496.9 | 24.2 | 19.5 | -165.86 | 252.0 | 647.3 | 353.1 | 321.3 | 31.73 | 11.127 | | | | |
| 6,700.0 | 6,596.9 | 6,657.3 | 6,596.9 | 24.3 | 19.7 | -90.00 | 252.0 | 647.3 | 353.1 | 321.0 | 32.09 | 11.001 | | | | |
| 6,800.0 | 6,696.9 | 6,757.3 | 6,696.9 | 24.4 | 19.9 | -90.00 | 252.0 | 647.3 | 353.1 | 320.6 | 32.47 | 10.874 | | | | |
| 6,900.0 | 6,796.9 | 6,857.3 | 6,796.9 | 24.5 | 20.0 | -90.00 | 252.0 | 647.3 | 353.1 | 320.2 | 32.84 | 10.749 | | | | |
| 7,000.0 | 6,896.9 | 6,957.3 | 6,896.9 | 24.7 | 20.2 | -90.00 | 252.0 | 647.3 | 353.1 | 319.8 | 33.22 | 10.627 | | | | |
| 7,044.3 | 6,941.3 | 7,001.6 | 6,941.3 | 24.7 | 20.3 | -90.01 | 251.9 | 647.3 | 353.1 | 319.7 | 33.39 | 10.575 | | | | |
| 7,100.0 | 6,996.9 | 7,057.1 | 6,996.7 | 24.8 | 20.3 | -90.47 | 249.1 | 647.3 | 353.1 | 319.6 | 33.51 | 10.535 | | | | |
| 7,200.0 | 7,096.9 | 7,155.0 | 7,093.4 | 24.9 | 20.4 | 87.40 | 234.3 | 647.3 | 353.4 | 319.9 | 33.54 | 10.538 | | | | |
| 7,300.0 | 7,195.9 | 7,251.1 | 7,185.7 | 25.0 | 20.5 | 85.09 | 208.0 | 647.3 | 354.4 | 320.9 | 33.49 | 10.583 | | | | |
| 7,400.0 | 7,292.4 | 7,345.5 | 7,272.5 | 25.1 | 20.5 | 82.90 | 171.0 | 647.3 | 355.8 | 322.4 | 33.44 | 10.641 | | | | |
| 7,500.0 | 7,384.6 | 7,438.4 | 7,352.8 | 25.1 | 20.5 | 80.85 | 124.4 | 647.3 | 357.7 | 324.2 | 33.44 | 10.695 | | | | |
| 7,600.0 | 7,470.9 | 7,530.1 | 7,426.0 | 25.1 | 20.5 | 78.97 | 69.2 | 647.3 | 359.8 | 326.3 | 33.51 | 10.735 | | | | |
| 7,700.0 | 7,550.0 | 7,620.7 | 7,491.2 | 25.1 | 20.5 | 77.29 | 6.5 | 647.3 | 362.0 | 328.3 | 33.67 | 10.751 | | | | |
| 7,800.0 | 7,620.5 | 7,710.3 | 7,548.0 | 25.1 | 20.6 | 75.82 | -62.8 | 647.3 | 364.2 | 330.3 | 33.91 | 10.740 | | | | |
| 7,900.0 | 7,681.0 | 7,800.0 | 7,596.4 | 25.2 | 20.7 | 74.57 | -138.3 | 647.3 | 366.3 | 332.0 | 34.28 | 10.687 | | | | |
| 8,000.0 | 7,730.7 | 7,887.2 | 7,634.6 | 25.4 | 20.9 | 73.59 | -216.6 | 647.3 | 368.1 | 333.3 | 34.76 | 10.589 | | | | |
| 8,100.0 | 7,768.6 | 7,974.8 | 7,663.8 | 25.6 | 21.3 | 72.83 | -299.1 | 647.3 | 369.6 | 334.1 | 35.41 | 10.437 | | | | |
| 8,200.0 | 7,794.2 | 8,062.1 | 7,683.3 | 26.0 | 21.7 | 72.33 | -384.2 | 647.3 | 370.6 | 334.3 | 36.22 | 10.230 | | | | |
| 8,300.0 | 7,806.9 | 8,150.0 | 7,693.0 | 26.5 | 22.3 | 72.08 | -471.5 | 647.3 | 371.1 | 333.8 | 37.24 | 9.964 | | | | |
| 8,400.0 | 7,808.9 | 8,243.1 | 7,694.1 | 27.1 | 23.1 | 72.00 | -564.6 | 647.3 | 371.2 | 332.4 | 38.81 | 9.566 | | | | |
| 8,500.0 | 7,809.7 | 8,343.1 | 7,694.3 | 27.9 | 24.1 | 71.90 | -664.6 | 647.3 | 371.4 | 330.6 | 40.85 | 9.092 | | | | |
| 8,600.0 | 7,810.5 | 8,443.1 | 7,694.4 | 28.7 | 25.1 | 71.80 | -764.6 | 647.3 | 371.7 | 328.6 | 43.11 | 8.622 | | | | |
| 8,700.0 | 7,811.3 | 8,543.1 | 7,694.5 | 29.7 | 26.3 | 71.70 | -864.6 | 647.3 | 371.9 | 326.3 | 45.54 | 8.166 | | | | |
| 8,800.0 | 7,812.1 | 8,643.1 | 7,694.7 | 30.9 | 27.6 | 71.60 | -964.6 | 647.3 | 372.1 | 324.0 | 48.13 | 7.732 | | | | |
| 8,900.0 | 7,813.0 | 8,743.1 | 7,694.8 | 32.0 | 29.0 | 71.50 | -1,064.6 | 647.3 | 372.3 | 321.5 | 50.84 | 7.324 | | | | |
| 9,000.0 | 7,813.8 | 8,843.1 | 7,695.0 | 33.3 | 30.4 | 71.40 | -1,164.6 | 647.3 | 372.5 | 318.9 | 53.65 | 6.943 | | | | |
| 9,100.0 | 7,814.6 | 8,943.1 | 7,695.1 | 34.6 | 31.9 | 71.30 | -1,264.6 | 647.3 | 372.7 | 316.2 | 56.56 | 6.590 | | | | |
| 9,200.0 | 7,815.4 | 9,043.1 | 7,695.2 | 36.0 | 33.4 | 71.20 | -1,364.6 | 647.3 | 373.0 | 313.4 | 59.55 | 6.263 | | | | |
| 9,300.0 | 7,816.2 | 9,143.1 | 7,695.4 | 37.5 | 34.9 | 71.10 | -1,464.6 | 647.3 | 373.2 | 310.6 | 62.60 | 5.962 | | | | |
| 9,400.0 | 7,817.1 | 9,243.1 | 7,695.5 | 38.9 | 36.5 | 71.00 | -1,564.6 | 647.3 | 373.4 | 307.7 | 65.70 | 5.683 | | | | |
| 9,500.0 | 7,817.9 | 9,343.1 | 7,695.7 | 40.4 | 38.2 | 70.91 | -1,664.6 | 647.3 | 373.6 | 304.8 | 68.85 | 5.426 | | | | |
| 9,600.0 | 7,818.7 | 9,443.1 | 7,695.8 | 42.0 | 39.8 | 70.81 | -1,764.6 | 647.3 | 373.8 | 301.8 | 72.04 | 5.189 | | | | |
| 9,700.0 | 7,819.5 | 9,543.1 | 7,695.9 | 43.6 | 41.5 | 70.71 | -1,864.6 | 647.3 | 374.1 | 298.8 | 75.27 | 4.970 | | | | |
| 9,800.0 | 7,820.3 | 9,643.1 | 7,696.1 | 45.2 | 43.2 | 70.61 | -1,964.6 | 647.3 | 374.3 | 295.8 | 78.53 | 4.766 | | | | |
| 9,900.0 | 7,821.2 | 9,743.1 | 7,696.2 | 46.8 | 44.9 | 70.51 | -2,064.6 | 647.3 | 374.5 | 292.7 | 81.81 | 4.578 | | | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-303 - Wellbore #1 - Plan #1 (10-8-14) | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|--|-------------------------|-------------------|--|--------------------|--|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | | |
| 10,000.0 | 7,822.0 | 9,843.1 | 7,696.4 | 48.5 | 46.6 | 70.41 | -2,164.6 | 647.3 | 374.7 | 289.6 | 85.11 | 4.403 | | | | |
| 10,100.0 | 7,822.8 | 9,943.1 | 7,696.5 | 50.1 | 48.3 | 70.32 | -2,264.5 | 647.3 | 375.0 | 286.5 | 88.44 | 4.240 | | | | |
| 10,200.0 | 7,823.6 | 10,043.1 | 7,696.6 | 51.8 | 50.1 | 70.22 | -2,364.5 | 647.3 | 375.2 | 283.4 | 91.78 | 4.088 | | | | |
| 10,300.0 | 7,824.4 | 10,143.1 | 7,696.8 | 53.5 | 51.8 | 70.12 | -2,464.5 | 647.3 | 375.4 | 280.3 | 95.13 | 3.947 | | | | |
| 10,400.0 | 7,825.3 | 10,243.1 | 7,696.9 | 55.3 | 53.6 | 70.02 | -2,564.5 | 647.3 | 375.7 | 277.2 | 98.50 | 3.814 | | | | |
| 10,500.0 | 7,826.1 | 10,343.0 | 7,697.1 | 57.0 | 55.4 | 69.93 | -2,664.5 | 647.3 | 375.9 | 274.0 | 101.88 | 3.690 | | | | |
| 10,600.0 | 7,826.9 | 10,443.0 | 7,697.2 | 58.7 | 57.2 | 69.83 | -2,764.5 | 647.3 | 376.1 | 270.9 | 105.26 | 3.573 | | | | |
| 10,700.0 | 7,827.7 | 10,543.0 | 7,697.3 | 60.5 | 59.0 | 69.73 | -2,864.5 | 647.3 | 376.4 | 267.7 | 108.66 | 3.464 | | | | |
| 10,800.0 | 7,828.5 | 10,643.0 | 7,697.5 | 62.2 | 60.8 | 69.63 | -2,964.5 | 647.3 | 376.6 | 264.5 | 112.06 | 3.361 | | | | |
| 10,900.0 | 7,829.4 | 10,743.0 | 7,697.6 | 64.0 | 62.6 | 69.54 | -3,064.5 | 647.3 | 376.8 | 261.4 | 115.47 | 3.264 | | | | |
| 11,000.0 | 7,830.2 | 10,843.0 | 7,697.7 | 65.8 | 64.4 | 69.44 | -3,164.5 | 647.3 | 377.1 | 258.2 | 118.88 | 3.172 | | | | |
| 11,100.0 | 7,831.0 | 10,943.0 | 7,697.9 | 67.6 | 66.2 | 69.34 | -3,264.5 | 647.3 | 377.3 | 255.0 | 122.30 | 3.085 | | | | |
| 11,200.0 | 7,831.8 | 11,043.0 | 7,698.0 | 69.4 | 68.1 | 69.25 | -3,364.5 | 647.3 | 377.6 | 251.8 | 125.72 | 3.003 | | | | |
| 11,300.0 | 7,832.6 | 11,143.0 | 7,698.2 | 71.2 | 69.9 | 69.15 | -3,464.5 | 647.3 | 377.8 | 248.7 | 129.15 | 2.925 | | | | |
| 11,400.0 | 7,833.5 | 11,243.0 | 7,698.3 | 73.0 | 71.7 | 69.05 | -3,564.5 | 647.3 | 378.0 | 245.5 | 132.58 | 2.852 | | | | |
| 11,500.0 | 7,834.3 | 11,343.0 | 7,698.4 | 74.8 | 73.6 | 68.96 | -3,664.5 | 647.3 | 378.3 | 242.3 | 136.00 | 2.781 | | | | |
| 11,600.0 | 7,835.1 | 11,443.0 | 7,698.6 | 76.6 | 75.4 | 68.86 | -3,764.5 | 647.3 | 378.5 | 239.1 | 139.43 | 2.715 | | | | |
| 11,700.0 | 7,835.9 | 11,543.0 | 7,698.7 | 78.4 | 77.3 | 68.76 | -3,864.5 | 647.3 | 378.8 | 235.9 | 142.87 | 2.651 | | | | |
| 11,800.0 | 7,836.7 | 11,643.0 | 7,698.9 | 80.3 | 79.1 | 68.67 | -3,964.5 | 647.3 | 379.0 | 232.7 | 146.30 | 2.591 | | | | |
| 11,900.0 | 7,837.6 | 11,743.0 | 7,699.0 | 82.1 | 81.0 | 68.57 | -4,064.5 | 647.3 | 379.3 | 229.5 | 149.73 | 2.533 | | | | |
| 12,000.0 | 7,838.4 | 11,843.0 | 7,699.1 | 83.9 | 82.8 | 68.48 | -4,164.5 | 647.3 | 379.5 | 226.4 | 153.16 | 2.478 | | | | |
| 12,100.0 | 7,839.2 | 11,943.0 | 7,699.3 | 85.8 | 84.7 | 68.38 | -4,264.5 | 647.3 | 379.8 | 223.2 | 156.59 | 2.425 | | | | |
| 12,200.0 | 7,840.0 | 12,043.0 | 7,699.4 | 87.6 | 86.6 | 68.29 | -4,364.5 | 647.3 | 380.0 | 220.0 | 160.03 | 2.375 | | | | |
| 12,300.0 | 7,840.8 | 12,143.0 | 7,699.6 | 89.4 | 88.4 | 68.19 | -4,464.5 | 647.3 | 380.3 | 216.8 | 163.46 | 2.326 | | | | |
| 12,400.0 | 7,841.7 | 12,243.0 | 7,699.7 | 91.3 | 90.3 | 68.10 | -4,564.5 | 647.3 | 380.5 | 213.6 | 166.89 | 2.280 | | | | |
| 12,500.0 | 7,842.5 | 12,343.0 | 7,699.8 | 93.1 | 92.2 | 68.00 | -4,664.5 | 647.3 | 380.8 | 210.5 | 170.31 | 2.236 | | | | |
| 12,600.0 | 7,843.3 | 12,443.0 | 7,700.0 | 95.0 | 94.0 | 67.91 | -4,764.5 | 647.3 | 381.0 | 207.3 | 173.74 | 2.193 | | | | |
| 12,700.0 | 7,844.1 | 12,543.0 | 7,700.1 | 96.8 | 95.9 | 67.81 | -4,864.5 | 647.3 | 381.3 | 204.1 | 177.17 | 2.152 | | | | |
| 12,800.0 | 7,844.9 | 12,643.0 | 7,700.3 | 98.7 | 97.8 | 67.72 | -4,964.5 | 647.3 | 381.6 | 201.0 | 180.59 | 2.113 | | | | |
| 12,900.0 | 7,845.8 | 12,743.0 | 7,700.4 | 100.6 | 99.7 | 67.62 | -5,064.5 | 647.3 | 381.8 | 197.8 | 184.01 | 2.075 | | | | |
| 13,000.0 | 7,846.6 | 12,843.0 | 7,700.5 | 102.4 | 101.5 | 67.53 | -5,164.5 | 647.3 | 382.1 | 194.6 | 187.43 | 2.039 | | | | |
| 13,100.0 | 7,847.4 | 12,943.0 | 7,700.7 | 104.3 | 103.4 | 67.43 | -5,264.5 | 647.3 | 382.3 | 191.5 | 190.85 | 2.003 | | | | |
| 13,200.0 | 7,848.2 | 13,043.0 | 7,700.8 | 106.1 | 105.3 | 67.34 | -5,364.5 | 647.3 | 382.6 | 188.3 | 194.26 | 1.970 | | | | |
| 13,300.0 | 7,849.0 | 13,143.0 | 7,701.0 | 108.0 | 107.2 | 67.25 | -5,464.5 | 647.3 | 382.9 | 185.2 | 197.67 | 1.937 | | | | |
| 13,400.0 | 7,849.9 | 13,243.0 | 7,701.1 | 109.9 | 109.0 | 67.15 | -5,564.5 | 647.3 | 383.1 | 182.0 | 201.08 | 1.905 | | | | |
| 13,500.0 | 7,850.7 | 13,343.0 | 7,701.2 | 111.7 | 110.9 | 67.06 | -5,664.5 | 647.3 | 383.4 | 178.9 | 204.49 | 1.875 | | | | |
| 13,600.0 | 7,851.5 | 13,443.0 | 7,701.4 | 113.6 | 112.8 | 66.96 | -5,764.5 | 647.3 | 383.7 | 175.8 | 207.89 | 1.845 | | | | |
| 13,700.0 | 7,852.3 | 13,543.0 | 7,701.5 | 115.5 | 114.7 | 66.87 | -5,864.5 | 647.3 | 383.9 | 172.6 | 211.29 | 1.817 | | | | |
| 13,800.0 | 7,853.1 | 13,643.0 | 7,701.7 | 117.4 | 116.6 | 66.78 | -5,964.5 | 647.3 | 384.2 | 169.5 | 214.69 | 1.790 | | | | |
| 13,900.0 | 7,854.0 | 13,743.0 | 7,701.8 | 119.2 | 118.5 | 66.68 | -6,064.5 | 647.3 | 384.5 | 166.4 | 218.08 | 1.763 | | | | |
| 14,000.0 | 7,854.8 | 13,843.0 | 7,701.9 | 121.1 | 120.4 | 66.59 | -6,164.5 | 647.3 | 384.7 | 163.3 | 221.48 | 1.737 | | | | |
| 14,100.0 | 7,855.6 | 13,943.0 | 7,702.1 | 123.0 | 122.3 | 66.50 | -6,264.5 | 647.3 | 385.0 | 160.1 | 224.87 | 1.712 | | | | |
| 14,200.0 | 7,856.4 | 14,043.0 | 7,702.2 | 124.9 | 124.1 | 66.41 | -6,364.5 | 647.3 | 385.3 | 157.0 | 228.25 | 1.688 | | | | |
| 14,300.0 | 7,857.2 | 14,143.0 | 7,702.4 | 126.7 | 126.0 | 66.31 | -6,464.4 | 647.3 | 385.5 | 153.9 | 231.63 | 1.664 | | | | |
| 14,400.0 | 7,858.1 | 14,243.0 | 7,702.5 | 128.6 | 127.9 | 66.22 | -6,564.4 | 647.3 | 385.8 | 150.8 | 235.01 | 1.642 | | | | |
| 14,500.0 | 7,858.9 | 14,343.0 | 7,702.6 | 130.5 | 129.8 | 66.13 | -6,664.4 | 647.3 | 386.1 | 147.7 | 238.39 | 1.620 | | | | |
| 14,600.0 | 7,859.7 | 14,443.0 | 7,702.8 | 132.4 | 131.7 | 66.04 | -6,764.4 | 647.3 | 386.4 | 144.6 | 241.76 | 1.598 | | | | |
| 14,700.0 | 7,860.5 | 14,543.0 | 7,702.9 | 134.3 | 133.6 | 65.94 | -6,864.4 | 647.3 | 386.6 | 141.5 | 245.13 | 1.577 | | | | |
| 14,757.2 | 7,861.0 | 14,600.2 | 7,703.0 | 135.4 | 134.7 | 65.89 | -6,921.6 | 647.3 | 386.8 | 139.8 | 247.05 | 1.566 SF | | | | |

| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|-------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | | Separation Factor | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.02 | 0.0 | 28.0 | 28.0 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 90.02 | 0.0 | 28.0 | 28.0 | 27.8 | 0.22 | 124.634 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 90.02 | 0.0 | 28.0 | 28.0 | 27.3 | 0.67 | 41.545 | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.6 | 0.6 | 90.02 | 0.0 | 28.0 | 28.0 | 26.9 | 1.12 | 24.927 | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | 90.02 | 0.0 | 28.0 | 28.0 | 26.4 | 1.57 | 17.805 | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 90.02 | 0.0 | 28.0 | 28.0 | 26.0 | 2.02 | 13.848 | | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | 90.02 | 0.0 | 28.0 | 28.0 | 25.5 | 2.47 | 11.330 | | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.5 | 1.5 | 90.02 | 0.0 | 28.0 | 28.0 | 25.1 | 2.92 | 9.587 | | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | 90.02 | 0.0 | 28.0 | 28.0 | 24.6 | 3.37 | 8.309 | CC, ES | |
| 900.0 | 900.0 | 899.0 | 899.0 | 1.9 | 1.9 | 89.42 | 0.3 | 29.7 | 29.7 | 25.9 | 3.81 | 7.802 | | |
| 1,000.0 | 1,000.0 | 997.8 | 997.6 | 2.1 | 2.1 | 87.98 | 1.2 | 34.7 | 34.8 | 30.6 | 4.24 | 8.209 | | |
| 1,100.0 | 1,100.0 | 1,096.2 | 1,095.7 | 2.4 | 2.3 | 10.89 | 2.8 | 43.1 | 41.7 | 37.0 | 4.66 | 8.939 | | |
| 1,200.0 | 1,199.8 | 1,194.5 | 1,193.2 | 2.6 | 2.6 | 10.27 | 4.9 | 54.7 | 48.5 | 43.4 | 5.07 | 9.557 | | |
| 1,300.0 | 1,299.5 | 1,292.5 | 1,290.1 | 2.8 | 2.8 | 10.03 | 7.6 | 69.5 | 55.3 | 49.8 | 5.49 | 10.069 | | |
| 1,400.0 | 1,398.7 | 1,390.3 | 1,386.1 | 3.0 | 3.2 | 10.06 | 10.9 | 87.6 | 62.0 | 56.1 | 5.91 | 10.493 | | |
| 1,500.0 | 1,497.5 | 1,487.8 | 1,481.2 | 3.3 | 3.5 | 10.26 | 14.8 | 108.8 | 68.7 | 62.4 | 6.34 | 10.840 | | |
| 1,600.0 | 1,595.6 | 1,586.2 | 1,576.5 | 3.6 | 3.9 | 10.63 | 19.3 | 133.2 | 75.1 | 68.3 | 6.78 | 11.068 | | |
| 1,700.0 | 1,693.5 | 1,686.1 | 1,673.0 | 4.0 | 4.4 | 11.12 | 23.9 | 158.4 | 80.5 | 73.2 | 7.27 | 11.067 | | |
| 1,800.0 | 1,791.3 | 1,785.9 | 1,769.5 | 4.3 | 4.9 | 11.55 | 28.6 | 183.6 | 85.9 | 78.1 | 7.77 | 11.053 | | |
| 1,900.0 | 1,889.2 | 1,885.8 | 1,866.0 | 4.7 | 5.4 | 11.92 | 33.2 | 208.9 | 91.3 | 83.0 | 8.28 | 11.024 | | |
| 2,000.0 | 1,987.1 | 1,985.6 | 1,962.5 | 5.1 | 5.9 | 12.26 | 37.8 | 234.1 | 96.8 | 87.9 | 8.81 | 10.988 | | |
| 2,100.0 | 2,084.9 | 2,085.5 | 2,059.0 | 5.5 | 6.4 | 12.56 | 42.4 | 259.3 | 102.2 | 92.8 | 9.33 | 10.948 | | |
| 2,200.0 | 2,182.8 | 2,185.3 | 2,155.5 | 5.9 | 6.9 | 12.83 | 47.1 | 284.6 | 107.6 | 97.7 | 9.87 | 10.905 | | |
| 2,300.0 | 2,280.6 | 2,285.2 | 2,252.0 | 6.3 | 7.4 | 13.07 | 51.7 | 309.8 | 113.1 | 102.6 | 10.41 | 10.861 | | |
| 2,400.0 | 2,378.5 | 2,385.0 | 2,348.5 | 6.7 | 7.9 | 13.29 | 56.3 | 335.0 | 118.5 | 107.5 | 10.95 | 10.817 | | |
| 2,500.0 | 2,476.3 | 2,484.9 | 2,445.0 | 7.2 | 8.5 | 13.50 | 61.0 | 360.3 | 123.9 | 112.4 | 11.50 | 10.773 | | |
| 2,600.0 | 2,574.2 | 2,584.7 | 2,541.5 | 7.6 | 9.0 | 13.68 | 65.6 | 385.5 | 129.4 | 117.3 | 12.06 | 10.730 | | |
| 2,700.0 | 2,672.1 | 2,684.6 | 2,638.0 | 8.0 | 9.5 | 13.85 | 70.2 | 410.7 | 134.8 | 122.2 | 12.61 | 10.688 | | |
| 2,800.0 | 2,769.9 | 2,784.4 | 2,734.5 | 8.5 | 10.0 | 14.01 | 74.9 | 435.9 | 140.2 | 127.1 | 13.17 | 10.647 | | |
| 2,900.0 | 2,867.8 | 2,884.3 | 2,831.0 | 8.9 | 10.6 | 14.15 | 79.5 | 461.2 | 145.7 | 132.0 | 13.73 | 10.608 | | |
| 3,000.0 | 2,965.6 | 2,984.2 | 2,927.5 | 9.3 | 11.1 | 14.29 | 84.1 | 486.4 | 151.1 | 136.8 | 14.30 | 10.570 | | |
| 3,100.0 | 3,063.5 | 3,084.0 | 3,024.0 | 9.8 | 11.6 | 14.41 | 88.8 | 511.6 | 156.6 | 141.7 | 14.87 | 10.533 | | |
| 3,200.0 | 3,161.4 | 3,183.9 | 3,120.5 | 10.2 | 12.2 | 14.53 | 93.4 | 536.9 | 162.0 | 146.6 | 15.43 | 10.498 | | |
| 3,300.0 | 3,259.2 | 3,283.7 | 3,217.0 | 10.7 | 12.7 | 14.64 | 98.0 | 562.1 | 167.5 | 151.5 | 16.00 | 10.464 | | |
| 3,400.0 | 3,357.1 | 3,383.6 | 3,313.5 | 11.1 | 13.3 | 14.74 | 102.6 | 587.3 | 172.9 | 156.3 | 16.58 | 10.432 | | |
| 3,500.0 | 3,454.9 | 3,483.4 | 3,410.0 | 11.5 | 13.8 | 14.84 | 107.3 | 612.6 | 178.4 | 161.2 | 17.15 | 10.401 | | |
| 3,600.0 | 3,552.8 | 3,583.3 | 3,506.5 | 12.0 | 14.3 | 14.93 | 111.9 | 637.8 | 183.8 | 166.1 | 17.72 | 10.371 | | |
| 3,700.0 | 3,650.6 | 3,683.1 | 3,603.0 | 12.4 | 14.9 | 15.01 | 116.5 | 663.0 | 189.3 | 171.0 | 18.30 | 10.342 | | |
| 3,800.0 | 3,748.5 | 3,783.0 | 3,699.5 | 12.9 | 15.4 | 15.09 | 121.2 | 688.3 | 194.7 | 175.8 | 18.88 | 10.315 | | |
| 3,900.0 | 3,846.4 | 3,882.8 | 3,796.0 | 13.3 | 16.0 | 15.17 | 125.8 | 713.5 | 200.2 | 180.7 | 19.45 | 10.289 | | |
| 4,000.0 | 3,944.2 | 3,982.7 | 3,892.5 | 13.8 | 16.5 | 15.24 | 130.4 | 738.7 | 205.6 | 185.6 | 20.03 | 10.264 | | |
| 4,100.0 | 4,042.1 | 4,082.5 | 3,989.0 | 14.2 | 17.1 | 15.31 | 135.1 | 763.9 | 211.1 | 190.4 | 20.61 | 10.239 | | |
| 4,200.0 | 4,139.9 | 4,182.4 | 4,085.5 | 14.7 | 17.6 | 15.38 | 139.7 | 789.2 | 216.5 | 195.3 | 21.19 | 10.216 | | |
| 4,300.0 | 4,237.8 | 4,282.2 | 4,182.0 | 15.1 | 18.1 | 15.44 | 144.3 | 814.4 | 222.0 | 200.2 | 21.77 | 10.194 | | |
| 4,400.0 | 4,335.7 | 4,382.1 | 4,278.5 | 15.6 | 18.7 | 15.50 | 149.0 | 839.6 | 227.4 | 205.1 | 22.36 | 10.172 | | |
| 4,500.0 | 4,433.5 | 4,481.9 | 4,375.0 | 16.0 | 19.2 | 15.55 | 153.6 | 864.9 | 232.9 | 209.9 | 22.94 | 10.152 | | |
| 4,600.0 | 4,531.4 | 4,581.8 | 4,471.5 | 16.4 | 19.8 | 15.60 | 158.2 | 890.1 | 238.3 | 214.8 | 23.52 | 10.132 | | |
| 4,700.0 | 4,629.2 | 4,681.6 | 4,568.0 | 16.9 | 20.3 | 15.66 | 162.8 | 915.3 | 243.8 | 219.7 | 24.10 | 10.113 | | |
| 4,800.0 | 4,727.1 | 4,781.5 | 4,664.5 | 17.3 | 20.9 | 15.70 | 167.5 | 940.6 | 249.2 | 224.5 | 24.69 | 10.095 | | |
| 4,900.0 | 4,824.9 | 4,881.3 | 4,761.0 | 17.8 | 21.4 | 15.75 | 172.1 | 965.8 | 254.7 | 229.4 | 25.27 | 10.077 | | |
| 5,000.0 | 4,922.8 | 4,981.2 | 4,857.5 | 18.2 | 22.0 | 15.80 | 176.7 | 991.0 | 260.1 | 234.3 | 25.86 | 10.060 | | |

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

| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-323 - Wellbore #1 - Plan #2 (10-8-14) | | | | | | | | | | Offset Site Error: | | 0.0 ft | |
|-----------------------|---------------------|--|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|--|---------|--|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | | 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | |
| 5,100.0 | 5,020.7 | 5,081.0 | 4,954.0 | 18.7 | 22.5 | 15.84 | 181.4 | 1,016.3 | 265.6 | 239.1 | 26.44 | 10.043 | | | |
| 5,200.0 | 5,118.5 | 5,180.9 | 5,050.5 | 19.1 | 23.0 | 15.88 | 186.0 | 1,041.5 | 271.0 | 244.0 | 27.03 | 10.027 | | | |
| 5,300.0 | 5,216.4 | 5,280.7 | 5,147.0 | 19.6 | 23.6 | 15.92 | 190.6 | 1,066.7 | 276.5 | 248.9 | 27.61 | 10.012 | | | |
| 5,400.0 | 5,314.2 | 5,380.6 | 5,243.5 | 20.0 | 24.1 | 15.96 | 195.3 | 1,091.9 | 281.9 | 253.7 | 28.20 | 9.997 | | | |
| 5,500.0 | 5,412.1 | 5,480.4 | 5,340.0 | 20.5 | 24.7 | 15.99 | 199.9 | 1,117.2 | 287.4 | 258.6 | 28.79 | 9.983 | | | |
| 5,600.0 | 5,509.9 | 5,580.3 | 5,436.5 | 20.9 | 25.2 | 16.03 | 204.5 | 1,142.4 | 292.8 | 263.5 | 29.37 | 9.969 | | | |
| 5,700.0 | 5,607.8 | 5,680.1 | 5,533.0 | 21.4 | 25.8 | 16.06 | 209.2 | 1,167.6 | 298.3 | 268.3 | 29.96 | 9.955 | | | |
| 5,800.0 | 5,705.7 | 5,780.0 | 5,629.5 | 21.8 | 26.3 | 16.10 | 213.8 | 1,192.9 | 303.7 | 273.2 | 30.55 | 9.942 | | | |
| 5,900.0 | 5,803.5 | 5,879.8 | 5,726.0 | 22.3 | 26.9 | 16.13 | 218.4 | 1,218.1 | 309.2 | 278.0 | 31.14 | 9.930 | | | |
| 6,000.0 | 5,901.4 | 5,979.7 | 5,822.5 | 22.7 | 27.4 | 16.16 | 223.0 | 1,243.3 | 314.6 | 282.9 | 31.73 | 9.918 | | | |
| 6,100.0 | 5,999.5 | 6,079.4 | 5,918.9 | 23.1 | 28.0 | 16.15 | 227.7 | 1,268.5 | 321.5 | 289.2 | 32.27 | 9.961 | | | |
| 6,200.0 | 6,098.3 | 6,178.9 | 6,015.0 | 23.4 | 28.5 | 16.00 | 232.3 | 1,293.7 | 331.6 | 298.9 | 32.73 | 10.134 | | | |
| 6,300.0 | 6,197.5 | 6,284.4 | 6,117.1 | 23.7 | 29.0 | 15.71 | 237.1 | 1,319.8 | 344.7 | 311.6 | 33.11 | 10.410 | | | |
| 6,400.0 | 6,297.1 | 6,397.1 | 6,227.0 | 23.9 | 29.5 | 15.38 | 241.5 | 1,344.1 | 357.8 | 324.4 | 33.42 | 10.706 | | | |
| 6,500.0 | 6,397.0 | 6,510.4 | 6,338.4 | 24.0 | 29.8 | 15.05 | 245.2 | 1,364.2 | 370.4 | 336.7 | 33.66 | 11.003 | | | |
| 6,600.0 | 6,496.9 | 6,624.3 | 6,451.2 | 24.2 | 30.1 | 14.72 | 248.1 | 1,380.1 | 382.5 | 348.7 | 33.84 | 11.302 | | | |
| 6,700.0 | 6,596.9 | 6,739.0 | 6,565.3 | 24.3 | 30.4 | 90.26 | 250.3 | 1,391.6 | 392.5 | 358.3 | 34.17 | 11.488 | | | |
| 6,800.0 | 6,696.9 | 6,854.5 | 6,680.6 | 24.4 | 30.6 | 90.07 | 251.5 | 1,398.6 | 398.6 | 364.1 | 34.51 | 11.549 | | | |
| 6,900.0 | 6,796.9 | 6,970.4 | 6,796.5 | 24.5 | 30.7 | 90.00 | 252.0 | 1,401.1 | 400.7 | 365.8 | 34.87 | 11.492 | | | |
| 7,000.0 | 6,896.9 | 7,070.9 | 6,896.9 | 24.7 | 30.8 | 90.00 | 252.0 | 1,401.1 | 400.7 | 365.5 | 35.21 | 11.379 | | | |
| 7,044.3 | 6,941.2 | 7,115.2 | 6,941.2 | 24.7 | 30.8 | 90.01 | 251.9 | 1,401.1 | 400.7 | 365.3 | 35.37 | 11.329 | | | |
| 7,100.0 | 6,996.9 | 7,170.7 | 6,996.7 | 24.8 | 30.9 | 90.42 | 249.1 | 1,401.1 | 400.7 | 365.1 | 35.62 | 11.251 | | | |
| 7,200.0 | 7,096.9 | 7,268.6 | 7,093.4 | 24.9 | 30.9 | -87.70 | 234.3 | 1,401.1 | 401.0 | 364.8 | 36.23 | 11.069 | | | |
| 7,300.0 | 7,195.9 | 7,364.7 | 7,185.7 | 25.0 | 31.0 | -85.67 | 208.0 | 1,401.1 | 401.9 | 365.1 | 36.80 | 10.920 | | | |
| 7,400.0 | 7,292.4 | 7,459.1 | 7,272.5 | 25.1 | 31.0 | -83.74 | 171.0 | 1,401.1 | 403.1 | 365.9 | 37.24 | 10.825 | | | |
| 7,500.0 | 7,384.6 | 7,552.0 | 7,352.8 | 25.1 | 31.0 | -81.92 | 124.4 | 1,401.1 | 404.8 | 367.3 | 37.52 | 10.788 | | | |
| 7,600.0 | 7,470.9 | 7,643.7 | 7,426.0 | 25.1 | 31.0 | -80.26 | 69.2 | 1,401.1 | 406.6 | 369.0 | 37.65 | 10.800 | | | |
| 7,700.0 | 7,550.0 | 7,734.3 | 7,491.2 | 25.1 | 31.0 | -78.76 | 6.5 | 1,401.1 | 408.6 | 370.9 | 37.69 | 10.843 | | | |
| 7,800.0 | 7,620.5 | 7,823.9 | 7,548.0 | 25.1 | 31.1 | -77.45 | -62.8 | 1,401.1 | 410.6 | 372.8 | 37.75 | 10.876 | | | |
| 7,900.0 | 7,681.0 | 7,912.6 | 7,596.0 | 25.2 | 31.1 | -76.35 | -137.4 | 1,401.1 | 412.4 | 374.5 | 37.94 | 10.871 | | | |
| 8,000.0 | 7,730.7 | 8,000.0 | 7,634.3 | 25.4 | 31.3 | -75.46 | -215.9 | 1,401.1 | 414.0 | 375.6 | 38.41 | 10.780 | | | |
| 8,100.0 | 7,768.6 | 8,088.4 | 7,663.8 | 25.6 | 31.5 | -74.77 | -299.1 | 1,401.1 | 415.3 | 376.0 | 39.30 | 10.567 | | | |
| 8,200.0 | 7,794.2 | 8,175.7 | 7,683.3 | 26.0 | 31.7 | -74.32 | -384.2 | 1,401.1 | 416.2 | 375.5 | 40.68 | 10.232 | | | |
| 8,300.0 | 7,806.9 | 8,262.7 | 7,692.9 | 26.5 | 32.1 | -74.10 | -470.6 | 1,401.1 | 416.6 | 374.1 | 42.54 | 9.794 | | | |
| 8,400.0 | 7,808.9 | 8,356.7 | 7,694.1 | 27.1 | 32.5 | -74.02 | -564.6 | 1,401.1 | 416.8 | 372.2 | 44.58 | 9.350 | | | |
| 8,500.0 | 7,809.7 | 8,456.7 | 7,694.3 | 27.9 | 33.1 | -73.93 | -664.6 | 1,401.1 | 417.0 | 370.3 | 46.67 | 8.936 | | | |
| 8,600.0 | 7,810.5 | 8,556.7 | 7,694.4 | 28.7 | 33.8 | -73.84 | -764.6 | 1,401.1 | 417.2 | 368.2 | 48.94 | 8.523 | | | |
| 8,700.0 | 7,811.3 | 8,656.7 | 7,694.5 | 29.7 | 34.6 | -73.75 | -864.6 | 1,401.1 | 417.4 | 366.0 | 51.39 | 8.122 | | | |
| 8,800.0 | 7,812.1 | 8,756.7 | 7,694.7 | 30.9 | 35.5 | -73.66 | -964.6 | 1,401.1 | 417.6 | 363.6 | 53.97 | 7.737 | | | |
| 8,900.0 | 7,813.0 | 8,856.7 | 7,694.8 | 32.0 | 36.5 | -73.57 | -1,064.6 | 1,401.1 | 417.7 | 361.1 | 56.68 | 7.371 | | | |
| 9,000.0 | 7,813.8 | 8,956.7 | 7,695.0 | 33.3 | 37.6 | -73.48 | -1,164.6 | 1,401.1 | 417.9 | 358.5 | 59.49 | 7.026 | | | |
| 9,100.0 | 7,814.6 | 9,056.7 | 7,695.1 | 34.6 | 38.7 | -73.40 | -1,264.6 | 1,401.1 | 418.1 | 355.7 | 62.39 | 6.702 | | | |
| 9,200.0 | 7,815.4 | 9,156.7 | 7,695.2 | 36.0 | 39.9 | -73.31 | -1,364.6 | 1,401.1 | 418.3 | 353.0 | 65.36 | 6.400 | | | |
| 9,300.0 | 7,816.2 | 9,256.7 | 7,695.4 | 37.5 | 41.2 | -73.22 | -1,464.6 | 1,401.1 | 418.5 | 350.1 | 68.41 | 6.118 | | | |
| 9,400.0 | 7,817.1 | 9,356.7 | 7,695.5 | 38.9 | 42.5 | -73.13 | -1,564.6 | 1,401.1 | 418.7 | 347.2 | 71.51 | 5.856 | | | |
| 9,500.0 | 7,817.9 | 9,456.7 | 7,695.7 | 40.4 | 43.9 | -73.04 | -1,664.6 | 1,401.1 | 418.9 | 344.3 | 74.66 | 5.611 | | | |
| 9,600.0 | 7,818.7 | 9,556.7 | 7,695.8 | 42.0 | 45.3 | -72.95 | -1,764.6 | 1,401.1 | 419.1 | 341.3 | 77.85 | 5.384 | | | |
| 9,700.0 | 7,819.5 | 9,656.7 | 7,695.9 | 43.6 | 46.8 | -72.86 | -1,864.6 | 1,401.1 | 419.3 | 338.2 | 81.08 | 5.172 | | | |
| 9,800.0 | 7,820.3 | 9,756.7 | 7,696.1 | 45.2 | 48.2 | -72.77 | -1,964.6 | 1,401.1 | 419.5 | 335.2 | 84.35 | 4.974 | | | |
| 9,900.0 | 7,821.2 | 9,856.7 | 7,696.2 | 46.8 | 49.8 | -72.68 | -2,064.6 | 1,401.1 | 419.7 | 332.1 | 87.64 | 4.789 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-323 - Wellbore #1 - Plan #2 (10-8-14) | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|--|-------------------------|-------------------|--|--------------------|--|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | | |
| 10,000.0 | 7,822.0 | 9,956.7 | 7,696.4 | 48.5 | 51.3 | -72.59 | -2,164.6 | 1,401.1 | 419.9 | 329.0 | 90.96 | 4.617 | | | | |
| 10,100.0 | 7,822.8 | 10,056.7 | 7,696.5 | 50.1 | 52.9 | -72.51 | -2,264.5 | 1,401.1 | 420.1 | 325.8 | 94.30 | 4.455 | | | | |
| 10,200.0 | 7,823.6 | 10,156.6 | 7,696.6 | 51.8 | 54.5 | -72.42 | -2,364.5 | 1,401.1 | 420.3 | 322.7 | 97.66 | 4.304 | | | | |
| 10,300.0 | 7,824.4 | 10,256.6 | 7,696.8 | 53.5 | 56.1 | -72.33 | -2,464.5 | 1,401.1 | 420.5 | 319.5 | 101.04 | 4.162 | | | | |
| 10,400.0 | 7,825.3 | 10,356.6 | 7,696.9 | 55.3 | 57.7 | -72.24 | -2,564.5 | 1,401.1 | 420.8 | 316.3 | 104.44 | 4.029 | | | | |
| 10,500.0 | 7,826.1 | 10,456.6 | 7,697.1 | 57.0 | 59.4 | -72.15 | -2,664.5 | 1,401.1 | 421.0 | 313.1 | 107.85 | 3.903 | | | | |
| 10,600.0 | 7,826.9 | 10,556.6 | 7,697.2 | 58.7 | 61.0 | -72.06 | -2,764.5 | 1,401.1 | 421.2 | 309.9 | 111.27 | 3.785 | | | | |
| 10,700.0 | 7,827.7 | 10,656.6 | 7,697.3 | 60.5 | 62.7 | -71.98 | -2,864.5 | 1,401.1 | 421.4 | 306.7 | 114.70 | 3.674 | | | | |
| 10,800.0 | 7,828.5 | 10,756.6 | 7,697.5 | 62.2 | 64.4 | -71.89 | -2,964.5 | 1,401.1 | 421.6 | 303.5 | 118.14 | 3.569 | | | | |
| 10,900.0 | 7,829.4 | 10,856.6 | 7,697.6 | 64.0 | 66.1 | -71.80 | -3,064.5 | 1,401.1 | 421.8 | 300.2 | 121.58 | 3.469 | | | | |
| 11,000.0 | 7,830.2 | 10,956.6 | 7,697.8 | 65.8 | 67.9 | -71.71 | -3,164.5 | 1,401.1 | 422.0 | 297.0 | 125.04 | 3.375 | | | | |
| 11,100.0 | 7,831.0 | 11,056.6 | 7,697.9 | 67.6 | 69.6 | -71.62 | -3,264.5 | 1,401.1 | 422.2 | 293.7 | 128.50 | 3.286 | | | | |
| 11,200.0 | 7,831.8 | 11,156.6 | 7,698.0 | 69.4 | 71.3 | -71.54 | -3,364.5 | 1,401.1 | 422.4 | 290.5 | 131.97 | 3.201 | | | | |
| 11,300.0 | 7,832.6 | 11,256.6 | 7,698.2 | 71.2 | 73.1 | -71.45 | -3,464.5 | 1,401.1 | 422.7 | 287.2 | 135.44 | 3.121 | | | | |
| 11,400.0 | 7,833.5 | 11,356.6 | 7,698.3 | 73.0 | 74.8 | -71.36 | -3,564.5 | 1,401.1 | 422.9 | 284.0 | 138.92 | 3.044 | | | | |
| 11,500.0 | 7,834.3 | 11,456.6 | 7,698.5 | 74.8 | 76.6 | -71.27 | -3,664.5 | 1,401.1 | 423.1 | 280.7 | 142.40 | 2.971 | | | | |
| 11,600.0 | 7,835.1 | 11,556.6 | 7,698.6 | 76.6 | 78.4 | -71.19 | -3,764.5 | 1,401.1 | 423.3 | 277.4 | 145.88 | 2.902 | | | | |
| 11,700.0 | 7,835.9 | 11,656.6 | 7,698.7 | 78.4 | 80.2 | -71.10 | -3,864.5 | 1,401.1 | 423.5 | 274.2 | 149.37 | 2.835 | | | | |
| 11,800.0 | 7,836.7 | 11,756.6 | 7,698.9 | 80.3 | 81.9 | -71.01 | -3,964.5 | 1,401.1 | 423.8 | 270.9 | 152.86 | 2.772 | | | | |
| 11,900.0 | 7,837.6 | 11,856.6 | 7,699.0 | 82.1 | 83.7 | -70.93 | -4,064.5 | 1,401.1 | 424.0 | 267.6 | 156.35 | 2.712 | | | | |
| 12,000.0 | 7,838.4 | 11,956.6 | 7,699.2 | 83.9 | 85.5 | -70.84 | -4,164.5 | 1,401.1 | 424.2 | 264.4 | 159.84 | 2.654 | | | | |
| 12,100.0 | 7,839.2 | 12,056.6 | 7,699.3 | 85.8 | 87.3 | -70.75 | -4,264.5 | 1,401.1 | 424.4 | 261.1 | 163.33 | 2.599 | | | | |
| 12,200.0 | 7,840.0 | 12,156.6 | 7,699.4 | 87.6 | 89.1 | -70.67 | -4,364.5 | 1,401.1 | 424.6 | 257.8 | 166.83 | 2.545 | | | | |
| 12,300.0 | 7,840.8 | 12,256.6 | 7,699.6 | 89.4 | 90.9 | -70.58 | -4,464.5 | 1,401.1 | 424.9 | 254.6 | 170.32 | 2.495 | | | | |
| 12,400.0 | 7,841.7 | 12,356.6 | 7,699.7 | 91.3 | 92.8 | -70.49 | -4,564.5 | 1,401.1 | 425.1 | 251.3 | 173.81 | 2.446 | | | | |
| 12,500.0 | 7,842.5 | 12,456.6 | 7,699.8 | 93.1 | 94.6 | -70.41 | -4,664.5 | 1,401.1 | 425.3 | 248.0 | 177.31 | 2.399 | | | | |
| 12,600.0 | 7,843.3 | 12,556.6 | 7,700.0 | 95.0 | 96.4 | -70.32 | -4,764.5 | 1,401.1 | 425.6 | 244.8 | 180.80 | 2.354 | | | | |
| 12,700.0 | 7,844.1 | 12,656.6 | 7,700.1 | 96.8 | 98.2 | -70.23 | -4,864.5 | 1,401.1 | 425.8 | 241.5 | 184.30 | 2.310 | | | | |
| 12,800.0 | 7,844.9 | 12,756.6 | 7,700.3 | 98.7 | 100.1 | -70.15 | -4,964.5 | 1,401.1 | 426.0 | 238.2 | 187.79 | 2.269 | | | | |
| 12,900.0 | 7,845.8 | 12,856.6 | 7,700.4 | 100.6 | 101.9 | -70.06 | -5,064.5 | 1,401.1 | 426.2 | 235.0 | 191.28 | 2.228 | | | | |
| 13,000.0 | 7,846.6 | 12,956.6 | 7,700.5 | 102.4 | 103.7 | -69.98 | -5,164.5 | 1,401.1 | 426.5 | 231.7 | 194.78 | 2.190 | | | | |
| 13,100.0 | 7,847.4 | 13,056.6 | 7,700.7 | 104.3 | 105.6 | -69.89 | -5,264.5 | 1,401.1 | 426.7 | 228.4 | 198.27 | 2.152 | | | | |
| 13,200.0 | 7,848.2 | 13,156.6 | 7,700.8 | 106.1 | 107.4 | -69.80 | -5,364.5 | 1,401.1 | 426.9 | 225.2 | 201.76 | 2.116 | | | | |
| 13,300.0 | 7,849.0 | 13,256.6 | 7,701.0 | 108.0 | 109.3 | -69.72 | -5,464.5 | 1,401.1 | 427.2 | 221.9 | 205.24 | 2.081 | | | | |
| 13,400.0 | 7,849.9 | 13,356.6 | 7,701.1 | 109.9 | 111.1 | -69.63 | -5,564.5 | 1,401.1 | 427.4 | 218.7 | 208.73 | 2.048 | | | | |
| 13,500.0 | 7,850.7 | 13,456.6 | 7,701.2 | 111.7 | 112.9 | -69.55 | -5,664.5 | 1,401.1 | 427.7 | 215.4 | 212.22 | 2.015 | | | | |
| 13,600.0 | 7,851.5 | 13,556.6 | 7,701.4 | 113.6 | 114.8 | -69.46 | -5,764.5 | 1,401.1 | 427.9 | 212.2 | 215.70 | 1.984 | | | | |
| 13,700.0 | 7,852.3 | 13,656.6 | 7,701.5 | 115.5 | 116.7 | -69.38 | -5,864.5 | 1,401.1 | 428.1 | 209.0 | 219.18 | 1.953 | | | | |
| 13,800.0 | 7,853.1 | 13,756.6 | 7,701.7 | 117.4 | 118.5 | -69.29 | -5,964.5 | 1,401.1 | 428.4 | 205.7 | 222.66 | 1.924 | | | | |
| 13,900.0 | 7,854.0 | 13,856.6 | 7,701.8 | 119.2 | 120.4 | -69.21 | -6,064.5 | 1,401.1 | 428.6 | 202.5 | 226.14 | 1.895 | | | | |
| 14,000.0 | 7,854.8 | 13,956.6 | 7,701.9 | 121.1 | 122.2 | -69.12 | -6,164.5 | 1,401.1 | 428.9 | 199.2 | 229.61 | 1.868 | | | | |
| 14,100.0 | 7,855.6 | 14,056.6 | 7,702.1 | 123.0 | 124.1 | -69.04 | -6,264.5 | 1,401.1 | 429.1 | 196.0 | 233.09 | 1.841 | | | | |
| 14,200.0 | 7,856.4 | 14,156.6 | 7,702.2 | 124.9 | 125.9 | -68.95 | -6,364.5 | 1,401.1 | 429.3 | 192.8 | 236.56 | 1.815 | | | | |
| 14,300.0 | 7,857.2 | 14,256.6 | 7,702.4 | 126.7 | 127.8 | -68.87 | -6,464.4 | 1,401.1 | 429.6 | 189.6 | 240.02 | 1.790 | | | | |
| 14,400.0 | 7,858.1 | 14,356.6 | 7,702.5 | 128.6 | 129.7 | -68.78 | -6,564.4 | 1,401.1 | 429.8 | 186.3 | 243.49 | 1.765 | | | | |
| 14,500.0 | 7,858.9 | 14,456.5 | 7,702.6 | 130.5 | 131.5 | -68.70 | -6,664.4 | 1,401.1 | 430.1 | 183.1 | 246.95 | 1.742 | | | | |
| 14,600.0 | 7,859.7 | 14,556.5 | 7,702.8 | 132.4 | 133.4 | -68.61 | -6,764.4 | 1,401.1 | 430.3 | 179.9 | 250.42 | 1.718 | | | | |
| 14,700.0 | 7,860.5 | 14,656.5 | 7,702.9 | 134.3 | 135.3 | -68.53 | -6,864.4 | 1,401.1 | 430.6 | 176.7 | 253.87 | 1.696 | | | | |
| 14,757.2 | 7,861.0 | 14,713.5 | 7,703.0 | 135.4 | 136.3 | -68.48 | -6,921.4 | 1,401.1 | 430.7 | 174.9 | 255.85 | 1.684 SF | | | | |

| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-343 - Wellbore #1 - Plan #2 (10-8-14) | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|---------------------|---------------------|--|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|--|---------|
| Survey Program: | | 0-MWD | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -90.01 | 0.0 | -114.9 | 114.9 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -90.01 | 0.0 | -114.9 | 114.9 | 114.6 | 0.22 | 511.001 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -90.01 | 0.0 | -114.9 | 114.9 | 114.2 | 0.67 | 170.334 | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.6 | 0.6 | -90.01 | 0.0 | -114.9 | 114.9 | 113.7 | 1.12 | 102.200 | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -90.01 | 0.0 | -114.9 | 114.9 | 113.3 | 1.57 | 73.000 | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | -90.01 | 0.0 | -114.9 | 114.9 | 112.8 | 2.02 | 56.778 | | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | -90.01 | 0.0 | -114.9 | 114.9 | 112.4 | 2.47 | 46.455 | | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.5 | 1.5 | -90.01 | 0.0 | -114.9 | 114.9 | 111.9 | 2.92 | 39.308 | | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | -90.01 | 0.0 | -114.9 | 114.9 | 111.5 | 3.37 | 34.067 | | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | -90.01 | 0.0 | -114.9 | 114.9 | 111.0 | 3.82 | 30.059 | | |
| 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 2.1 | 2.1 | -90.01 | 0.0 | -114.9 | 114.9 | 110.6 | 4.27 | 26.895 CC, ES | | |
| 1,100.0 | 1,100.0 | 1,100.0 | 1,100.0 | 2.4 | 2.4 | -166.07 | 0.0 | -114.9 | 116.5 | 111.8 | 4.71 | 24.752 | | |
| 1,200.0 | 1,199.8 | 1,199.8 | 1,199.8 | 2.6 | 2.6 | -166.64 | 0.0 | -114.9 | 121.6 | 116.5 | 5.14 | 23.685 | | |
| 1,300.0 | 1,299.5 | 1,299.5 | 1,299.5 | 2.8 | 2.8 | -167.49 | 0.0 | -114.9 | 130.1 | 124.6 | 5.56 | 23.403 | | |
| 1,400.0 | 1,398.7 | 1,398.7 | 1,398.7 | 3.0 | 3.0 | -168.51 | 0.0 | -114.9 | 142.1 | 136.1 | 5.98 | 23.744 | | |
| 1,500.0 | 1,497.5 | 1,497.5 | 1,497.5 | 3.3 | 3.3 | -169.58 | 0.0 | -114.9 | 157.4 | 151.0 | 6.40 | 24.591 | | |
| 1,600.0 | 1,595.6 | 1,595.6 | 1,595.6 | 3.6 | 3.5 | -170.65 | 0.0 | -114.9 | 176.2 | 169.4 | 6.82 | 25.845 | | |
| 1,700.0 | 1,693.5 | 1,689.6 | 1,689.6 | 4.0 | 3.7 | -171.26 | 1.0 | -115.8 | 197.5 | 190.2 | 7.25 | 27.221 | | |
| 1,800.0 | 1,791.3 | 1,782.6 | 1,782.5 | 4.3 | 3.9 | -171.12 | 4.1 | -118.9 | 220.7 | 213.1 | 7.69 | 28.688 | | |
| 1,900.0 | 1,889.2 | 1,874.6 | 1,874.2 | 4.7 | 4.1 | -170.44 | 9.4 | -124.1 | 246.0 | 237.9 | 8.14 | 30.222 | | |
| 2,000.0 | 1,987.1 | 1,967.8 | 1,966.8 | 5.1 | 4.3 | -169.43 | 16.6 | -131.1 | 273.1 | 264.5 | 8.60 | 31.765 | | |
| 2,100.0 | 2,084.9 | 2,063.8 | 2,062.2 | 5.5 | 4.5 | -168.50 | 24.5 | -138.8 | 300.6 | 291.5 | 9.06 | 33.163 | | |
| 2,200.0 | 2,182.8 | 2,159.8 | 2,157.6 | 5.9 | 4.8 | -167.72 | 32.3 | -146.5 | 328.2 | 318.6 | 9.54 | 34.405 | | |
| 2,300.0 | 2,280.6 | 2,255.9 | 2,253.0 | 6.3 | 5.0 | -167.06 | 40.1 | -154.1 | 355.8 | 345.8 | 10.02 | 35.511 | | |
| 2,400.0 | 2,378.5 | 2,351.9 | 2,348.4 | 6.7 | 5.3 | -166.50 | 47.9 | -161.8 | 383.4 | 372.9 | 10.51 | 36.491 | | |
| 2,500.0 | 2,476.3 | 2,448.0 | 2,443.8 | 7.2 | 5.5 | -166.02 | 55.8 | -169.4 | 411.1 | 400.1 | 11.00 | 37.379 | | |
| 2,600.0 | 2,574.2 | 2,544.0 | 2,539.3 | 7.6 | 5.8 | -165.59 | 63.6 | -177.1 | 438.8 | 427.3 | 11.49 | 38.175 | | |
| 2,700.0 | 2,672.1 | 2,640.0 | 2,634.7 | 8.0 | 6.1 | -165.22 | 71.4 | -184.7 | 466.5 | 454.5 | 12.00 | 38.893 | | |
| 2,800.0 | 2,769.9 | 2,736.1 | 2,730.1 | 8.5 | 6.3 | -164.88 | 79.2 | -192.4 | 494.3 | 481.8 | 12.50 | 39.545 | | |
| 2,900.0 | 2,867.8 | 2,832.1 | 2,825.5 | 8.9 | 6.6 | -164.59 | 87.1 | -200.1 | 522.0 | 509.0 | 13.01 | 40.138 | | |
| 3,000.0 | 2,965.6 | 2,928.1 | 2,920.9 | 9.3 | 6.9 | -164.32 | 94.9 | -207.7 | 549.8 | 536.3 | 13.52 | 40.679 | | |
| 3,100.0 | 3,063.5 | 3,024.2 | 3,016.3 | 9.8 | 7.1 | -164.08 | 102.7 | -215.4 | 577.6 | 563.5 | 14.03 | 41.174 | | |
| 3,200.0 | 3,161.4 | 3,120.2 | 3,111.7 | 10.2 | 7.4 | -163.86 | 110.5 | -223.0 | 605.4 | 590.8 | 14.54 | 41.629 | | |
| 3,300.0 | 3,259.2 | 3,216.3 | 3,207.1 | 10.7 | 7.7 | -163.66 | 118.4 | -230.7 | 633.2 | 618.1 | 15.06 | 42.048 | | |
| 3,400.0 | 3,357.1 | 3,312.3 | 3,302.6 | 11.1 | 8.0 | -163.47 | 126.2 | -238.4 | 660.9 | 645.4 | 15.58 | 42.434 | | |
| 3,500.0 | 3,454.9 | 3,408.3 | 3,398.0 | 11.5 | 8.2 | -163.31 | 134.0 | -246.0 | 688.8 | 672.7 | 16.10 | 42.792 | | |
| 3,600.0 | 3,552.8 | 3,504.4 | 3,493.4 | 12.0 | 8.5 | -163.15 | 141.8 | -253.7 | 716.6 | 699.9 | 16.62 | 43.124 | | |
| 3,700.0 | 3,650.6 | 3,600.4 | 3,588.8 | 12.4 | 8.8 | -163.01 | 149.7 | -261.3 | 744.4 | 727.2 | 17.14 | 43.433 | | |
| 3,800.0 | 3,748.5 | 3,696.5 | 3,684.2 | 12.9 | 9.1 | -162.87 | 157.5 | -269.0 | 772.2 | 754.5 | 17.66 | 43.720 | | |
| 3,900.0 | 3,846.4 | 3,792.5 | 3,779.6 | 13.3 | 9.4 | -162.75 | 165.3 | -276.6 | 800.0 | 781.8 | 18.19 | 43.989 | | |
| 4,000.0 | 3,944.2 | 3,888.5 | 3,875.0 | 13.8 | 9.7 | -162.63 | 173.1 | -284.3 | 827.8 | 809.1 | 18.71 | 44.240 | | |
| 4,100.0 | 4,042.1 | 3,984.6 | 3,970.4 | 14.2 | 9.9 | -162.52 | 181.0 | -292.0 | 855.7 | 836.4 | 19.24 | 44.476 | | |
| 4,200.0 | 4,139.9 | 4,080.6 | 4,065.8 | 14.7 | 10.2 | -162.42 | 188.8 | -299.6 | 883.5 | 863.7 | 19.77 | 44.697 | | |
| 4,300.0 | 4,237.8 | 4,176.6 | 4,161.3 | 15.1 | 10.5 | -162.33 | 196.6 | -307.3 | 911.3 | 891.0 | 20.29 | 44.905 | | |
| 4,400.0 | 4,335.7 | 4,272.7 | 4,256.7 | 15.6 | 10.8 | -162.24 | 204.5 | -314.9 | 939.2 | 918.3 | 20.82 | 45.100 | | |
| 4,500.0 | 4,433.5 | 4,368.7 | 4,352.1 | 16.0 | 11.1 | -162.15 | 212.3 | -322.6 | 967.0 | 945.6 | 21.35 | 45.285 | | |
| 4,600.0 | 4,531.4 | 4,464.8 | 4,447.5 | 16.4 | 11.4 | -162.07 | 220.1 | -330.2 | 994.8 | 973.0 | 21.88 | 45.460 | | |
| 4,700.0 | 4,629.2 | 4,560.8 | 4,542.9 | 16.9 | 11.7 | -162.00 | 227.9 | -337.9 | 1,022.7 | 1,000.3 | 22.42 | 45.625 | | |
| 4,800.0 | 4,727.1 | 4,656.8 | 4,638.3 | 17.3 | 11.9 | -161.93 | 235.8 | -345.6 | 1,050.5 | 1,027.6 | 22.95 | 45.781 | | |
| 4,900.0 | 4,824.9 | 4,776.4 | 4,757.2 | 17.8 | 12.2 | -161.89 | 244.6 | -354.2 | 1,077.7 | 1,054.2 | 23.49 | 45.875 | | |
| 5,000.0 | 4,922.8 | 4,911.5 | 4,892.1 | 18.2 | 12.5 | -162.05 | 250.5 | -360.0 | 1,101.8 | 1,077.7 | 24.02 | 45.867 | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-343 - Wellbore #1 - Plan #2 (10-8-14) | | | | | | | | | | Offset Site Error: | | 0.0 ft | |
|-----------------------|---------------------|--|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|--|---------|--|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | | 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | |
| 5,100.0 | 5,020.7 | 5,040.1 | 5,020.7 | 18.7 | 12.7 | -162.41 | 252.0 | -361.4 | 1,122.5 | 1,098.0 | 24.51 | 45.800 | | | |
| 5,200.0 | 5,118.5 | 5,138.0 | 5,118.5 | 19.1 | 12.9 | -162.72 | 252.0 | -361.4 | 1,142.2 | 1,117.2 | 24.96 | 45.754 | | | |
| 5,300.0 | 5,216.4 | 5,235.8 | 5,216.4 | 19.6 | 13.1 | -163.02 | 252.0 | -361.4 | 1,161.9 | 1,136.4 | 25.43 | 45.691 | | | |
| 5,400.0 | 5,314.2 | 5,333.7 | 5,314.2 | 20.0 | 13.3 | -163.31 | 252.0 | -361.4 | 1,181.6 | 1,155.7 | 25.89 | 45.632 | | | |
| 5,500.0 | 5,412.1 | 5,431.5 | 5,412.1 | 20.5 | 13.5 | -163.59 | 252.0 | -361.4 | 1,201.4 | 1,175.0 | 26.36 | 45.575 | | | |
| 5,600.0 | 5,509.9 | 5,529.4 | 5,509.9 | 20.9 | 13.7 | -163.86 | 252.0 | -361.4 | 1,221.2 | 1,194.3 | 26.83 | 45.521 | | | |
| 5,700.0 | 5,607.8 | 5,627.3 | 5,607.8 | 21.4 | 13.8 | -164.13 | 252.0 | -361.4 | 1,241.0 | 1,213.7 | 27.29 | 45.469 | | | |
| 5,800.0 | 5,705.7 | 5,725.1 | 5,705.7 | 21.8 | 14.0 | -164.38 | 252.0 | -361.4 | 1,260.8 | 1,233.1 | 27.76 | 45.419 | | | |
| 5,900.0 | 5,803.5 | 5,823.0 | 5,803.5 | 22.3 | 14.2 | -164.63 | 252.0 | -361.4 | 1,280.7 | 1,252.5 | 28.23 | 45.372 | | | |
| 6,000.0 | 5,901.4 | 5,920.8 | 5,901.4 | 22.7 | 14.4 | -164.87 | 252.0 | -361.4 | 1,300.6 | 1,271.9 | 28.69 | 45.326 | | | |
| 6,100.0 | 5,999.5 | 6,019.0 | 5,999.5 | 23.1 | 14.6 | -165.18 | 252.0 | -361.4 | 1,319.1 | 1,289.9 | 29.22 | 45.147 | | | |
| 6,200.0 | 6,098.3 | 6,117.7 | 6,098.3 | 23.4 | 14.8 | -165.43 | 252.0 | -361.4 | 1,334.4 | 1,304.7 | 29.70 | 44.935 | | | |
| 6,300.0 | 6,197.5 | 6,217.0 | 6,197.5 | 23.7 | 15.0 | -165.62 | 252.0 | -361.4 | 1,346.3 | 1,316.1 | 30.14 | 44.672 | | | |
| 6,400.0 | 6,297.1 | 6,316.6 | 6,297.1 | 23.9 | 15.2 | -165.75 | 252.0 | -361.4 | 1,354.8 | 1,324.3 | 30.54 | 44.360 | | | |
| 6,500.0 | 6,397.0 | 6,416.4 | 6,397.0 | 24.0 | 15.4 | -165.83 | 252.0 | -361.4 | 1,360.0 | 1,329.1 | 30.91 | 44.001 | | | |
| 6,600.0 | 6,496.9 | 6,516.4 | 6,496.9 | 24.2 | 15.6 | -165.86 | 252.0 | -361.4 | 1,361.8 | 1,330.6 | 31.24 | 43.589 | | | |
| 6,700.0 | 6,596.9 | 6,616.4 | 6,596.9 | 24.3 | 15.8 | -90.00 | 252.0 | -361.4 | 1,361.8 | 1,330.2 | 31.62 | 43.066 | | | |
| 6,800.0 | 6,696.9 | 6,716.4 | 6,696.9 | 24.4 | 16.0 | -90.00 | 252.0 | -361.4 | 1,361.8 | 1,329.8 | 32.01 | 42.541 | | | |
| 6,900.0 | 6,796.9 | 6,816.4 | 6,796.9 | 24.5 | 16.2 | -90.00 | 252.0 | -361.4 | 1,361.8 | 1,329.4 | 32.40 | 42.027 | | | |
| 7,000.0 | 6,896.9 | 6,916.4 | 6,896.9 | 24.7 | 16.4 | -90.00 | 252.0 | -361.4 | 1,361.8 | 1,329.0 | 32.80 | 41.524 | | | |
| 7,050.9 | 6,947.8 | 6,967.3 | 6,947.8 | 24.7 | 16.5 | -90.00 | 252.0 | -361.4 | 1,361.8 | 1,328.8 | 33.00 | 41.271 | | | |
| 7,100.0 | 6,996.9 | 7,016.3 | 6,996.8 | 24.8 | 16.6 | -90.06 | 250.5 | -361.4 | 1,361.8 | 1,328.6 | 33.16 | 41.063 | | | |
| 7,200.0 | 7,096.9 | 7,114.9 | 7,094.5 | 24.9 | 16.7 | 89.48 | 237.9 | -361.4 | 1,361.9 | 1,328.5 | 33.41 | 40.758 | | | |
| 7,300.0 | 7,195.9 | 7,211.8 | 7,188.2 | 25.0 | 16.8 | 88.97 | 213.4 | -361.4 | 1,362.0 | 1,328.5 | 33.55 | 40.593 | | | |
| 7,400.0 | 7,292.4 | 7,307.3 | 7,276.8 | 25.1 | 16.8 | 88.48 | 177.9 | -361.4 | 1,362.3 | 1,328.7 | 33.62 | 40.516 | | | |
| 7,500.0 | 7,384.6 | 7,401.5 | 7,359.2 | 25.1 | 16.9 | 88.02 | 132.3 | -361.4 | 1,362.6 | 1,329.0 | 33.67 | 40.469 | | | |
| 7,600.0 | 7,470.9 | 7,494.6 | 7,434.4 | 25.1 | 16.9 | 87.60 | 77.6 | -361.4 | 1,363.0 | 1,329.3 | 33.75 | 40.382 | | | |
| 7,700.0 | 7,550.0 | 7,586.7 | 7,501.8 | 25.1 | 16.9 | 87.21 | 14.9 | -361.4 | 1,363.4 | 1,329.5 | 33.93 | 40.179 | | | |
| 7,800.0 | 7,620.5 | 7,677.9 | 7,560.6 | 25.1 | 16.9 | 86.87 | -54.8 | -361.4 | 1,363.9 | 1,329.6 | 34.27 | 39.796 | | | |
| 7,900.0 | 7,681.0 | 7,768.4 | 7,610.4 | 25.2 | 17.1 | 86.58 | -130.3 | -361.4 | 1,364.2 | 1,329.4 | 34.82 | 39.180 | | | |
| 8,000.0 | 7,730.7 | 7,858.3 | 7,650.6 | 25.4 | 17.5 | 86.34 | -210.7 | -361.4 | 1,364.6 | 1,329.0 | 35.61 | 38.316 | | | |
| 8,100.0 | 7,768.6 | 7,950.0 | 7,681.6 | 25.6 | 18.1 | 86.16 | -296.9 | -361.4 | 1,364.9 | 1,328.2 | 36.69 | 37.198 | | | |
| 8,200.0 | 7,794.2 | 8,036.9 | 7,701.3 | 26.0 | 18.7 | 86.04 | -381.5 | -361.4 | 1,365.1 | 1,327.1 | 38.02 | 35.908 | | | |
| 8,300.0 | 7,806.9 | 8,125.8 | 7,711.4 | 26.5 | 19.6 | 85.98 | -469.8 | -361.4 | 1,365.2 | 1,325.6 | 39.60 | 34.472 | | | |
| 8,400.0 | 7,808.9 | 8,220.6 | 7,712.6 | 27.1 | 20.5 | 85.96 | -564.5 | -361.4 | 1,365.2 | 1,323.7 | 41.51 | 32.891 | | | |
| 8,500.0 | 7,809.7 | 8,320.6 | 7,712.6 | 27.9 | 21.7 | 85.92 | -664.5 | -361.4 | 1,365.3 | 1,321.5 | 43.72 | 31.229 | | | |
| 8,600.0 | 7,810.5 | 8,420.6 | 7,712.7 | 28.7 | 22.9 | 85.89 | -764.5 | -361.4 | 1,365.3 | 1,319.2 | 46.14 | 29.592 | | | |
| 8,700.0 | 7,811.3 | 8,520.6 | 7,712.8 | 29.7 | 24.3 | 85.86 | -864.5 | -361.4 | 1,365.4 | 1,316.6 | 48.74 | 28.015 | | | |
| 8,800.0 | 7,812.1 | 8,620.6 | 7,712.8 | 30.9 | 25.7 | 85.83 | -964.5 | -361.4 | 1,365.4 | 1,313.9 | 51.49 | 26.518 | | | |
| 8,900.0 | 7,813.0 | 8,720.5 | 7,712.9 | 32.0 | 27.1 | 85.80 | -1,064.5 | -361.4 | 1,365.5 | 1,311.1 | 54.37 | 25.114 | | | |
| 9,000.0 | 7,813.8 | 8,820.5 | 7,713.0 | 33.3 | 28.7 | 85.77 | -1,164.5 | -361.4 | 1,365.5 | 1,308.2 | 57.36 | 23.806 | | | |
| 9,100.0 | 7,814.6 | 8,920.5 | 7,713.0 | 34.6 | 30.2 | 85.74 | -1,264.5 | -361.4 | 1,365.6 | 1,305.1 | 60.44 | 22.593 | | | |
| 9,200.0 | 7,815.4 | 9,020.5 | 7,713.1 | 36.0 | 31.8 | 85.70 | -1,364.5 | -361.4 | 1,365.6 | 1,302.0 | 63.61 | 21.470 | | | |
| 9,300.0 | 7,816.2 | 9,120.5 | 7,713.2 | 37.5 | 33.4 | 85.67 | -1,464.5 | -361.4 | 1,365.7 | 1,298.9 | 66.84 | 20.433 | | | |
| 9,400.0 | 7,817.1 | 9,220.5 | 7,713.3 | 38.9 | 35.1 | 85.64 | -1,564.5 | -361.4 | 1,365.8 | 1,295.6 | 70.13 | 19.475 | | | |
| 9,500.0 | 7,817.9 | 9,320.5 | 7,713.3 | 40.4 | 36.8 | 85.61 | -1,664.5 | -361.4 | 1,365.8 | 1,292.3 | 73.47 | 18.590 | | | |
| 9,600.0 | 7,818.7 | 9,420.5 | 7,713.4 | 42.0 | 38.5 | 85.58 | -1,764.5 | -361.4 | 1,365.9 | 1,289.0 | 76.85 | 17.772 | | | |
| 9,700.0 | 7,819.5 | 9,520.5 | 7,713.5 | 43.6 | 40.2 | 85.55 | -1,864.5 | -361.4 | 1,365.9 | 1,285.7 | 80.28 | 17.015 | | | |
| 9,800.0 | 7,820.3 | 9,620.5 | 7,713.5 | 45.2 | 42.0 | 85.52 | -1,964.5 | -361.4 | 1,366.0 | 1,282.3 | 83.73 | 16.313 | | | |
| 9,900.0 | 7,821.2 | 9,720.5 | 7,713.6 | 46.8 | 43.7 | 85.48 | -2,064.5 | -361.4 | 1,366.0 | 1,278.8 | 87.22 | 15.662 | | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-343 - Wellbore #1 - Plan #2 (10-8-14) | | | | | | | | | | | Offset Site Error: 0.0 ft | | |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|---------------------------|----------|-------------------|
| Survey Program: 0-MWD | | | | | | | | | | | Offset Well Error: 0.0 ft | | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | | Separation Factor |
| 10,000.0 | 7,822.0 | 9,820.5 | 7,713.7 | 48.5 | 45.5 | 85.45 | -2,164.5 | -361.4 | 1,366.1 | 1,275.4 | 90.73 | 15.056 | |
| 10,100.0 | 7,822.8 | 9,920.5 | 7,713.7 | 50.1 | 47.3 | 85.42 | -2,264.4 | -361.4 | 1,366.2 | 1,271.9 | 94.27 | 14.492 | |
| 10,200.0 | 7,823.6 | 10,020.5 | 7,713.8 | 51.8 | 49.1 | 85.39 | -2,364.4 | -361.4 | 1,366.2 | 1,268.4 | 97.83 | 13.966 | |
| 10,300.0 | 7,824.4 | 10,120.5 | 7,713.9 | 53.5 | 50.9 | 85.36 | -2,464.4 | -361.4 | 1,366.3 | 1,264.9 | 101.40 | 13.474 | |
| 10,400.0 | 7,825.3 | 10,220.5 | 7,714.0 | 55.3 | 52.7 | 85.33 | -2,564.4 | -361.4 | 1,366.3 | 1,261.4 | 104.99 | 13.013 | |
| 10,500.0 | 7,826.1 | 10,320.5 | 7,714.0 | 57.0 | 54.5 | 85.30 | -2,664.4 | -361.4 | 1,366.4 | 1,257.8 | 108.60 | 12.582 | |
| 10,600.0 | 7,826.9 | 10,420.5 | 7,714.1 | 58.7 | 56.3 | 85.26 | -2,764.4 | -361.4 | 1,366.5 | 1,254.3 | 112.22 | 12.177 | |
| 10,700.0 | 7,827.7 | 10,520.5 | 7,714.2 | 60.5 | 58.1 | 85.23 | -2,864.4 | -361.4 | 1,366.5 | 1,250.7 | 115.85 | 11.795 | |
| 10,800.0 | 7,828.5 | 10,620.5 | 7,714.2 | 62.2 | 60.0 | 85.20 | -2,964.4 | -361.4 | 1,366.6 | 1,247.1 | 119.50 | 11.436 | |
| 10,900.0 | 7,829.4 | 10,720.5 | 7,714.3 | 64.0 | 61.8 | 85.17 | -3,064.4 | -361.4 | 1,366.7 | 1,243.5 | 123.15 | 11.097 | |
| 11,000.0 | 7,830.2 | 10,820.5 | 7,714.4 | 65.8 | 63.7 | 85.14 | -3,164.4 | -361.4 | 1,366.7 | 1,239.9 | 126.81 | 10.777 | |
| 11,100.0 | 7,831.0 | 10,920.5 | 7,714.4 | 67.6 | 65.5 | 85.11 | -3,264.4 | -361.4 | 1,366.8 | 1,236.3 | 130.48 | 10.475 | |
| 11,200.0 | 7,831.8 | 11,020.5 | 7,714.5 | 69.4 | 67.4 | 85.08 | -3,364.4 | -361.4 | 1,366.9 | 1,232.7 | 134.16 | 10.188 | |
| 11,300.0 | 7,832.6 | 11,120.5 | 7,714.6 | 71.2 | 69.2 | 85.05 | -3,464.4 | -361.4 | 1,366.9 | 1,229.1 | 137.85 | 9.916 | |
| 11,400.0 | 7,833.5 | 11,220.5 | 7,714.7 | 73.0 | 71.1 | 85.01 | -3,564.4 | -361.4 | 1,367.0 | 1,225.4 | 141.54 | 9.658 | |
| 11,500.0 | 7,834.3 | 11,320.5 | 7,714.7 | 74.8 | 72.9 | 84.98 | -3,664.4 | -361.4 | 1,367.0 | 1,221.8 | 145.24 | 9.413 | |
| 11,600.0 | 7,835.1 | 11,420.5 | 7,714.8 | 76.6 | 74.8 | 84.95 | -3,764.4 | -361.4 | 1,367.1 | 1,218.2 | 148.94 | 9.179 | |
| 11,700.0 | 7,835.9 | 11,520.5 | 7,714.9 | 78.4 | 76.7 | 84.92 | -3,864.4 | -361.4 | 1,367.2 | 1,214.5 | 152.65 | 8.956 | |
| 11,800.0 | 7,836.7 | 11,620.5 | 7,714.9 | 80.3 | 78.5 | 84.89 | -3,964.4 | -361.4 | 1,367.2 | 1,210.9 | 156.36 | 8.744 | |
| 11,900.0 | 7,837.6 | 11,720.5 | 7,715.0 | 82.1 | 80.4 | 84.86 | -4,064.4 | -361.4 | 1,367.3 | 1,207.2 | 160.08 | 8.542 | |
| 12,000.0 | 7,838.4 | 11,820.5 | 7,715.1 | 83.9 | 82.3 | 84.83 | -4,164.4 | -361.4 | 1,367.4 | 1,203.6 | 163.80 | 8.348 | |
| 12,100.0 | 7,839.2 | 11,920.5 | 7,715.1 | 85.8 | 84.1 | 84.79 | -4,264.4 | -361.4 | 1,367.4 | 1,199.9 | 167.52 | 8.163 | |
| 12,200.0 | 7,840.0 | 12,020.5 | 7,715.2 | 87.6 | 86.0 | 84.76 | -4,364.4 | -361.4 | 1,367.5 | 1,196.3 | 171.25 | 7.986 | |
| 12,300.0 | 7,840.8 | 12,120.5 | 7,715.3 | 89.4 | 87.9 | 84.73 | -4,464.4 | -361.4 | 1,367.6 | 1,192.6 | 174.98 | 7.816 | |
| 12,400.0 | 7,841.7 | 12,220.5 | 7,715.3 | 91.3 | 89.8 | 84.70 | -4,564.4 | -361.4 | 1,367.7 | 1,188.9 | 178.71 | 7.653 | |
| 12,500.0 | 7,842.5 | 12,320.4 | 7,715.4 | 93.1 | 91.7 | 84.67 | -4,664.4 | -361.4 | 1,367.7 | 1,185.3 | 182.45 | 7.496 | |
| 12,600.0 | 7,843.3 | 12,420.4 | 7,715.5 | 95.0 | 93.5 | 84.64 | -4,764.4 | -361.4 | 1,367.8 | 1,181.6 | 186.19 | 7.346 | |
| 12,700.0 | 7,844.1 | 12,520.4 | 7,715.6 | 96.8 | 95.4 | 84.61 | -4,864.4 | -361.4 | 1,367.9 | 1,177.9 | 189.93 | 7.202 | |
| 12,800.0 | 7,844.9 | 12,620.4 | 7,715.6 | 98.7 | 97.3 | 84.58 | -4,964.4 | -361.4 | 1,367.9 | 1,174.3 | 193.67 | 7.063 | |
| 12,900.0 | 7,845.8 | 12,720.4 | 7,715.7 | 100.6 | 99.2 | 84.54 | -5,064.4 | -361.4 | 1,368.0 | 1,170.6 | 197.42 | 6.930 | |
| 13,000.0 | 7,846.6 | 12,820.4 | 7,715.8 | 102.4 | 101.1 | 84.51 | -5,164.4 | -361.4 | 1,368.1 | 1,166.9 | 201.16 | 6.801 | |
| 13,100.0 | 7,847.4 | 12,920.4 | 7,715.8 | 104.3 | 103.0 | 84.48 | -5,264.4 | -361.4 | 1,368.1 | 1,163.2 | 204.91 | 6.677 | |
| 13,200.0 | 7,848.2 | 13,020.4 | 7,715.9 | 106.1 | 104.9 | 84.45 | -5,364.4 | -361.4 | 1,368.2 | 1,159.6 | 208.66 | 6.557 | |
| 13,300.0 | 7,849.0 | 13,120.4 | 7,716.0 | 108.0 | 106.7 | 84.42 | -5,464.4 | -361.4 | 1,368.3 | 1,155.9 | 212.42 | 6.442 | |
| 13,400.0 | 7,849.9 | 13,220.4 | 7,716.0 | 109.9 | 108.6 | 84.39 | -5,564.4 | -361.4 | 1,368.4 | 1,152.2 | 216.17 | 6.330 | |
| 13,500.0 | 7,850.7 | 13,320.4 | 7,716.1 | 111.7 | 110.5 | 84.36 | -5,664.4 | -361.4 | 1,368.4 | 1,148.5 | 219.92 | 6.222 | |
| 13,600.0 | 7,851.5 | 13,420.4 | 7,716.2 | 113.6 | 112.4 | 84.33 | -5,764.3 | -361.4 | 1,368.5 | 1,144.8 | 223.68 | 6.118 | |
| 13,700.0 | 7,852.3 | 13,520.4 | 7,716.3 | 115.5 | 114.3 | 84.29 | -5,864.3 | -361.4 | 1,368.6 | 1,141.2 | 227.44 | 6.017 | |
| 13,800.0 | 7,853.1 | 13,620.4 | 7,716.3 | 117.4 | 116.2 | 84.26 | -5,964.3 | -361.4 | 1,368.7 | 1,137.5 | 231.20 | 5.920 | |
| 13,900.0 | 7,854.0 | 13,720.4 | 7,716.4 | 119.2 | 118.1 | 84.23 | -6,064.3 | -361.4 | 1,368.7 | 1,133.8 | 234.96 | 5.826 | |
| 14,000.0 | 7,854.8 | 13,820.4 | 7,716.5 | 121.1 | 120.0 | 84.20 | -6,164.3 | -361.4 | 1,368.8 | 1,130.1 | 238.72 | 5.734 | |
| 14,100.0 | 7,855.6 | 13,920.4 | 7,716.5 | 123.0 | 121.9 | 84.17 | -6,264.3 | -361.4 | 1,368.9 | 1,126.4 | 242.48 | 5.645 | |
| 14,200.0 | 7,856.4 | 14,020.4 | 7,716.6 | 124.9 | 123.8 | 84.14 | -6,364.3 | -361.4 | 1,369.0 | 1,122.7 | 246.24 | 5.560 | |
| 14,300.0 | 7,857.2 | 14,120.4 | 7,716.7 | 126.7 | 125.7 | 84.11 | -6,464.3 | -361.4 | 1,369.0 | 1,119.0 | 250.00 | 5.476 | |
| 14,400.0 | 7,858.1 | 14,220.4 | 7,716.7 | 128.6 | 127.6 | 84.08 | -6,564.3 | -361.4 | 1,369.1 | 1,115.4 | 253.76 | 5.395 | |
| 14,500.0 | 7,858.9 | 14,320.4 | 7,716.8 | 130.5 | 129.5 | 84.04 | -6,664.3 | -361.4 | 1,369.2 | 1,111.7 | 257.53 | 5.317 | |
| 14,600.0 | 7,859.7 | 14,420.4 | 7,716.9 | 132.4 | 131.4 | 84.01 | -6,764.3 | -361.4 | 1,369.3 | 1,108.0 | 261.29 | 5.240 | |
| 14,700.0 | 7,860.5 | 14,520.4 | 7,717.0 | 134.3 | 133.3 | 83.98 | -6,864.3 | -361.4 | 1,369.4 | 1,104.3 | 265.06 | 5.166 | |
| 14,757.2 | 7,861.0 | 14,577.6 | 7,717.0 | 135.4 | 134.4 | 83.96 | -6,921.5 | -361.4 | 1,369.4 | 1,102.2 | 267.21 | 5.125 SF | |

| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -90.03 | 0.0 | -58.8 | 58.8 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -90.03 | 0.0 | -58.8 | 58.8 | 58.6 | 0.22 | 261.732 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -90.03 | 0.0 | -58.8 | 58.8 | 58.2 | 0.67 | 87.244 | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.6 | 0.6 | -90.03 | 0.0 | -58.8 | 58.8 | 57.7 | 1.12 | 52.346 | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -90.03 | 0.0 | -58.8 | 58.8 | 57.3 | 1.57 | 37.390 | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | -90.03 | 0.0 | -58.8 | 58.8 | 56.8 | 2.02 | 29.081 | | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | -90.03 | 0.0 | -58.8 | 58.8 | 56.4 | 2.47 | 23.794 | | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.5 | 1.5 | -90.03 | 0.0 | -58.8 | 58.8 | 55.9 | 2.92 | 20.133 | | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | -90.03 | 0.0 | -58.8 | 58.8 | 55.5 | 3.37 | 17.449 | | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | -90.03 | 0.0 | -58.8 | 58.8 | 55.0 | 3.82 | 15.396 | | |
| 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 2.1 | 2.1 | -90.03 | 0.0 | -58.8 | 58.8 | 54.6 | 4.27 | 13.775 CC, ES | | |
| 1,100.0 | 1,100.0 | 1,100.0 | 1,100.0 | 2.4 | 2.4 | -166.29 | 0.0 | -58.8 | 60.5 | 55.8 | 4.71 | 12.853 | | |
| 1,200.0 | 1,199.8 | 1,199.8 | 1,199.8 | 2.6 | 2.6 | -167.35 | 0.0 | -58.8 | 65.6 | 60.5 | 5.14 | 12.777 | | |
| 1,300.0 | 1,299.5 | 1,299.5 | 1,299.5 | 2.8 | 2.8 | -168.79 | 0.0 | -58.8 | 74.1 | 68.6 | 5.56 | 13.335 | | |
| 1,400.0 | 1,398.7 | 1,398.7 | 1,398.7 | 3.0 | 3.0 | -170.33 | 0.0 | -58.8 | 86.1 | 80.2 | 5.98 | 14.399 | | |
| 1,500.0 | 1,497.5 | 1,500.8 | 1,500.8 | 3.3 | 3.3 | -171.46 | 0.7 | -57.2 | 100.0 | 93.6 | 6.40 | 15.633 | | |
| 1,600.0 | 1,595.6 | 1,603.4 | 1,603.2 | 3.6 | 3.5 | -171.93 | 3.1 | -52.4 | 114.0 | 107.2 | 6.80 | 16.756 | | |
| 1,700.0 | 1,693.5 | 1,706.7 | 1,706.1 | 4.0 | 3.7 | -171.86 | 7.2 | -44.1 | 126.1 | 118.8 | 7.24 | 17.405 | | |
| 1,800.0 | 1,791.3 | 1,810.1 | 1,808.8 | 4.3 | 4.0 | -171.26 | 12.9 | -32.6 | 134.9 | 127.2 | 7.70 | 17.516 | | |
| 1,900.0 | 1,889.2 | 1,909.8 | 1,907.5 | 4.7 | 4.2 | -170.56 | 18.9 | -20.2 | 142.4 | 134.3 | 8.16 | 17.446 | | |
| 2,000.0 | 1,987.1 | 2,009.5 | 2,006.2 | 5.1 | 4.5 | -169.92 | 25.0 | -7.9 | 150.0 | 141.4 | 8.64 | 17.367 | | |
| 2,100.0 | 2,084.9 | 2,109.2 | 2,105.0 | 5.5 | 4.7 | -169.35 | 31.1 | 4.5 | 157.6 | 148.5 | 9.12 | 17.281 | | |
| 2,200.0 | 2,182.8 | 2,208.9 | 2,203.7 | 5.9 | 5.0 | -168.83 | 37.1 | 16.8 | 165.2 | 155.6 | 9.61 | 17.196 | | |
| 2,300.0 | 2,280.6 | 2,308.6 | 2,302.5 | 6.3 | 5.3 | -168.36 | 43.2 | 29.2 | 172.8 | 162.7 | 10.10 | 17.107 | | |
| 2,400.0 | 2,378.5 | 2,408.3 | 2,401.2 | 6.7 | 5.6 | -167.92 | 49.3 | 41.5 | 180.5 | 169.8 | 10.60 | 17.018 | | |
| 2,500.0 | 2,476.3 | 2,508.0 | 2,500.0 | 7.2 | 5.9 | -167.53 | 55.3 | 53.8 | 188.1 | 177.0 | 11.11 | 16.931 | | |
| 2,600.0 | 2,574.2 | 2,607.7 | 2,598.7 | 7.6 | 6.2 | -167.16 | 61.4 | 66.2 | 195.7 | 184.1 | 11.62 | 16.845 | | |
| 2,700.0 | 2,672.1 | 2,707.4 | 2,697.5 | 8.0 | 6.5 | -166.82 | 67.5 | 78.5 | 203.4 | 191.3 | 12.13 | 16.761 | | |
| 2,800.0 | 2,769.9 | 2,807.1 | 2,796.2 | 8.5 | 6.8 | -166.50 | 73.5 | 90.9 | 211.0 | 198.4 | 12.65 | 16.679 | | |
| 2,900.0 | 2,867.8 | 2,906.8 | 2,895.0 | 8.9 | 7.2 | -166.21 | 79.6 | 103.2 | 218.7 | 205.5 | 13.18 | 16.600 | | |
| 3,000.0 | 2,965.6 | 3,006.5 | 2,993.7 | 9.3 | 7.5 | -165.94 | 85.7 | 115.5 | 226.4 | 212.7 | 13.70 | 16.523 | | |
| 3,100.0 | 3,063.5 | 3,106.2 | 3,092.5 | 9.8 | 7.8 | -165.68 | 91.7 | 127.9 | 234.1 | 219.8 | 14.23 | 16.450 | | |
| 3,200.0 | 3,161.4 | 3,205.9 | 3,191.2 | 10.2 | 8.1 | -165.44 | 97.8 | 140.2 | 241.7 | 227.0 | 14.76 | 16.378 | | |
| 3,300.0 | 3,259.2 | 3,305.6 | 3,290.0 | 10.7 | 8.4 | -165.22 | 103.9 | 152.6 | 249.4 | 234.1 | 15.29 | 16.310 | | |
| 3,400.0 | 3,357.1 | 3,405.3 | 3,388.7 | 11.1 | 8.8 | -165.01 | 109.9 | 164.9 | 257.1 | 241.3 | 15.83 | 16.244 | | |
| 3,500.0 | 3,454.9 | 3,505.0 | 3,487.4 | 11.5 | 9.1 | -164.81 | 116.0 | 177.3 | 264.8 | 248.4 | 16.36 | 16.181 | | |
| 3,600.0 | 3,552.8 | 3,604.7 | 3,586.2 | 12.0 | 9.4 | -164.62 | 122.0 | 189.6 | 272.5 | 255.6 | 16.90 | 16.120 | | |
| 3,700.0 | 3,650.6 | 3,704.4 | 3,684.9 | 12.4 | 9.7 | -164.45 | 128.1 | 201.9 | 280.2 | 262.7 | 17.44 | 16.061 | | |
| 3,800.0 | 3,748.5 | 3,804.1 | 3,783.7 | 12.9 | 10.1 | -164.28 | 134.2 | 214.3 | 287.9 | 269.9 | 17.99 | 16.005 | | |
| 3,900.0 | 3,846.4 | 3,903.8 | 3,882.4 | 13.3 | 10.4 | -164.12 | 140.2 | 226.6 | 295.6 | 277.0 | 18.53 | 15.951 | | |
| 4,000.0 | 3,944.2 | 4,003.5 | 3,981.2 | 13.8 | 10.7 | -163.97 | 146.3 | 239.0 | 303.3 | 284.2 | 19.08 | 15.899 | | |
| 4,100.0 | 4,042.1 | 4,103.2 | 4,079.9 | 14.2 | 11.1 | -163.83 | 152.4 | 251.3 | 311.0 | 291.4 | 19.62 | 15.849 | | |
| 4,200.0 | 4,139.9 | 4,202.9 | 4,178.7 | 14.7 | 11.4 | -163.69 | 158.4 | 263.6 | 318.7 | 298.5 | 20.17 | 15.801 | | |
| 4,300.0 | 4,237.8 | 4,302.6 | 4,277.4 | 15.1 | 11.7 | -163.56 | 164.5 | 276.0 | 326.4 | 305.7 | 20.72 | 15.754 | | |
| 4,400.0 | 4,335.7 | 4,402.3 | 4,376.2 | 15.6 | 12.0 | -163.44 | 170.6 | 288.3 | 334.1 | 312.8 | 21.27 | 15.710 | | |
| 4,500.0 | 4,433.5 | 4,502.0 | 4,474.9 | 16.0 | 12.4 | -163.32 | 176.6 | 300.7 | 341.8 | 320.0 | 21.82 | 15.666 | | |
| 4,600.0 | 4,531.4 | 4,601.7 | 4,573.7 | 16.4 | 12.7 | -163.20 | 182.7 | 313.0 | 349.5 | 327.2 | 22.37 | 15.625 | | |
| 4,700.0 | 4,629.2 | 4,701.4 | 4,672.4 | 16.9 | 13.0 | -163.10 | 188.8 | 325.3 | 357.2 | 334.3 | 22.92 | 15.585 | | |
| 4,800.0 | 4,727.1 | 4,801.1 | 4,771.2 | 17.3 | 13.4 | -162.99 | 194.8 | 337.7 | 365.0 | 341.5 | 23.48 | 15.546 | | |
| 4,900.0 | 4,824.9 | 4,900.8 | 4,869.9 | 17.8 | 13.7 | -162.89 | 200.9 | 350.0 | 372.7 | 348.6 | 24.03 | 15.509 | | |
| 5,000.0 | 4,922.8 | 5,000.5 | 4,968.7 | 18.2 | 14.0 | -162.80 | 207.0 | 362.4 | 380.4 | 355.8 | 24.58 | 15.473 | | |

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 Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-423 - Wellbore #1 - Plan #2 (10-8-14) | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|--|-------------------------|-------------------|--|--------------------|--|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | | |
| 5,100.0 | 5,020.7 | 5,100.2 | 5,067.4 | 18.7 | 14.4 | -162.71 | 213.0 | 374.7 | 388.1 | 363.0 | 25.14 | 15.439 | | | | |
| 5,200.0 | 5,118.5 | 5,199.9 | 5,166.1 | 19.1 | 14.7 | -162.62 | 219.1 | 387.1 | 395.8 | 370.1 | 25.70 | 15.405 | | | | |
| 5,300.0 | 5,216.4 | 5,299.6 | 5,264.9 | 19.6 | 15.1 | -162.53 | 225.2 | 399.4 | 403.6 | 377.3 | 26.25 | 15.373 | | | | |
| 5,400.0 | 5,314.2 | 5,399.3 | 5,363.6 | 20.0 | 15.4 | -162.45 | 231.2 | 411.7 | 411.3 | 384.5 | 26.81 | 15.341 | | | | |
| 5,500.0 | 5,412.1 | 5,499.0 | 5,462.4 | 20.5 | 15.7 | -162.37 | 237.3 | 424.1 | 419.0 | 391.6 | 27.37 | 15.311 | | | | |
| 5,600.0 | 5,509.9 | 5,592.2 | 5,554.7 | 20.9 | 16.0 | -162.33 | 242.8 | 435.2 | 427.2 | 399.3 | 27.89 | 15.316 | | | | |
| 5,700.0 | 5,607.8 | 5,680.1 | 5,642.1 | 21.4 | 16.2 | -162.46 | 246.8 | 443.5 | 437.7 | 409.4 | 28.34 | 15.446 | | | | |
| 5,800.0 | 5,705.7 | 5,767.4 | 5,729.2 | 21.8 | 16.4 | -162.74 | 249.7 | 449.4 | 451.0 | 422.2 | 28.76 | 15.682 | | | | |
| 5,900.0 | 5,803.5 | 5,853.9 | 5,815.6 | 22.3 | 16.6 | -163.17 | 251.4 | 452.8 | 466.8 | 437.7 | 29.14 | 16.020 | | | | |
| 6,000.0 | 5,901.4 | 5,939.7 | 5,901.4 | 22.7 | 16.7 | -163.71 | 252.0 | 454.0 | 485.3 | 455.8 | 29.50 | 16.452 | | | | |
| 6,100.0 | 5,999.5 | 6,037.8 | 5,999.5 | 23.1 | 16.8 | -164.41 | 252.0 | 454.0 | 503.8 | 473.9 | 29.89 | 16.857 | | | | |
| 6,200.0 | 6,098.3 | 6,136.6 | 6,098.3 | 23.4 | 17.0 | -164.96 | 252.0 | 454.0 | 519.0 | 488.7 | 30.25 | 17.157 | | | | |
| 6,300.0 | 6,197.5 | 6,235.8 | 6,197.5 | 23.7 | 17.2 | -165.36 | 252.0 | 454.0 | 530.9 | 500.3 | 30.59 | 17.354 | | | | |
| 6,400.0 | 6,297.1 | 6,335.4 | 6,297.1 | 23.9 | 17.4 | -165.64 | 252.0 | 454.0 | 539.4 | 508.5 | 30.91 | 17.450 | | | | |
| 6,500.0 | 6,397.0 | 6,435.3 | 6,397.0 | 24.0 | 17.5 | -165.81 | 252.0 | 454.0 | 544.6 | 513.4 | 31.21 | 17.451 | | | | |
| 6,600.0 | 6,496.9 | 6,535.3 | 6,496.9 | 24.2 | 17.7 | -165.86 | 252.0 | 454.0 | 546.4 | 514.9 | 31.48 | 17.357 | | | | |
| 6,700.0 | 6,596.9 | 6,635.3 | 6,596.9 | 24.3 | 17.9 | -90.00 | 252.0 | 454.0 | 546.4 | 514.6 | 31.85 | 17.156 | | | | |
| 6,800.0 | 6,696.9 | 6,735.3 | 6,696.9 | 24.4 | 18.1 | -90.00 | 252.0 | 454.0 | 546.4 | 514.2 | 32.23 | 16.954 | | | | |
| 6,900.0 | 6,796.9 | 6,835.3 | 6,796.9 | 24.5 | 18.2 | -90.00 | 252.0 | 454.0 | 546.4 | 513.8 | 32.61 | 16.755 | | | | |
| 7,000.0 | 6,896.9 | 6,935.3 | 6,896.9 | 24.7 | 18.4 | -90.00 | 252.0 | 454.0 | 546.4 | 513.4 | 32.99 | 16.560 | | | | |
| 7,100.0 | 6,996.9 | 7,035.3 | 6,996.9 | 24.8 | 18.6 | -90.00 | 252.0 | 454.0 | 546.4 | 513.0 | 33.38 | 16.369 | | | | |
| 7,136.4 | 7,033.4 | 7,071.7 | 7,033.4 | 24.9 | 18.7 | 90.04 | 252.0 | 454.0 | 546.4 | 512.9 | 33.52 | 16.300 | | | | |
| 7,200.0 | 7,096.9 | 7,135.3 | 7,096.9 | 24.9 | 18.8 | 90.10 | 251.1 | 454.0 | 546.4 | 512.7 | 33.75 | 16.189 | | | | |
| 7,300.0 | 7,195.9 | 7,235.5 | 7,196.5 | 25.0 | 18.9 | 90.33 | 239.9 | 454.0 | 546.4 | 512.4 | 34.01 | 16.067 | | | | |
| 7,400.0 | 7,292.4 | 7,336.1 | 7,294.0 | 25.1 | 18.9 | 90.55 | 215.7 | 454.0 | 546.4 | 512.3 | 34.16 | 15.994 | | | | |
| 7,500.0 | 7,384.6 | 7,436.9 | 7,387.7 | 25.1 | 19.0 | 90.76 | 178.7 | 454.0 | 546.4 | 512.2 | 34.25 | 15.955 | | | | |
| 7,600.0 | 7,470.9 | 7,537.9 | 7,475.9 | 25.1 | 19.0 | 90.97 | 129.6 | 454.0 | 546.5 | 512.2 | 34.32 | 15.921 | | | | |
| 7,700.0 | 7,550.0 | 7,639.3 | 7,557.1 | 25.1 | 19.0 | 91.15 | 69.1 | 454.0 | 546.5 | 512.1 | 34.45 | 15.862 | | | | |
| 7,800.0 | 7,620.5 | 7,740.8 | 7,629.8 | 25.1 | 19.1 | 91.32 | -1.7 | 454.0 | 546.5 | 511.8 | 34.72 | 15.741 | | | | |
| 7,900.0 | 7,681.0 | 7,842.6 | 7,692.5 | 25.2 | 19.1 | 91.46 | -81.8 | 454.0 | 546.6 | 511.4 | 35.20 | 15.526 | | | | |
| 8,000.0 | 7,730.7 | 7,944.5 | 7,744.1 | 25.4 | 19.3 | 91.57 | -169.6 | 454.0 | 546.6 | 510.6 | 35.97 | 15.197 | | | | |
| 8,100.0 | 7,768.6 | 8,046.6 | 7,783.7 | 25.6 | 19.7 | 91.66 | -263.6 | 454.0 | 546.6 | 509.6 | 37.06 | 14.749 | | | | |
| 8,200.0 | 7,794.2 | 8,148.7 | 7,810.3 | 26.0 | 20.3 | 91.72 | -362.1 | 454.0 | 546.6 | 508.2 | 38.49 | 14.201 | | | | |
| 8,300.0 | 7,806.9 | 8,250.9 | 7,823.6 | 26.5 | 21.0 | 91.75 | -463.4 | 454.0 | 546.7 | 506.4 | 40.24 | 13.584 | | | | |
| 8,400.0 | 7,808.9 | 8,351.9 | 7,825.5 | 27.1 | 22.0 | 91.74 | -564.3 | 454.0 | 546.7 | 504.4 | 42.24 | 12.940 | | | | |
| 8,500.0 | 7,809.7 | 8,451.9 | 7,826.0 | 27.9 | 23.0 | 91.72 | -664.3 | 454.0 | 546.6 | 502.2 | 44.44 | 12.300 | | | | |
| 8,600.0 | 7,810.5 | 8,551.9 | 7,826.6 | 28.7 | 24.2 | 91.69 | -764.3 | 454.0 | 546.6 | 499.8 | 46.85 | 11.668 | | | | |
| 8,700.0 | 7,811.3 | 8,651.9 | 7,827.2 | 29.7 | 25.5 | 91.66 | -864.3 | 454.0 | 546.6 | 497.2 | 49.44 | 11.057 | | | | |
| 8,800.0 | 7,812.1 | 8,751.9 | 7,827.7 | 30.9 | 26.8 | 91.63 | -964.3 | 454.0 | 546.6 | 494.4 | 52.18 | 10.476 | | | | |
| 8,900.0 | 7,813.0 | 8,851.9 | 7,828.3 | 32.0 | 28.2 | 91.61 | -1,064.3 | 454.0 | 546.6 | 491.6 | 55.05 | 9.930 | | | | |
| 9,000.0 | 7,813.8 | 8,951.9 | 7,828.8 | 33.3 | 29.7 | 91.58 | -1,164.3 | 454.0 | 546.6 | 488.6 | 58.03 | 9.420 | | | | |
| 9,100.0 | 7,814.6 | 9,051.9 | 7,829.4 | 34.6 | 31.2 | 91.55 | -1,264.3 | 454.0 | 546.6 | 485.5 | 61.10 | 8.945 | | | | |
| 9,200.0 | 7,815.4 | 9,151.9 | 7,829.9 | 36.0 | 32.7 | 91.52 | -1,364.3 | 454.0 | 546.6 | 482.3 | 64.26 | 8.506 | | | | |
| 9,300.0 | 7,816.2 | 9,251.9 | 7,830.5 | 37.5 | 34.3 | 91.50 | -1,464.3 | 454.0 | 546.6 | 479.1 | 67.49 | 8.099 | | | | |
| 9,400.0 | 7,817.1 | 9,351.9 | 7,831.1 | 38.9 | 35.9 | 91.47 | -1,564.3 | 454.0 | 546.6 | 475.8 | 70.77 | 7.723 | | | | |
| 9,500.0 | 7,817.9 | 9,451.9 | 7,831.6 | 40.4 | 37.6 | 91.44 | -1,664.3 | 454.0 | 546.6 | 472.5 | 74.11 | 7.375 | | | | |
| 9,600.0 | 7,818.7 | 9,551.9 | 7,832.2 | 42.0 | 39.3 | 91.41 | -1,764.3 | 454.0 | 546.6 | 469.1 | 77.49 | 7.053 | | | | |
| 9,700.0 | 7,819.5 | 9,651.9 | 7,832.7 | 43.6 | 40.9 | 91.39 | -1,864.3 | 454.0 | 546.6 | 465.6 | 80.92 | 6.755 | | | | |
| 9,800.0 | 7,820.3 | 9,751.9 | 7,833.3 | 45.2 | 42.7 | 91.36 | -1,964.3 | 454.0 | 546.6 | 462.2 | 84.38 | 6.478 | | | | |
| 9,900.0 | 7,821.2 | 9,851.9 | 7,833.9 | 46.8 | 44.4 | 91.33 | -2,064.3 | 454.0 | 546.5 | 458.7 | 87.86 | 6.220 | | | | |

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

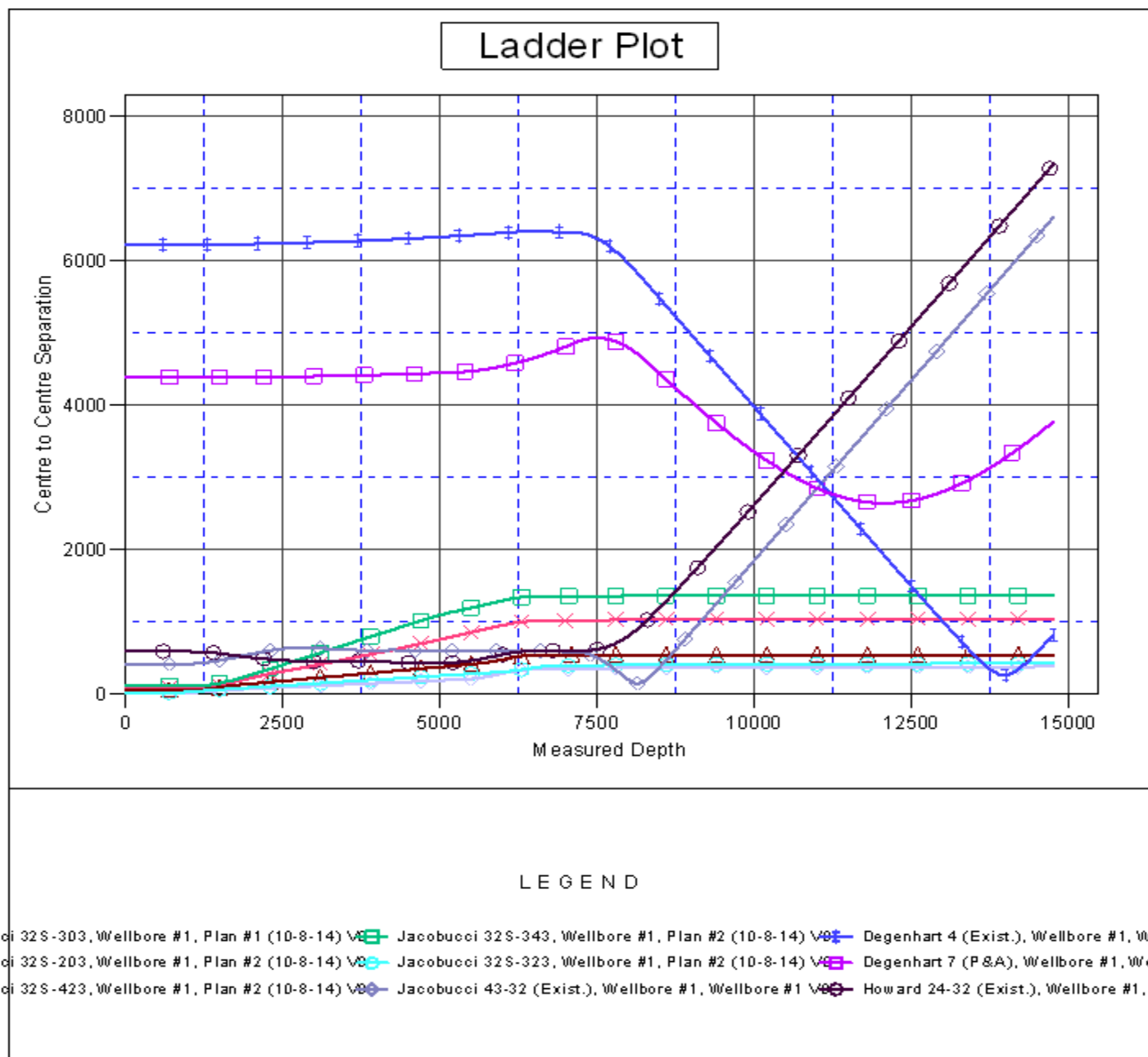
| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-423 - Wellbore #1 - Plan #2 (10-8-14) | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|--|-------------------------|-------------------|--|--------------------|--|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | | |
| 10,000.0 | 7,822.0 | 9,951.9 | 7,834.4 | 48.5 | 46.1 | 91.30 | -2,164.3 | 454.0 | 546.5 | 455.2 | 91.38 | 5.981 | | | | |
| 10,100.0 | 7,822.8 | 10,051.9 | 7,835.0 | 50.1 | 47.9 | 91.28 | -2,264.3 | 454.0 | 546.5 | 451.6 | 94.92 | 5.758 | | | | |
| 10,200.0 | 7,823.6 | 10,151.9 | 7,835.5 | 51.8 | 49.7 | 91.25 | -2,364.3 | 454.0 | 546.5 | 448.0 | 98.48 | 5.549 | | | | |
| 10,300.0 | 7,824.4 | 10,251.9 | 7,836.1 | 53.5 | 51.4 | 91.22 | -2,464.3 | 454.0 | 546.5 | 444.5 | 102.06 | 5.355 | | | | |
| 10,400.0 | 7,825.3 | 10,351.9 | 7,836.6 | 55.3 | 53.2 | 91.19 | -2,564.3 | 454.0 | 546.5 | 440.9 | 105.66 | 5.172 | | | | |
| 10,500.0 | 7,826.1 | 10,451.9 | 7,837.2 | 57.0 | 55.0 | 91.17 | -2,664.3 | 454.0 | 546.5 | 437.2 | 109.28 | 5.001 | | | | |
| 10,600.0 | 7,826.9 | 10,551.9 | 7,837.8 | 58.7 | 56.8 | 91.14 | -2,764.3 | 454.0 | 546.5 | 433.6 | 112.91 | 4.840 | | | | |
| 10,700.0 | 7,827.7 | 10,651.9 | 7,838.3 | 60.5 | 58.6 | 91.11 | -2,864.3 | 454.0 | 546.5 | 430.0 | 116.55 | 4.689 | | | | |
| 10,800.0 | 7,828.5 | 10,751.9 | 7,838.9 | 62.2 | 60.4 | 91.08 | -2,964.3 | 454.0 | 546.5 | 426.3 | 120.20 | 4.547 | | | | |
| 10,900.0 | 7,829.4 | 10,851.9 | 7,839.4 | 64.0 | 62.3 | 91.06 | -3,064.3 | 454.0 | 546.5 | 422.6 | 123.86 | 4.412 | | | | |
| 11,000.0 | 7,830.2 | 10,951.9 | 7,840.0 | 65.8 | 64.1 | 91.03 | -3,164.3 | 454.0 | 546.5 | 419.0 | 127.54 | 4.285 | | | | |
| 11,100.0 | 7,831.0 | 11,051.9 | 7,840.6 | 67.6 | 65.9 | 91.00 | -3,264.3 | 454.0 | 546.5 | 415.3 | 131.22 | 4.165 | | | | |
| 11,200.0 | 7,831.8 | 11,151.9 | 7,841.1 | 69.4 | 67.8 | 90.97 | -3,364.3 | 454.0 | 546.5 | 411.6 | 134.91 | 4.051 | | | | |
| 11,300.0 | 7,832.6 | 11,251.9 | 7,841.7 | 71.2 | 69.6 | 90.95 | -3,464.3 | 454.0 | 546.5 | 407.9 | 138.61 | 3.943 | | | | |
| 11,400.0 | 7,833.5 | 11,351.9 | 7,842.2 | 73.0 | 71.5 | 90.92 | -3,564.3 | 454.0 | 546.5 | 404.2 | 142.31 | 3.840 | | | | |
| 11,500.0 | 7,834.3 | 11,451.9 | 7,842.8 | 74.8 | 73.3 | 90.89 | -3,664.3 | 454.0 | 546.5 | 400.4 | 146.02 | 3.742 | | | | |
| 11,600.0 | 7,835.1 | 11,551.9 | 7,843.3 | 76.6 | 75.2 | 90.86 | -3,764.3 | 454.0 | 546.5 | 396.7 | 149.74 | 3.649 | | | | |
| 11,700.0 | 7,835.9 | 11,651.9 | 7,843.9 | 78.4 | 77.0 | 90.84 | -3,864.3 | 454.0 | 546.5 | 393.0 | 153.46 | 3.561 | | | | |
| 11,800.0 | 7,836.7 | 11,751.9 | 7,844.5 | 80.3 | 78.9 | 90.81 | -3,964.3 | 454.0 | 546.5 | 389.3 | 157.19 | 3.476 | | | | |
| 11,900.0 | 7,837.6 | 11,851.9 | 7,845.0 | 82.1 | 80.7 | 90.78 | -4,064.3 | 454.0 | 546.5 | 385.5 | 160.93 | 3.396 | | | | |
| 12,000.0 | 7,838.4 | 11,951.9 | 7,845.6 | 83.9 | 82.6 | 90.75 | -4,164.3 | 454.0 | 546.4 | 381.8 | 164.66 | 3.319 | | | | |
| 12,100.0 | 7,839.2 | 12,051.9 | 7,846.1 | 85.8 | 84.5 | 90.73 | -4,264.3 | 454.0 | 546.4 | 378.0 | 168.40 | 3.245 | | | | |
| 12,200.0 | 7,840.0 | 12,151.9 | 7,846.7 | 87.6 | 86.3 | 90.70 | -4,364.3 | 454.0 | 546.4 | 374.3 | 172.15 | 3.174 | | | | |
| 12,300.0 | 7,840.8 | 12,251.9 | 7,847.3 | 89.4 | 88.2 | 90.67 | -4,464.3 | 454.0 | 546.4 | 370.5 | 175.90 | 3.107 | | | | |
| 12,400.0 | 7,841.7 | 12,351.9 | 7,847.8 | 91.3 | 90.1 | 90.64 | -4,564.3 | 454.0 | 546.4 | 366.8 | 179.65 | 3.042 | | | | |
| 12,500.0 | 7,842.5 | 12,451.9 | 7,848.4 | 93.1 | 91.9 | 90.62 | -4,664.3 | 454.0 | 546.4 | 363.0 | 183.41 | 2.979 | | | | |
| 12,600.0 | 7,843.3 | 12,551.9 | 7,848.9 | 95.0 | 93.8 | 90.59 | -4,764.3 | 454.0 | 546.4 | 359.3 | 187.16 | 2.920 | | | | |
| 12,700.0 | 7,844.1 | 12,651.9 | 7,849.5 | 96.8 | 95.7 | 90.56 | -4,864.3 | 454.0 | 546.4 | 355.5 | 190.92 | 2.862 | | | | |
| 12,800.0 | 7,844.9 | 12,751.9 | 7,850.0 | 98.7 | 97.6 | 90.54 | -4,964.3 | 454.0 | 546.4 | 351.7 | 194.69 | 2.807 | | | | |
| 12,900.0 | 7,845.8 | 12,851.9 | 7,850.6 | 100.6 | 99.5 | 90.51 | -5,064.3 | 454.0 | 546.4 | 348.0 | 198.45 | 2.753 | | | | |
| 13,000.0 | 7,846.6 | 12,951.9 | 7,851.2 | 102.4 | 101.3 | 90.48 | -5,164.2 | 454.0 | 546.4 | 344.2 | 202.22 | 2.702 | | | | |
| 13,100.0 | 7,847.4 | 13,051.9 | 7,851.7 | 104.3 | 103.2 | 90.45 | -5,264.2 | 454.0 | 546.4 | 340.4 | 205.99 | 2.653 | | | | |
| 13,200.0 | 7,848.2 | 13,151.9 | 7,852.3 | 106.1 | 105.1 | 90.43 | -5,364.2 | 454.0 | 546.4 | 336.6 | 209.77 | 2.605 | | | | |
| 13,300.0 | 7,849.0 | 13,251.9 | 7,852.8 | 108.0 | 107.0 | 90.40 | -5,464.2 | 454.0 | 546.4 | 332.9 | 213.54 | 2.559 | | | | |
| 13,400.0 | 7,849.9 | 13,351.9 | 7,853.4 | 109.9 | 108.9 | 90.37 | -5,564.2 | 454.0 | 546.4 | 329.1 | 217.32 | 2.514 | | | | |
| 13,500.0 | 7,850.7 | 13,451.9 | 7,854.0 | 111.7 | 110.8 | 90.34 | -5,664.2 | 454.0 | 546.4 | 325.3 | 221.10 | 2.471 | | | | |
| 13,600.0 | 7,851.5 | 13,551.9 | 7,854.5 | 113.6 | 112.6 | 90.32 | -5,764.2 | 454.0 | 546.4 | 321.5 | 224.88 | 2.430 | | | | |
| 13,700.0 | 7,852.3 | 13,651.9 | 7,855.1 | 115.5 | 114.5 | 90.29 | -5,864.2 | 454.0 | 546.4 | 317.7 | 228.66 | 2.390 | | | | |
| 13,800.0 | 7,853.1 | 13,751.9 | 7,855.6 | 117.4 | 116.4 | 90.26 | -5,964.2 | 454.0 | 546.4 | 314.0 | 232.44 | 2.351 | | | | |
| 13,900.0 | 7,854.0 | 13,851.9 | 7,856.2 | 119.2 | 118.3 | 90.23 | -6,064.2 | 454.0 | 546.4 | 310.2 | 236.23 | 2.313 | | | | |
| 14,000.0 | 7,854.8 | 13,951.9 | 7,856.8 | 121.1 | 120.2 | 90.21 | -6,164.2 | 454.0 | 546.4 | 306.4 | 240.01 | 2.277 | | | | |
| 14,100.0 | 7,855.6 | 14,051.9 | 7,857.3 | 123.0 | 122.1 | 90.18 | -6,264.2 | 454.0 | 546.4 | 302.6 | 243.80 | 2.241 | | | | |
| 14,200.0 | 7,856.4 | 14,151.9 | 7,857.9 | 124.9 | 124.0 | 90.15 | -6,364.2 | 454.0 | 546.4 | 298.8 | 247.59 | 2.207 | | | | |
| 14,300.0 | 7,857.2 | 14,251.9 | 7,858.4 | 126.7 | 125.9 | 90.12 | -6,464.2 | 454.0 | 546.4 | 295.0 | 251.38 | 2.174 | | | | |
| 14,400.0 | 7,858.1 | 14,351.9 | 7,859.0 | 128.6 | 127.8 | 90.10 | -6,564.2 | 454.0 | 546.4 | 291.2 | 255.17 | 2.141 | | | | |
| 14,500.0 | 7,858.9 | 14,451.9 | 7,859.5 | 130.5 | 129.7 | 90.07 | -6,664.2 | 454.0 | 546.4 | 287.4 | 258.96 | 2.110 | | | | |
| 14,600.0 | 7,859.7 | 14,551.9 | 7,860.1 | 132.4 | 131.6 | 90.04 | -6,764.2 | 454.0 | 546.4 | 283.6 | 262.75 | 2.080 | | | | |
| 14,700.0 | 7,860.5 | 14,651.9 | 7,860.7 | 134.3 | 133.5 | 90.01 | -6,864.2 | 454.0 | 546.4 | 279.9 | 266.55 | 2.050 | | | | |
| 14,749.4 | 7,860.9 | 14,701.3 | 7,860.9 | 135.2 | 134.4 | 90.00 | -6,913.6 | 454.0 | 546.4 | 278.0 | 268.42 | 2.036 | | | | |
| 14,757.2 | 7,861.0 | 14,709.1 | 7,861.0 | 135.4 | 134.5 | 90.00 | -6,921.4 | 454.0 | 546.4 | 277.7 | 268.69 | 2.034 SF | | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to WELL @ 5074.0ft (Original Well Elev) Coordinates are relative to: Jacobucci 32S-403
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.38°



| | | | |
|---------------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Jacobucci 32S-403 |
| Project: | SEC.32-T1N-R67W | TVD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Reference Site: | Jacobucci 1N67W32S Pad Sec.32-T1N-R67W | MD Reference: | WELL @ 5074.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Jacobucci 32S-403 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #1 (10-8-14) | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to WELL @ 5074.0ft (Original Well Elev) Coordinates are relative to: Jacobucci 32S-403
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.38°

