

PETROLEUM DEVELOPMENT CORP DJ Basin

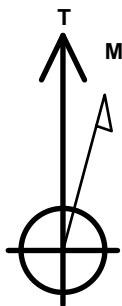
Well Name: **Ottenhoff 29M-323**

Surface Location: Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W
North American Datum 1983 , US State Plane 1983 Colorado Northern Zone
Ground Elevation: 4664.0

+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1381166.74 3259644.43 40.375959 -104.568052
RKB - 23' WELL @ 4687.0ft (RKB - 23')

DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Shape |
|---------------------------------|--------|---------|---------|-------|
| SHL 557'FNL & 1050'FEL, Sec.29 | 1.0 | 0.0 | 0.0 | Point |
| BHL 2340'FNL & 2157'FEL, Sec.32 | 6757.0 | -7072.3 | -1061.3 | Point |
| LPL 819'FNL & 2108'FEL, Sec.29 | 6807.0 | -280.5 | -1056.3 | Point |



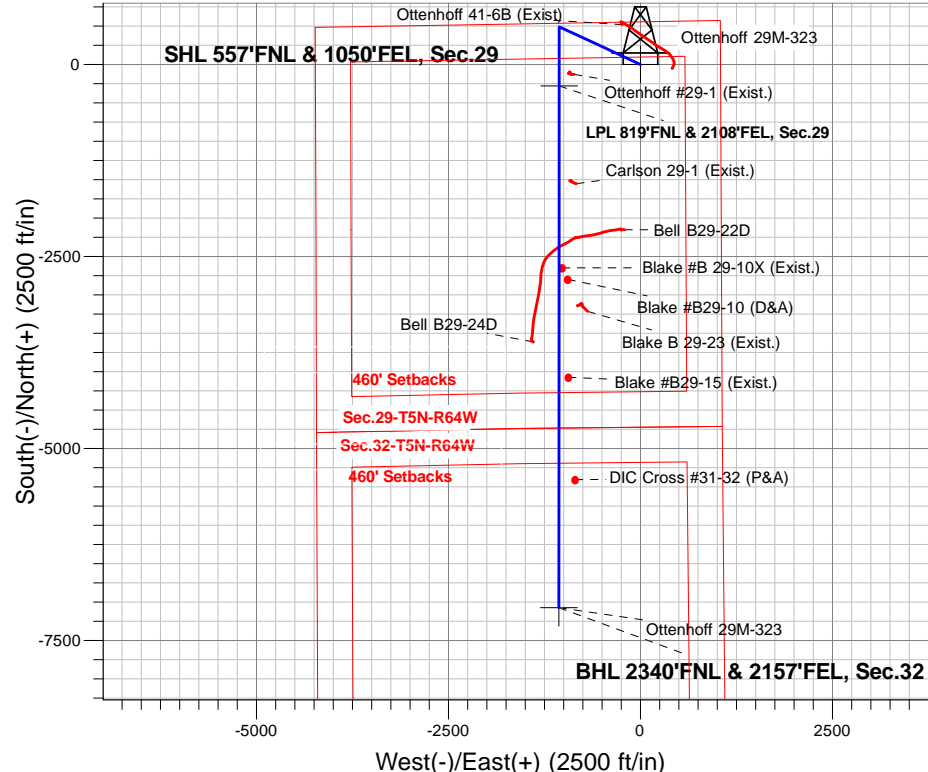
Azimuths to True North
Magnetic North: 8.00°

Magnetic Field
Strength: 52548.2snT
Dip Angle: 66.87°
Date: 1/27/2017
Model: IGRF2010

Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W
Ottenhoff 29M-323
Plan #2 (1-25-17)
14:25, January 27 2017

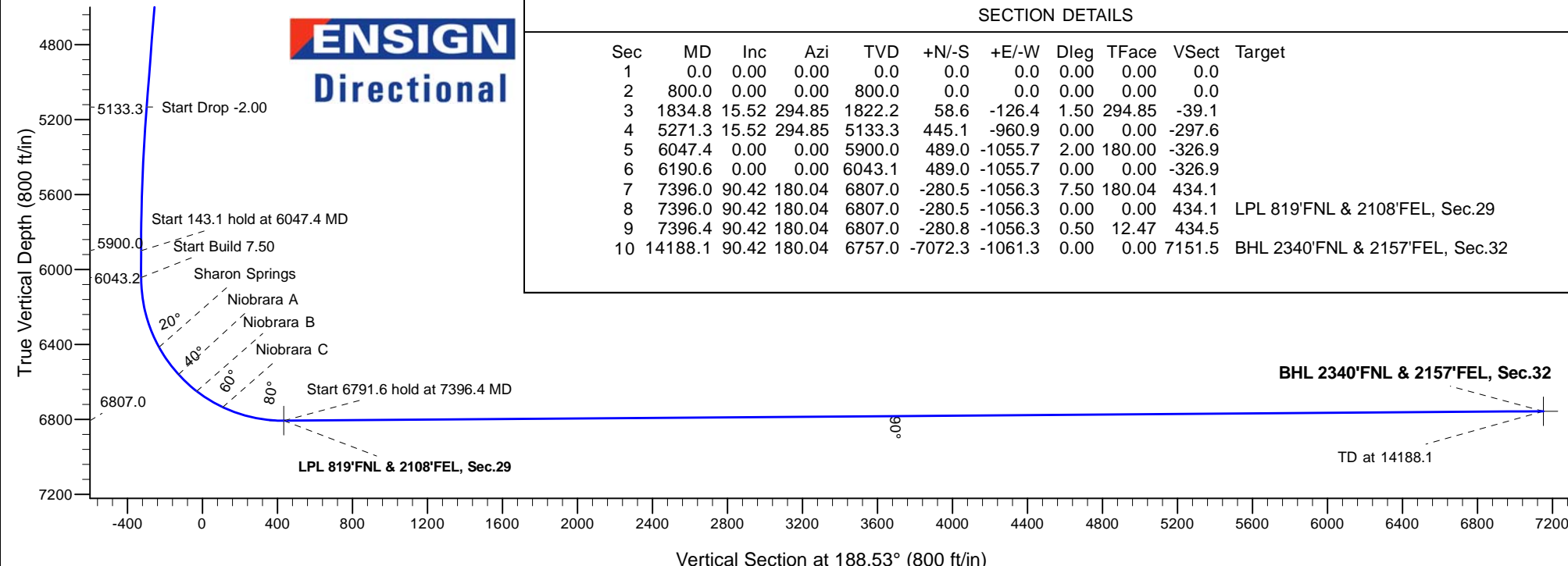
ANNOTATIONS

| TVD | MD | Annotation |
|--------|---------|--------------------------------|
| 800.0 | 800.0 | KOP - Start Build 1.50 |
| 5133.3 | 5271.3 | Start Drop -2.00 |
| 5900.0 | 6047.4 | Start 143.1 hold at 6047.4 MD |
| 6043.1 | 6190.6 | Start Build 7.50 |
| 6807.0 | 7396.4 | Start 6791.6 hold at 7396.4 MD |
| 6757.0 | 14188.1 | TD at 14188.1 |



SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | Target |
|-----|---------|-------|--------|--------|---------|---------|------|--------|--------|---------------------------------|
| 1 | 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 2 | 800.0 | 0.00 | 0.00 | 800.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 3 | 1834.8 | 15.52 | 294.85 | 1822.2 | 58.6 | -126.4 | 1.50 | 294.85 | -39.1 | |
| 4 | 5271.3 | 15.52 | 294.85 | 5133.3 | 445.1 | -960.9 | 0.00 | 0.00 | -297.6 | |
| 5 | 6047.4 | 0.00 | 0.00 | 5900.0 | 489.0 | -1055.7 | 2.00 | 180.00 | -326.9 | |
| 6 | 6190.6 | 0.00 | 0.00 | 6043.1 | 489.0 | -1055.7 | 0.00 | 0.00 | -326.9 | |
| 7 | 7396.0 | 90.42 | 180.04 | 6807.0 | -280.5 | -1056.3 | 7.50 | 180.04 | 434.1 | |
| 8 | 7396.0 | 90.42 | 180.04 | 6807.0 | -280.5 | -1056.3 | 0.00 | 0.00 | 434.1 | LPL 819'FNL & 2108'FEL, Sec.29 |
| 9 | 7396.4 | 90.42 | 180.04 | 6807.0 | -280.8 | -1056.3 | 0.50 | 12.47 | 434.5 | |
| 10 | 14188.1 | 90.42 | 180.04 | 6757.0 | -7072.3 | -1061.3 | 0.00 | 0.00 | 7151.5 | BHL 2340'FNL & 2157'FEL, Sec.32 |





PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.29-T5N-R64W

Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W

Ottenhoff 29M-323

Wellbore #1

Plan: Plan #2 (1-25-17)

Standard Planning Report

27 January, 2017

| | | | |
|------------------|--|-------------------------------------|-----------------------------|
| Database: | US_EDM | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Project: | SEC.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | North Reference: | True |
| Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #2 (1-25-17) | | |

| | | | |
|--------------------|----------------------------------|----------------------|-----------------------------|
| Project | SEC.29-T5N-R64W, 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 | | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | | | |
|-----------------------|----------|---|-------------------|-------------------|-------------|
| Site Position: | | Northing: | 1,381,166.77 usft | Latitude: | 40.375956 |
| From: | Lat/Long | Easting: | 3,259,749.48 usft | Longitude: | -104.567675 |
| Position Uncertainty: | 0.0 ft | Slot Radius: | 13-3/16 " | Grid Convergence: | 0.60 |

| | | | | | | |
|----------------------|-------------------|-----------|---------------------|-------------------|---------------|-------------|
| Well | Ottenhoff 29M-323 | | | | | |
| Well Position | +N/-S | 1.1 ft | Northing: | 1,381,166.74 usft | Latitude: | 40.375959 |
| | +E/-W | -105.0 ft | Easting: | 3,259,644.44 usft | Longitude: | -104.568052 |
| Position Uncertainty | | 0.0 ft | Wellhead Elevation: | 0.0 ft | Ground Level: | 4,664.0 ft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Wellbore #1 | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 1/27/2017 | 8.00 | 66.87 | 52,548 |

| | | | | |
|--------------------------|------------------------------|-------------------|----------------------|----------------------|
| Design | Plan #2 (1-25-17) | | | |
| 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 | 188.53 |

| Plan Sections | | | | | | | | | | |
|----------------------|-----------------|-------------|---------------------|------------|------------|-------------------------|------------------------|-----------------------|---------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 800.0 | 0.00 | 0.00 | 800.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,834.8 | 15.52 | 294.85 | 1,822.2 | 58.6 | -126.4 | 1.50 | 1.50 | 0.00 | 294.85 | |
| 5,271.3 | 15.52 | 294.85 | 5,133.3 | 445.1 | -960.9 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,047.4 | 0.00 | 0.00 | 5,900.0 | 489.0 | -1,055.7 | 2.00 | -2.00 | 0.00 | 180.00 | |
| 6,190.6 | 0.00 | 0.00 | 6,043.1 | 489.0 | -1,055.7 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7,396.0 | 90.42 | 180.04 | 6,807.0 | -280.5 | -1,056.3 | 7.50 | 7.50 | 0.00 | 180.04 | |
| 7,396.0 | 90.42 | 180.04 | 6,807.0 | -280.5 | -1,056.3 | 0.00 | 0.00 | 0.00 | 0.00 | LPL 819'FNL & 2108'I |
| 7,396.4 | 90.42 | 180.04 | 6,807.0 | -280.8 | -1,056.3 | 0.50 | 0.49 | 0.11 | 12.47 | |
| 14,188.1 | 90.42 | 180.04 | 6,757.0 | -7,072.3 | -1,061.3 | 0.00 | 0.00 | 0.00 | 0.00 | BHL 2340'FNL & 2157'I |

| | | | |
|-----------|--|------------------------------|-----------------------------|
| Database: | US_EDM | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Project: | SEC.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | North Reference: | True |
| Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #2 (1-25-17) | | |

| Planned Survey | | | | | | | | | |
|-------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 100.0 | 0.00 | 0.00 | 100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 200.0 | 0.00 | 0.00 | 200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 300.0 | 0.00 | 0.00 | 300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 400.0 | 0.00 | 0.00 | 400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 500.0 | 0.00 | 0.00 | 500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 600.0 | 0.00 | 0.00 | 600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 700.0 | 0.00 | 0.00 | 700.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 800.0 | 0.00 | 0.00 | 800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| KOP - Start Build 1.50 | | | | | | | | | |
| 900.0 | 1.50 | 294.85 | 900.0 | 0.6 | -1.2 | -0.4 | 1.50 | 1.50 | 0.00 |
| 1,000.0 | 3.00 | 294.85 | 999.9 | 2.2 | -4.7 | -1.5 | 1.50 | 1.50 | 0.00 |
| 1,100.0 | 4.50 | 294.85 | 1,099.7 | 4.9 | -10.7 | -3.3 | 1.50 | 1.50 | 0.00 |
| 1,200.0 | 6.00 | 294.85 | 1,199.3 | 8.8 | -19.0 | -5.9 | 1.50 | 1.50 | 0.00 |
| 1,300.0 | 7.50 | 294.85 | 1,298.6 | 13.7 | -29.7 | -9.2 | 1.50 | 1.50 | 0.00 |
| 1,400.0 | 9.00 | 294.85 | 1,397.5 | 19.8 | -42.7 | -13.2 | 1.50 | 1.50 | 0.00 |
| 1,500.0 | 10.50 | 294.85 | 1,496.1 | 26.9 | -58.0 | -18.0 | 1.50 | 1.50 | 0.00 |
| 1,600.0 | 12.00 | 294.85 | 1,594.2 | 35.1 | -75.7 | -23.5 | 1.50 | 1.50 | 0.00 |
| 1,700.0 | 13.50 | 294.85 | 1,691.7 | 44.4 | -95.8 | -29.7 | 1.50 | 1.50 | 0.00 |
| 1,800.0 | 15.00 | 294.85 | 1,788.6 | 54.7 | -118.1 | -36.6 | 1.50 | 1.50 | 0.00 |
| 1,834.8 | 15.52 | 294.85 | 1,822.2 | 58.6 | -126.4 | -39.1 | 1.50 | 1.50 | 0.00 |
| 1,900.0 | 15.52 | 294.85 | 1,885.0 | 65.9 | -142.2 | -44.0 | 0.00 | 0.00 | 0.00 |
| 2,000.0 | 15.52 | 294.85 | 1,981.4 | 77.1 | -166.5 | -51.6 | 0.00 | 0.00 | 0.00 |
| 2,100.0 | 15.52 | 294.85 | 2,077.7 | 88.4 | -190.8 | -59.1 | 0.00 | 0.00 | 0.00 |
| 2,200.0 | 15.52 | 294.85 | 2,174.1 | 99.6 | -215.1 | -66.6 | 0.00 | 0.00 | 0.00 |
| 2,300.0 | 15.52 | 294.85 | 2,270.4 | 110.9 | -239.4 | -74.1 | 0.00 | 0.00 | 0.00 |
| 2,400.0 | 15.52 | 294.85 | 2,366.8 | 122.1 | -263.7 | -81.6 | 0.00 | 0.00 | 0.00 |
| 2,500.0 | 15.52 | 294.85 | 2,463.1 | 133.4 | -287.9 | -89.2 | 0.00 | 0.00 | 0.00 |
| 2,600.0 | 15.52 | 294.85 | 2,559.5 | 144.6 | -312.2 | -96.7 | 0.00 | 0.00 | 0.00 |
| 2,700.0 | 15.52 | 294.85 | 2,655.8 | 155.9 | -336.5 | -104.2 | 0.00 | 0.00 | 0.00 |
| 2,800.0 | 15.52 | 294.85 | 2,752.2 | 167.1 | -360.8 | -111.7 | 0.00 | 0.00 | 0.00 |
| 2,900.0 | 15.52 | 294.85 | 2,848.5 | 178.4 | -385.1 | -119.2 | 0.00 | 0.00 | 0.00 |
| 3,000.0 | 15.52 | 294.85 | 2,944.9 | 189.6 | -409.4 | -126.8 | 0.00 | 0.00 | 0.00 |
| 3,100.0 | 15.52 | 294.85 | 3,041.2 | 200.9 | -433.6 | -134.3 | 0.00 | 0.00 | 0.00 |
| 3,200.0 | 15.52 | 294.85 | 3,137.6 | 212.1 | -457.9 | -141.8 | 0.00 | 0.00 | 0.00 |
| 3,300.0 | 15.52 | 294.85 | 3,233.9 | 223.4 | -482.2 | -149.3 | 0.00 | 0.00 | 0.00 |
| 3,400.0 | 15.52 | 294.85 | 3,330.3 | 234.6 | -506.5 | -156.8 | 0.00 | 0.00 | 0.00 |
| 3,500.0 | 15.52 | 294.85 | 3,426.7 | 245.9 | -530.8 | -164.4 | 0.00 | 0.00 | 0.00 |
| 3,600.0 | 15.52 | 294.85 | 3,523.0 | 257.1 | -555.1 | -171.9 | 0.00 | 0.00 | 0.00 |
| 3,607.3 | 15.52 | 294.85 | 3,530.0 | 257.9 | -556.8 | -172.4 | 0.00 | 0.00 | 0.00 |
| Parkman Sandstone | | | | | | | | | |
| 3,700.0 | 15.52 | 294.85 | 3,619.4 | 268.3 | -579.3 | -179.4 | 0.00 | 0.00 | 0.00 |
| 3,800.0 | 15.52 | 294.85 | 3,715.7 | 279.6 | -603.6 | -186.9 | 0.00 | 0.00 | 0.00 |
| 3,900.0 | 15.52 | 294.85 | 3,812.1 | 290.8 | -627.9 | -194.4 | 0.00 | 0.00 | 0.00 |
| 4,000.0 | 15.52 | 294.85 | 3,908.4 | 302.1 | -652.2 | -202.0 | 0.00 | 0.00 | 0.00 |
| 4,100.0 | 15.52 | 294.85 | 4,004.8 | 313.3 | -676.5 | -209.5 | 0.00 | 0.00 | 0.00 |
| 4,200.0 | 15.52 | 294.85 | 4,101.1 | 324.6 | -700.7 | -217.0 | 0.00 | 0.00 | 0.00 |
| 4,300.0 | 15.52 | 294.85 | 4,197.5 | 335.8 | -725.0 | -224.5 | 0.00 | 0.00 | 0.00 |
| 4,302.6 | 15.52 | 294.85 | 4,200.0 | 336.1 | -725.7 | -224.7 | 0.00 | 0.00 | 0.00 |
| Sussex Sandstone | | | | | | | | | |
| 4,400.0 | 15.52 | 294.85 | 4,293.8 | 347.1 | -749.3 | -232.0 | 0.00 | 0.00 | 0.00 |
| 4,500.0 | 15.52 | 294.85 | 4,390.2 | 358.3 | -773.6 | -239.6 | 0.00 | 0.00 | 0.00 |

| | | | |
|-----------|--|------------------------------|-----------------------------|
| Database: | US_EDM | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Project: | SEC.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | North Reference: | True |
| Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #2 (1-25-17) | | |

| Planned Survey | | | | | | | | | |
|--------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 4,600.0 | 15.52 | 294.85 | 4,486.5 | 369.6 | -797.9 | -247.1 | 0.00 | 0.00 | 0.00 |
| 4,700.0 | 15.52 | 294.85 | 4,582.9 | 380.8 | -822.2 | -254.6 | 0.00 | 0.00 | 0.00 |
| 4,800.0 | 15.52 | 294.85 | 4,679.2 | 392.1 | -846.4 | -262.1 | 0.00 | 0.00 | 0.00 |
| 4,900.0 | 15.52 | 294.85 | 4,775.6 | 403.3 | -870.7 | -269.6 | 0.00 | 0.00 | 0.00 |
| 5,000.0 | 15.52 | 294.85 | 4,871.9 | 414.6 | -895.0 | -277.2 | 0.00 | 0.00 | 0.00 |
| 5,100.0 | 15.52 | 294.85 | 4,968.3 | 425.8 | -919.3 | -284.7 | 0.00 | 0.00 | 0.00 |
| 5,200.0 | 15.52 | 294.85 | 5,064.6 | 437.1 | -943.6 | -292.2 | 0.00 | 0.00 | 0.00 |
| 5,271.3 | 15.52 | 294.85 | 5,133.3 | 445.1 | -960.9 | -297.6 | 0.00 | 0.00 | 0.00 |
| Start Drop -2.00 | | | | | | | | | |
| 5,300.0 | 14.95 | 294.85 | 5,161.0 | 448.3 | -967.7 | -299.7 | 2.00 | -2.00 | 0.00 |
| 5,400.0 | 12.95 | 294.85 | 5,258.1 | 458.4 | -989.6 | -306.4 | 2.00 | -2.00 | 0.00 |
| 5,500.0 | 10.95 | 294.85 | 5,355.9 | 467.1 | -1,008.4 | -312.3 | 2.00 | -2.00 | 0.00 |
| 5,600.0 | 8.95 | 294.85 | 5,454.4 | 474.3 | -1,024.1 | -317.1 | 2.00 | -2.00 | 0.00 |
| 5,700.0 | 6.95 | 294.85 | 5,553.4 | 480.2 | -1,036.6 | -321.0 | 2.00 | -2.00 | 0.00 |
| 5,800.0 | 4.95 | 294.85 | 5,652.9 | 484.5 | -1,046.0 | -323.9 | 2.00 | -2.00 | 0.00 |
| 5,900.0 | 2.95 | 294.85 | 5,752.7 | 487.4 | -1,052.3 | -325.9 | 2.00 | -2.00 | 0.00 |
| 6,000.0 | 0.95 | 294.85 | 5,852.6 | 488.8 | -1,055.3 | -326.8 | 2.00 | -2.00 | 0.00 |
| 6,047.4 | 0.00 | 294.85 | 5,900.0 | 489.0 | -1,055.7 | -326.9 | 2.00 | -2.00 | 0.00 |
| Start 143.1 hold at 6047.4 MD | | | | | | | | | |
| 6,100.0 | 0.00 | 0.00 | 5,952.6 | 489.0 | -1,055.7 | -326.9 | 0.00 | 0.00 | 0.00 |
| 6,190.6 | 0.00 | 0.00 | 6,043.2 | 489.0 | -1,055.7 | -326.9 | 0.00 | 0.00 | 0.00 |
| Start Build 7.50 | | | | | | | | | |
| 6,200.0 | 0.71 | 180.04 | 6,052.6 | 488.9 | -1,055.7 | -326.9 | 7.53 | 7.53 | 0.00 |
| 6,300.0 | 8.21 | 180.04 | 6,152.2 | 481.2 | -1,055.7 | -319.2 | 7.50 | 7.50 | 0.00 |
| 6,400.0 | 15.71 | 180.04 | 6,250.0 | 460.5 | -1,055.7 | -298.7 | 7.50 | 7.50 | 0.00 |
| 6,500.0 | 23.21 | 180.04 | 6,344.2 | 427.2 | -1,055.7 | -265.8 | 7.50 | 7.50 | 0.00 |
| 6,578.9 | 29.13 | 180.04 | 6,415.0 | 392.4 | -1,055.8 | -231.4 | 7.50 | 7.50 | 0.00 |
| Sharon Springs | | | | | | | | | |
| 6,600.0 | 30.71 | 180.04 | 6,433.3 | 381.9 | -1,055.8 | -221.0 | 7.50 | 7.50 | 0.00 |
| 6,700.0 | 38.21 | 180.04 | 6,515.7 | 325.3 | -1,055.8 | -165.0 | 7.50 | 7.50 | 0.00 |
| 6,758.2 | 42.58 | 180.04 | 6,560.0 | 287.6 | -1,055.8 | -127.7 | 7.50 | 7.50 | 0.00 |
| Niobrara A | | | | | | | | | |
| 6,800.0 | 45.71 | 180.04 | 6,590.0 | 258.5 | -1,055.9 | -99.0 | 7.50 | 7.50 | 0.00 |
| 6,891.9 | 52.60 | 180.04 | 6,650.0 | 189.1 | -1,055.9 | -30.3 | 7.50 | 7.50 | 0.00 |
| Niobrara B | | | | | | | | | |
| 6,900.0 | 53.21 | 180.04 | 6,654.9 | 182.6 | -1,055.9 | -23.8 | 7.50 | 7.50 | 0.00 |
| 7,000.0 | 60.71 | 180.04 | 6,709.4 | 98.8 | -1,056.0 | 59.0 | 7.50 | 7.50 | 0.00 |
| 7,056.1 | 64.92 | 180.04 | 6,735.0 | 48.9 | -1,056.0 | 108.3 | 7.50 | 7.50 | 0.00 |
| Niobrara C | | | | | | | | | |
| 7,100.0 | 68.21 | 180.04 | 6,752.5 | 8.6 | -1,056.1 | 148.2 | 7.50 | 7.50 | 0.00 |
| 7,200.0 | 75.72 | 180.04 | 6,783.4 | -86.4 | -1,056.1 | 242.2 | 7.50 | 7.50 | 0.00 |
| 7,300.0 | 83.22 | 180.04 | 6,801.7 | -184.6 | -1,056.2 | 339.3 | 7.50 | 7.50 | 0.00 |
| 7,396.0 | 90.42 | 180.04 | 6,807.0 | -280.5 | -1,056.3 | 434.1 | 7.50 | 7.50 | 0.00 |
| 7,396.4 | 90.42 | 180.04 | 6,807.0 | -280.8 | -1,056.3 | 434.5 | 0.50 | 0.49 | 0.11 |
| Start 6791.6 hold at 7396.4 MD | | | | | | | | | |
| 7,400.0 | 90.42 | 180.04 | 6,807.0 | -284.4 | -1,056.3 | 438.0 | 0.00 | 0.00 | 0.00 |
| 7,500.0 | 90.42 | 180.04 | 6,806.2 | -384.4 | -1,056.3 | 536.9 | 0.00 | 0.00 | 0.00 |
| 7,600.0 | 90.42 | 180.04 | 6,805.5 | -484.4 | -1,056.4 | 635.8 | 0.00 | 0.00 | 0.00 |
| 7,700.0 | 90.42 | 180.04 | 6,804.8 | -584.4 | -1,056.5 | 734.7 | 0.00 | 0.00 | 0.00 |
| 7,800.0 | 90.42 | 180.04 | 6,804.0 | -684.4 | -1,056.6 | 833.6 | 0.00 | 0.00 | 0.00 |
| 7,900.0 | 90.42 | 180.04 | 6,803.3 | -784.4 | -1,056.6 | 932.5 | 0.00 | 0.00 | 0.00 |

| | | | |
|------------------|--|-------------------------------------|-----------------------------|
| Database: | US_EDM | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Project: | SEC.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | North Reference: | True |
| Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #2 (1-25-17) | | |

| Planned Survey | | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|--|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | |
| 8,000.0 | 90.42 | 180.04 | 6,802.6 | -884.4 | -1,056.7 | 1,031.4 | 0.00 | 0.00 | 0.00 | |
| 8,100.0 | 90.42 | 180.04 | 6,801.8 | -984.4 | -1,056.8 | 1,130.3 | 0.00 | 0.00 | 0.00 | |
| 8,200.0 | 90.42 | 180.04 | 6,801.1 | -1,084.4 | -1,056.9 | 1,229.2 | 0.00 | 0.00 | 0.00 | |
| 8,300.0 | 90.42 | 180.04 | 6,800.3 | -1,184.4 | -1,056.9 | 1,328.1 | 0.00 | 0.00 | 0.00 | |
| 8,400.0 | 90.42 | 180.04 | 6,799.6 | -1,284.4 | -1,057.0 | 1,427.0 | 0.00 | 0.00 | 0.00 | |
| 8,500.0 | 90.42 | 180.04 | 6,798.9 | -1,384.4 | -1,057.1 | 1,525.9 | 0.00 | 0.00 | 0.00 | |
| 8,600.0 | 90.42 | 180.04 | 6,798.1 | -1,484.4 | -1,057.2 | 1,624.8 | 0.00 | 0.00 | 0.00 | |
| 8,700.0 | 90.42 | 180.04 | 6,797.4 | -1,584.4 | -1,057.2 | 1,723.7 | 0.00 | 0.00 | 0.00 | |
| 8,800.0 | 90.42 | 180.04 | 6,796.7 | -1,684.4 | -1,057.3 | 1,822.6 | 0.00 | 0.00 | 0.00 | |
| 8,900.0 | 90.42 | 180.04 | 6,795.9 | -1,784.4 | -1,057.4 | 1,921.5 | 0.00 | 0.00 | 0.00 | |
| 9,000.0 | 90.42 | 180.04 | 6,795.2 | -1,884.4 | -1,057.5 | 2,020.4 | 0.00 | 0.00 | 0.00 | |
| 9,100.0 | 90.42 | 180.04 | 6,794.5 | -1,984.4 | -1,057.5 | 2,119.3 | 0.00 | 0.00 | 0.00 | |
| 9,200.0 | 90.42 | 180.04 | 6,793.7 | -2,084.4 | -1,057.6 | 2,218.2 | 0.00 | 0.00 | 0.00 | |
| 9,300.0 | 90.42 | 180.04 | 6,793.0 | -2,184.4 | -1,057.7 | 2,317.1 | 0.00 | 0.00 | 0.00 | |
| 9,400.0 | 90.42 | 180.04 | 6,792.2 | -2,284.4 | -1,057.7 | 2,416.0 | 0.00 | 0.00 | 0.00 | |
| 9,500.0 | 90.42 | 180.04 | 6,791.5 | -2,384.4 | -1,057.8 | 2,514.9 | 0.00 | 0.00 | 0.00 | |
| 9,600.0 | 90.42 | 180.04 | 6,790.8 | -2,484.4 | -1,057.9 | 2,613.8 | 0.00 | 0.00 | 0.00 | |
| 9,700.0 | 90.42 | 180.04 | 6,790.0 | -2,584.4 | -1,058.0 | 2,712.8 | 0.00 | 0.00 | 0.00 | |
| 9,800.0 | 90.42 | 180.04 | 6,789.3 | -2,684.4 | -1,058.0 | 2,811.7 | 0.00 | 0.00 | 0.00 | |
| 9,900.0 | 90.42 | 180.04 | 6,788.6 | -2,784.4 | -1,058.1 | 2,910.6 | 0.00 | 0.00 | 0.00 | |
| 10,000.0 | 90.42 | 180.04 | 6,787.8 | -2,884.4 | -1,058.2 | 3,009.5 | 0.00 | 0.00 | 0.00 | |
| 10,100.0 | 90.42 | 180.04 | 6,787.1 | -2,984.4 | -1,058.3 | 3,108.4 | 0.00 | 0.00 | 0.00 | |
| 10,200.0 | 90.42 | 180.04 | 6,786.4 | -3,084.3 | -1,058.3 | 3,207.3 | 0.00 | 0.00 | 0.00 | |
| 10,300.0 | 90.42 | 180.04 | 6,785.6 | -3,184.3 | -1,058.4 | 3,306.2 | 0.00 | 0.00 | 0.00 | |
| 10,400.0 | 90.42 | 180.04 | 6,784.9 | -3,284.3 | -1,058.5 | 3,405.1 | 0.00 | 0.00 | 0.00 | |
| 10,500.0 | 90.42 | 180.04 | 6,784.1 | -3,384.3 | -1,058.6 | 3,504.0 | 0.00 | 0.00 | 0.00 | |
| 10,600.0 | 90.42 | 180.04 | 6,783.4 | -3,484.3 | -1,058.6 | 3,602.9 | 0.00 | 0.00 | 0.00 | |
| 10,700.0 | 90.42 | 180.04 | 6,782.7 | -3,584.3 | -1,058.7 | 3,701.8 | 0.00 | 0.00 | 0.00 | |
| 10,800.0 | 90.42 | 180.04 | 6,781.9 | -3,684.3 | -1,058.8 | 3,800.7 | 0.00 | 0.00 | 0.00 | |
| 10,900.0 | 90.42 | 180.04 | 6,781.2 | -3,784.3 | -1,058.9 | 3,899.6 | 0.00 | 0.00 | 0.00 | |
| 11,000.0 | 90.42 | 180.04 | 6,780.5 | -3,884.3 | -1,058.9 | 3,998.5 | 0.00 | 0.00 | 0.00 | |
| 11,100.0 | 90.42 | 180.04 | 6,779.7 | -3,984.3 | -1,059.0 | 4,097.4 | 0.00 | 0.00 | 0.00 | |
| 11,200.0 | 90.42 | 180.04 | 6,779.0 | -4,084.3 | -1,059.1 | 4,196.3 | 0.00 | 0.00 | 0.00 | |
| 11,300.0 | 90.42 | 180.04 | 6,778.3 | -4,184.3 | -1,059.2 | 4,295.2 | 0.00 | 0.00 | 0.00 | |
| 11,400.0 | 90.42 | 180.04 | 6,777.5 | -4,284.3 | -1,059.2 | 4,394.1 | 0.00 | 0.00 | 0.00 | |
| 11,500.0 | 90.42 | 180.04 | 6,776.8 | -4,384.3 | -1,059.3 | 4,493.0 | 0.00 | 0.00 | 0.00 | |
| 11,600.0 | 90.42 | 180.04 | 6,776.1 | -4,484.3 | -1,059.4 | 4,591.9 | 0.00 | 0.00 | 0.00 | |
| 11,700.0 | 90.42 | 180.04 | 6,775.3 | -4,584.3 | -1,059.5 | 4,690.8 | 0.00 | 0.00 | 0.00 | |
| 11,800.0 | 90.42 | 180.04 | 6,774.6 | -4,684.3 | -1,059.5 | 4,789.7 | 0.00 | 0.00 | 0.00 | |
| 11,900.0 | 90.42 | 180.04 | 6,773.8 | -4,784.3 | -1,059.6 | 4,888.6 | 0.00 | 0.00 | 0.00 | |
| 12,000.0 | 90.42 | 180.04 | 6,773.1 | -4,884.3 | -1,059.7 | 4,987.5 | 0.00 | 0.00 | 0.00 | |
| 12,100.0 | 90.42 | 180.04 | 6,772.4 | -4,984.3 | -1,059.7 | 5,086.4 | 0.00 | 0.00 | 0.00 | |
| 12,200.0 | 90.42 | 180.04 | 6,771.6 | -5,084.3 | -1,059.8 | 5,185.3 | 0.00 | 0.00 | 0.00 | |
| 12,300.0 | 90.42 | 180.04 | 6,770.9 | -5,184.3 | -1,059.9 | 5,284.2 | 0.00 | 0.00 | 0.00 | |
| 12,400.0 | 90.42 | 180.04 | 6,770.2 | -5,284.3 | -1,060.0 | 5,383.1 | 0.00 | 0.00 | 0.00 | |
| 12,500.0 | 90.42 | 180.04 | 6,769.4 | -5,384.3 | -1,060.0 | 5,482.0 | 0.00 | 0.00 | 0.00 | |
| 12,600.0 | 90.42 | 180.04 | 6,768.7 | -5,484.3 | -1,060.1 | 5,580.9 | 0.00 | 0.00 | 0.00 | |
| 12,700.0 | 90.42 | 180.04 | 6,768.0 | -5,584.3 | -1,060.2 | 5,679.8 | 0.00 | 0.00 | 0.00 | |
| 12,800.0 | 90.42 | 180.04 | 6,767.2 | -5,684.3 | -1,060.3 | 5,778.7 | 0.00 | 0.00 | 0.00 | |
| 12,900.0 | 90.42 | 180.04 | 6,766.5 | -5,784.3 | -1,060.3 | 5,877.6 | 0.00 | 0.00 | 0.00 | |
| 13,000.0 | 90.42 | 180.04 | 6,765.7 | -5,884.3 | -1,060.4 | 5,976.5 | 0.00 | 0.00 | 0.00 | |
| 13,100.0 | 90.42 | 180.04 | 6,765.0 | -5,984.3 | -1,060.5 | 6,075.4 | 0.00 | 0.00 | 0.00 | |

| | | | |
|------------------|--|-------------------------------------|-----------------------------|
| Database: | US_EDM | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Project: | SEC.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | North Reference: | True |
| Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #2 (1-25-17) | | |

| Planned Survey | | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|--|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | |
| 13,200.0 | 90.42 | 180.04 | 6,764.3 | -6,084.3 | -1,060.6 | 6,174.3 | 0.00 | 0.00 | 0.00 | |
| 13,300.0 | 90.42 | 180.04 | 6,763.5 | -6,184.3 | -1,060.6 | 6,273.2 | 0.00 | 0.00 | 0.00 | |
| 13,400.0 | 90.42 | 180.04 | 6,762.8 | -6,284.3 | -1,060.7 | 6,372.1 | 0.00 | 0.00 | 0.00 | |
| 13,500.0 | 90.42 | 180.04 | 6,762.1 | -6,384.3 | -1,060.8 | 6,471.0 | 0.00 | 0.00 | 0.00 | |
| 13,600.0 | 90.42 | 180.04 | 6,761.3 | -6,484.3 | -1,060.9 | 6,569.9 | 0.00 | 0.00 | 0.00 | |
| 13,700.0 | 90.42 | 180.04 | 6,760.6 | -6,584.3 | -1,060.9 | 6,668.8 | 0.00 | 0.00 | 0.00 | |
| 13,800.0 | 90.42 | 180.04 | 6,759.9 | -6,684.2 | -1,061.0 | 6,767.7 | 0.00 | 0.00 | 0.00 | |
| 13,900.0 | 90.42 | 180.04 | 6,759.1 | -6,784.2 | -1,061.1 | 6,866.6 | 0.00 | 0.00 | 0.00 | |
| 14,000.0 | 90.42 | 180.04 | 6,758.4 | -6,884.2 | -1,061.2 | 6,965.5 | 0.00 | 0.00 | 0.00 | |
| 14,100.0 | 90.42 | 180.04 | 6,757.6 | -6,984.2 | -1,061.2 | 7,064.4 | 0.00 | 0.00 | 0.00 | |
| 14,188.1 | 90.42 | 180.04 | 6,757.0 | -7,072.3 | -1,061.3 | 7,151.5 | 0.00 | 0.00 | 0.00 | |
| TD at 14188.1 | | | | | | | | | | |

| Design Targets | | | | | | | | | | |
|--|---------------|--------------|----------|------------|------------|-----------------|----------------|-----------|-------------|--|
| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude | |
| SHL 557'FNL & 1050'FE - plan hits target center - Point | 0.00 | 0.00 | 1.0 | 0.0 | 0.0 | 1,381,166.76 | 3,259,644.44 | 40.375959 | -104.568052 | |
| BHL 2340'FNL & 2157'F - plan hits target center - Point | 0.00 | 0.00 | 6,757.0 | -7,072.3 | -1,061.3 | 1,374,083.98 | 3,258,657.57 | 40.356546 | -104.571860 | |
| LPL 819'FNL & 2108'FEI - plan hits target center - Point | 0.00 | 0.00 | 6,807.0 | -280.5 | -1,056.3 | 1,380,875.19 | 3,258,591.22 | 40.375189 | -104.571843 | |

| Formations | | | | | | | |
|---------------------|---------------------|-------------------|-----------|---------|-------------------|--|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) | | |
| 3,607.3 | 3,530.0 | Parkman Sandstone | | 0.00 | | | |
| 4,302.6 | 4,200.0 | Sussex Sandstone | | 0.00 | | | |
| 6,578.9 | 6,415.0 | Sharon Springs | | 0.00 | | | |
| 6,758.2 | 6,560.0 | Niobrara A | | 0.00 | | | |
| 6,891.9 | 6,650.0 | Niobrara B | | 0.00 | | | |
| 7,056.1 | 6,735.0 | Niobrara C | | 0.00 | | | |

| | | | |
|------------------|--|-------------------------------------|-----------------------------|
| Database: | US_EDM | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Project: | SEC.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | North Reference: | True |
| Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #2 (1-25-17) | | |

| Plan Annotations | | | | |
|---------------------|---------------------|-------------------|------------|--------------------------------|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | Comment |
| | | +N/-S (ft) | +E/-W (ft) | |
| 800.0 | 800.0 | 0.0 | 0.0 | KOP - Start Build 1.50 |
| 5,271.3 | 5,133.3 | 58.6 | -126.4 | Start Drop -2.00 |
| 6,047.4 | 5,900.0 | 445.1 | -960.9 | Start 143.1 hold at 6047.4 MD |
| 6,190.6 | 6,043.1 | 489.0 | -1,055.7 | Start Build 7.50 |
| 7,396.4 | 6,807.0 | 489.0 | -1,055.7 | Start 6791.6 hold at 7396.4 MD |
| 14,188.1 | 6,757.0 | -280.8 | -1,056.3 | TD at 14188.1 |



PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.29-T5N-R64W

Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W

Ottenhoff 29M-323

Wellbore #1

Plan #2 (1-25-17)

Anticollision Report

27 January, 2017



| | | | |
|---------------------------|--|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| | | | |
|-------------------------------------|---|-----------------------|---------------------|
| Reference | Plan #2 (1-25-17) | | |
| Filter type: | NO GLOBAL FILTER: Using user defined selection & filtering criteria | | |
| Interpolation Method: | Stations | Error Model: | ISCWSA |
| Depth Range: | Unlimited | Scan Method: | Closest Approach 3D |
| Results Limited by: | Maximum center-center distance of 800.0 ft | Error Surface: | Elliptical Conic |
| Warning Levels Evaluated at: | 2.45 Sigma | Casing Method: | Not applied |

| | | | | |
|----------------------------|----------------|---------------------------------|------------------|--------------------|
| Survey Tool Program | Date | 1/27/2017 | | |
| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description |
| 0.0 | 14,188.0 | Plan #2 (1-25-17) (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 | | | | | | |
| Bell Pad SEC.29-T5N-R64W | | | | | | |
| Bell B29-22D - Bell B29-22D - Bell B29-22D | | | | | | Out of range |
| Bell B29-24D - Bell B29-24D - Bell B29-24D | 10,721.9 | 7,107.0 | 345.3 | 221.9 | 2.799 | CC, ES, SF |
| Existing Wells Sec.29-T5N-R64W | | | | | | |
| Blake #B 29-10X (Exist.) - Wellbore #1 - Wellbore #1 | 9,763.4 | 6,791.6 | 38.7 | -195.6 | 0.165 | Level 1, CC, ES, SF |
| Blake #B29-10 (D&A) - Wellbore #1 - Wellbore #1 | 9,914.5 | 6,790.5 | 112.7 | -125.0 | 0.474 | Level 1, CC, ES, SF |
| Blake #B29-15 (Exist.) - Wellbore #1 - Wellbore #1 | 11,187.8 | 6,796.1 | 119.1 | -147.7 | 0.446 | Level 1, CC, ES, SF |
| Carlson 29-1 (Exist.) - Wellbore #1 - Wellbore #1 | 8,665.8 | 6,782.2 | 214.1 | 154.2 | 3.573 | CC, ES, SF |
| DIC Cross #31-32 (P&A) - Wellbore #1 - Wellbore #1 | 12,524.8 | 6,794.2 | 207.6 | -90.1 | 0.697 | Level 1, CC, ES, SF |
| Ottenhoff #29-1 (Exist.) - Wellbore #1 - Wellbore #1 | 7,243.2 | 6,780.9 | 186.1 | 148.5 | 4.958 | CC, ES |
| Ottenhoff #29-1 (Exist.) - Wellbore #1 - Wellbore #1 | 7,250.0 | 6,782.1 | 186.2 | 148.6 | 4.951 | SF |
| Ottenhoff 41-6B (Exist.) - Wellbore #1 - Wellbore #1 | 633.5 | 620.5 | 414.6 | 411.9 | 155.409 | CC |
| Ottenhoff 41-6B (Exist.) - Wellbore #1 - Wellbore #1 | 700.0 | 685.0 | 414.7 | 411.8 | 140.502 | ES |
| Ottenhoff 41-6B (Exist.) - Wellbore #1 - Wellbore #1 | 5,100.0 | 5,186.8 | 795.8 | 761.2 | 22.990 | SF |
| Existing Wells Sec.29-T5N-R64W (GRID) | | | | | | |
| Blake B 29-23 (Exist.) - Wellbore #1 - Wellbore #1 | 10,291.3 | 6,781.0 | 329.4 | 234.2 | 3.460 | CC |
| Blake B 29-23 (Exist.) - Wellbore #1 - Wellbore #1 | 10,300.0 | 6,781.4 | 329.5 | 234.1 | 3.454 | ES, SF |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| 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 | | | | | | |
| Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | | | | | | |
| Ottenhoff 29M-203 - Wellbore #1 - Plan #2 (1-25-17) | 200.0 | 199.0 | 30.1 | 29.3 | 36.554 | CC, ES |
| Ottenhoff 29M-203 - Wellbore #1 - Plan #2 (1-25-17) | 14,188.1 | 14,196.9 | 452.0 | 115.1 | 1.342 | Level 3, SF |
| Ottenhoff 29M-203 - Wellbore #1 - Spider Plot | 200.0 | 199.0 | 30.1 | 29.3 | 36.554 | CC, ES |
| Ottenhoff 29M-203 - Wellbore #1 - Spider Plot | 14,188.1 | 14,196.9 | 452.0 | 115.1 | 1.342 | Level 3, SF |
| Ottenhoff 29M-423 - Wellbore #1 - Plan #2 (1-25-17) | 400.0 | 399.0 | 15.0 | 13.1 | 7.817 | CC |
| Ottenhoff 29M-423 - Wellbore #1 - Plan #2 (1-25-17) | 14,188.1 | 14,292.1 | 252.3 | -52.2 | 0.828 | Level 1, ES, SF |
| Ottenhoff 29R-143 - Wellbore #1 - Plan #2 (1-25-17) | 800.0 | 799.0 | 30.1 | 26.0 | 7.291 | CC, ES |
| Ottenhoff 29R-143 - Wellbore #1 - Plan #2 (1-25-17) | 14,188.1 | 13,936.9 | 512.3 | 184.9 | 1.565 | SF |
| Ottenhoff 29R-203 - Wellbore #1 - Plan #2 (1-25-17) | 800.0 | 799.0 | 59.9 | 55.8 | 14.515 | CC, ES |
| Ottenhoff 29R-203 - Wellbore #1 - Plan #2 (1-25-17) | 1,100.0 | 1,098.7 | 70.8 | 65.1 | 12.329 | SF |
| Ottenhoff 29R-243 - Wellbore #1 - Plan #2 (1-25-17) | 800.0 | 799.0 | 15.0 | 10.9 | 3.646 | CC |
| Ottenhoff 29R-243 - Wellbore #1 - Plan #2 (1-25-17) | 14,188.1 | 14,067.2 | 267.0 | -58.0 | 0.822 | Level 1, ES, SF |
| Ottenhoff 29R-303 - Wellbore #1 - Plan #2 (1-25-17) | 800.0 | 799.0 | 45.1 | 41.0 | 10.936 | CC, ES |
| Ottenhoff 29R-303 - Wellbore #1 - Plan #2 (1-25-17) | 14,188.1 | 14,074.3 | 724.1 | 384.4 | 2.132 | SF |
| Ottenhoff 29R-323 - Wellbore #1 - Plan #2 (1-25-17) | 800.0 | 799.0 | 90.0 | 85.9 | 21.806 | CC, ES |
| Ottenhoff 29R-323 - Wellbore #1 - Plan #2 (1-25-17) | 1,100.0 | 1,095.1 | 105.8 | 100.1 | 18.448 | SF |
| Ottenhoff 29R-423 - Wellbore #1 - Plan #2 (1-25-17) | 800.0 | 798.0 | 75.0 | 70.8 | 18.172 | CC, ES |
| Ottenhoff 29R-423 - Wellbore #1 - Plan #2 (1-25-17) | 1,100.0 | 1,097.7 | 85.8 | 80.1 | 14.949 | SF |
| Ottenhoff 29U-243 - Wellbore #1 - Plan #2 (1-25-17) | 400.0 | 399.0 | 105.0 | 103.1 | 54.580 | CC, ES |
| Ottenhoff 29U-243 - Wellbore #1 - Plan #2 (1-25-17) | 1,000.0 | 983.3 | 144.0 | 138.8 | 27.508 | SF |
| Ottenhoff 29U-343 - Wellbore #1 - Plan #2 (1-25-17) | 200.0 | 198.0 | 120.1 | 119.3 | 146.366 | CC, ES |
| Ottenhoff 29U-343 - Wellbore #1 - Plan #2 (1-25-17) | 1,000.0 | 967.7 | 194.0 | 188.7 | 36.654 | SF |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|-----------------------------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Survey Program: 685- Bell Pad SEC.29-T5N-R64W - Bell B29-24D - Bell B29-24D - Bell B29-24D | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | Offset Wellbore Centre +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 10,100.0 | 6,787.1 | 7,101.3 | 6,795.0 | 77.7 | 35.7 | 90.24 | -3,605.9 | -1,404.0 | 711.3 | 601.9 | 109.33 | 6.506 | | |
| 10,200.0 | 6,786.4 | 7,102.1 | 6,795.8 | 79.9 | 35.7 | 90.38 | -3,605.9 | -1,404.0 | 625.7 | 514.1 | 111.57 | 5.608 | | |
| 10,300.0 | 6,785.6 | 7,103.0 | 6,796.7 | 82.1 | 35.7 | 90.53 | -3,605.9 | -1,404.0 | 545.1 | 431.3 | 113.83 | 4.789 | | |
| 10,400.0 | 6,784.9 | 7,103.9 | 6,797.6 | 84.3 | 35.7 | 90.68 | -3,605.9 | -1,404.0 | 472.0 | 355.9 | 116.08 | 4.066 | | |
| 10,500.0 | 6,784.1 | 7,104.9 | 6,798.6 | 86.5 | 35.7 | 90.84 | -3,606.0 | -1,404.0 | 410.4 | 292.0 | 118.34 | 3.468 | | |
| 10,600.0 | 6,783.4 | 7,105.8 | 6,799.5 | 88.8 | 35.7 | 91.00 | -3,606.0 | -1,403.9 | 366.1 | 245.5 | 120.60 | 3.036 | | |
| 10,700.0 | 6,782.7 | 7,106.8 | 6,800.5 | 91.0 | 35.7 | 91.16 | -3,606.0 | -1,403.9 | 345.9 | 223.1 | 122.86 | 2.816 | | |
| 10,721.9 | 6,782.5 | 7,107.0 | 6,800.7 | 91.5 | 35.7 | 91.20 | -3,606.0 | -1,403.9 | 345.3 | 221.9 | 123.36 | 2.799 | CC, ES, SF | |
| 10,800.0 | 6,781.9 | 7,107.8 | 6,801.5 | 93.3 | 35.7 | 91.33 | -3,606.0 | -1,403.9 | 354.0 | 228.9 | 125.13 | 2.829 | | |
| 10,900.0 | 6,781.2 | 7,108.9 | 6,802.6 | 95.5 | 35.7 | 91.50 | -3,606.0 | -1,403.9 | 388.5 | 261.1 | 127.40 | 3.050 | | |
| 11,000.0 | 6,780.5 | 7,109.9 | 6,803.6 | 97.8 | 35.7 | 91.68 | -3,606.0 | -1,403.8 | 443.3 | 313.7 | 129.67 | 3.419 | | |
| 11,100.0 | 6,779.7 | 7,111.0 | 6,804.7 | 100.0 | 35.8 | 91.86 | -3,606.1 | -1,403.8 | 512.0 | 380.1 | 131.93 | 3.881 | | |
| 11,200.0 | 6,779.0 | 7,112.2 | 6,805.9 | 102.3 | 35.8 | 92.05 | -3,606.1 | -1,403.8 | 589.7 | 455.5 | 134.20 | 4.394 | | |
| 11,300.0 | 6,778.3 | 7,113.3 | 6,807.0 | 104.6 | 35.8 | 92.24 | -3,606.1 | -1,403.8 | 673.4 | 536.9 | 136.47 | 4.934 | | |
| 11,400.0 | 6,777.5 | 7,114.5 | 6,808.2 | 106.8 | 35.8 | 92.44 | -3,606.1 | -1,403.7 | 760.9 | 622.2 | 138.74 | 5.485 | | |

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|---------------------------|--|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Existing Wells Sec.29-T5N-R64W - Blake #B 29-10X (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|---------------------|--------|
| Survey Program: 7072-UNKNOWN | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | Warning | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | |
| 9,000.0 | 6,795.2 | 6,797.2 | 6,797.2 | 54.2 | 166.5 | -98.26 | -2,647.8 | -1,019.3 | 764.3 | 548.1 | 216.22 | 3.535 | | |
| 9,100.0 | 6,794.5 | 6,796.5 | 6,796.5 | 56.2 | 166.5 | -97.19 | -2,647.8 | -1,019.3 | 664.5 | 445.7 | 218.77 | 3.037 | | |
| 9,200.0 | 6,793.7 | 6,795.7 | 6,795.7 | 58.3 | 166.5 | -96.11 | -2,647.8 | -1,019.3 | 564.7 | 343.4 | 221.27 | 2.552 | | |
| 9,300.0 | 6,793.0 | 6,795.0 | 6,795.0 | 60.4 | 166.5 | -95.04 | -2,647.8 | -1,019.3 | 465.0 | 241.3 | 223.72 | 2.078 | | |
| 9,400.0 | 6,792.2 | 6,794.2 | 6,794.2 | 62.5 | 166.5 | -93.95 | -2,647.8 | -1,019.3 | 365.4 | 139.3 | 226.12 | 1.616 | | |
| 9,500.0 | 6,791.5 | 6,793.5 | 6,793.5 | 64.6 | 166.4 | -92.87 | -2,647.8 | -1,019.3 | 266.2 | 37.7 | 228.46 | 1.165 | Level 2 | |
| 9,600.0 | 6,790.8 | 6,792.8 | 6,792.8 | 66.8 | 166.4 | -91.78 | -2,647.8 | -1,019.3 | 167.9 | -62.8 | 230.73 | 0.728 | Level 1 | |
| 9,700.0 | 6,790.0 | 6,792.0 | 6,792.0 | 68.9 | 166.4 | -90.69 | -2,647.8 | -1,019.3 | 74.3 | -158.7 | 232.94 | 0.319 | Level 1 | |
| 9,763.4 | 6,789.6 | 6,791.6 | 6,791.6 | 70.3 | 166.4 | -90.00 | -2,647.8 | -1,019.3 | 38.7 | -195.6 | 234.31 | 0.165 | Level 1, CC, ES, SF | |
| 9,800.0 | 6,789.3 | 6,791.3 | 6,791.3 | 71.1 | 166.4 | -89.60 | -2,647.8 | -1,019.3 | 53.3 | -181.8 | 235.08 | 0.227 | Level 1 | |
| 9,900.0 | 6,788.6 | 6,790.6 | 6,790.6 | 73.3 | 166.4 | -88.51 | -2,647.8 | -1,019.3 | 142.0 | -95.2 | 237.15 | 0.599 | Level 1 | |
| 10,000.0 | 6,787.8 | 6,789.8 | 6,789.8 | 75.5 | 166.4 | -87.42 | -2,647.8 | -1,019.3 | 239.8 | 0.6 | 239.14 | 1.003 | Level 2 | |
| 10,100.0 | 6,787.1 | 6,789.1 | 6,789.1 | 77.7 | 166.3 | -86.34 | -2,647.8 | -1,019.3 | 338.8 | 97.8 | 241.06 | 1.406 | Level 3 | |
| 10,200.0 | 6,786.4 | 6,788.4 | 6,788.4 | 79.9 | 166.3 | -85.25 | -2,647.8 | -1,019.3 | 438.3 | 195.4 | 242.89 | 1.805 | | |
| 10,300.0 | 6,785.6 | 6,787.6 | 6,787.6 | 82.1 | 166.3 | -84.17 | -2,647.8 | -1,019.3 | 538.0 | 293.3 | 244.65 | 2.199 | | |
| 10,400.0 | 6,784.9 | 6,786.9 | 6,786.9 | 84.3 | 166.3 | -83.10 | -2,647.8 | -1,019.3 | 637.8 | 391.4 | 246.33 | 2.589 | | |
| 10,500.0 | 6,784.1 | 6,786.1 | 6,786.1 | 86.5 | 166.3 | -82.03 | -2,647.8 | -1,019.3 | 737.6 | 489.7 | 247.92 | 2.975 | | |

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|---------------------------|--|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Existing Wells Sec.29-T5N-R64W - Blake #B29-10 (D&A) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|---------------------|--------|
| Survey Program: 7125-UNKNOWN | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | Warning | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | |
| 9,200.0 | 6,793.7 | 6,795.7 | 6,795.7 | 58.3 | 166.5 | -92.67 | -2,799.0 | -945.5 | 723.3 | 501.4 | 221.95 | 3.259 | | |
| 9,300.0 | 6,793.0 | 6,795.0 | 6,795.0 | 60.4 | 166.5 | -92.30 | -2,799.0 | -945.5 | 624.8 | 400.6 | 224.14 | 2.787 | | |
| 9,400.0 | 6,792.2 | 6,794.2 | 6,794.2 | 62.5 | 166.5 | -91.93 | -2,799.0 | -945.5 | 526.7 | 300.4 | 226.34 | 2.327 | | |
| 9,500.0 | 6,791.5 | 6,793.5 | 6,793.5 | 64.6 | 166.4 | -91.55 | -2,799.0 | -945.5 | 429.6 | 201.0 | 228.54 | 1.880 | | |
| 9,600.0 | 6,790.8 | 6,792.8 | 6,792.8 | 66.8 | 166.4 | -91.18 | -2,799.0 | -945.5 | 334.1 | 103.3 | 230.74 | 1.448 | Level 3 | |
| 9,700.0 | 6,790.0 | 6,792.0 | 6,792.0 | 68.9 | 166.4 | -90.80 | -2,799.0 | -945.5 | 242.3 | 9.4 | 232.95 | 1.040 | Level 2 | |
| 9,800.0 | 6,789.3 | 6,791.3 | 6,791.3 | 71.1 | 166.4 | -90.43 | -2,799.0 | -945.5 | 160.6 | -74.5 | 235.15 | 0.683 | Level 1 | |
| 9,900.0 | 6,788.6 | 6,790.6 | 6,790.6 | 73.3 | 166.4 | -90.05 | -2,799.0 | -945.5 | 113.6 | -123.8 | 237.35 | 0.479 | Level 1 | |
| 9,914.5 | 6,788.5 | 6,790.5 | 6,790.5 | 73.6 | 166.4 | -90.00 | -2,799.0 | -945.5 | 112.7 | -125.0 | 237.67 | 0.474 | Level 1, CC, ES, SF | |
| 10,000.0 | 6,787.8 | 6,789.8 | 6,789.8 | 75.5 | 166.4 | -89.68 | -2,799.0 | -945.5 | 141.4 | -98.1 | 239.55 | 0.590 | Level 1 | |
| 10,100.0 | 6,787.1 | 6,789.1 | 6,789.1 | 77.7 | 166.3 | -89.31 | -2,799.0 | -945.5 | 217.0 | -24.7 | 241.75 | 0.898 | Level 1 | |
| 10,200.0 | 6,786.4 | 6,788.4 | 6,788.4 | 79.9 | 166.3 | -88.93 | -2,799.0 | -945.5 | 306.9 | 63.0 | 243.94 | 1.258 | Level 3 | |
| 10,300.0 | 6,785.6 | 6,787.6 | 6,787.6 | 82.1 | 166.3 | -88.56 | -2,799.0 | -945.5 | 401.6 | 155.5 | 246.12 | 1.632 | | |
| 10,400.0 | 6,784.9 | 6,786.9 | 6,786.9 | 84.3 | 166.3 | -88.18 | -2,799.0 | -945.5 | 498.4 | 250.1 | 248.30 | 2.007 | | |
| 10,500.0 | 6,784.1 | 6,786.1 | 6,786.1 | 86.5 | 166.3 | -87.81 | -2,799.0 | -945.5 | 596.2 | 345.7 | 250.48 | 2.380 | | |
| 10,600.0 | 6,783.4 | 6,785.4 | 6,785.4 | 88.8 | 166.2 | -87.44 | -2,799.0 | -945.5 | 694.7 | 442.0 | 252.65 | 2.749 | | |
| 10,700.0 | 6,782.7 | 6,784.7 | 6,784.7 | 91.0 | 166.2 | -87.06 | -2,799.0 | -945.5 | 793.5 | 538.7 | 254.81 | 3.114 | | |

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|---------------------------|--|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Existing Wells Sec.29-T5N-R64W - Blake #B29-15 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|---------------------|--------|
| Survey Program: 7092-UNKNOWN | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | Warning | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | |
| 10,400.0 | 6,784.9 | 6,801.9 | 6,801.9 | 84.3 | 166.6 | -92.79 | -4,072.2 | -939.9 | 796.8 | 547.9 | 248.88 | 3.201 | | |
| 10,500.0 | 6,784.1 | 6,801.1 | 6,801.1 | 86.5 | 166.6 | -92.43 | -4,072.2 | -939.9 | 698.0 | 446.9 | 251.17 | 2.779 | | |
| 10,600.0 | 6,783.4 | 6,800.4 | 6,800.4 | 88.8 | 166.6 | -92.08 | -4,072.2 | -939.9 | 599.7 | 346.3 | 253.46 | 2.366 | | |
| 10,700.0 | 6,782.7 | 6,799.7 | 6,799.7 | 91.0 | 166.6 | -91.73 | -4,072.2 | -939.9 | 502.1 | 246.4 | 255.75 | 1.963 | | |
| 10,800.0 | 6,781.9 | 6,798.9 | 6,798.9 | 93.3 | 166.6 | -91.37 | -4,072.2 | -939.9 | 405.7 | 147.7 | 258.03 | 1.572 | | |
| 10,900.0 | 6,781.2 | 6,798.2 | 6,798.2 | 95.5 | 166.6 | -91.02 | -4,072.2 | -939.9 | 311.5 | 51.2 | 260.30 | 1.197 | Level 2 | |
| 11,000.0 | 6,780.5 | 6,797.5 | 6,797.5 | 97.8 | 166.5 | -90.66 | -4,072.2 | -939.9 | 222.4 | -40.2 | 262.57 | 0.847 | Level 1 | |
| 11,100.0 | 6,779.7 | 6,796.7 | 6,796.7 | 100.0 | 166.5 | -90.31 | -4,072.2 | -939.9 | 148.0 | -116.8 | 264.84 | 0.559 | Level 1 | |
| 11,187.8 | 6,779.1 | 6,796.1 | 6,796.1 | 102.0 | 166.5 | -90.00 | -4,072.2 | -939.9 | 119.1 | -147.7 | 266.82 | 0.446 | Level 1, CC, ES, SF | |
| 11,200.0 | 6,779.0 | 6,796.0 | 6,796.0 | 102.3 | 166.5 | -89.96 | -4,072.2 | -939.9 | 119.7 | -147.3 | 267.09 | 0.448 | Level 1 | |
| 11,300.0 | 6,778.3 | 6,795.3 | 6,795.3 | 104.6 | 166.5 | -89.60 | -4,072.2 | -939.9 | 163.6 | -105.7 | 269.34 | 0.608 | Level 1 | |
| 11,400.0 | 6,777.5 | 6,794.5 | 6,794.5 | 106.8 | 166.5 | -89.25 | -4,072.2 | -939.9 | 243.3 | -28.3 | 271.59 | 0.896 | Level 1 | |
| 11,500.0 | 6,776.8 | 6,793.8 | 6,793.8 | 109.1 | 166.4 | -88.89 | -4,072.2 | -939.9 | 334.1 | 60.3 | 273.82 | 1.220 | Level 2 | |
| 11,600.0 | 6,776.1 | 6,793.1 | 6,793.1 | 111.4 | 166.4 | -88.54 | -4,072.2 | -939.9 | 429.0 | 153.0 | 276.05 | 1.554 | | |
| 11,700.0 | 6,775.3 | 6,792.3 | 6,792.3 | 113.7 | 166.4 | -88.19 | -4,072.2 | -939.9 | 525.8 | 247.6 | 278.27 | 1.890 | | |
| 11,800.0 | 6,774.6 | 6,791.6 | 6,791.6 | 115.9 | 166.4 | -87.83 | -4,072.2 | -939.9 | 623.7 | 343.2 | 280.48 | 2.224 | | |
| 11,900.0 | 6,773.8 | 6,790.8 | 6,790.8 | 118.2 | 166.4 | -87.48 | -4,072.2 | -939.9 | 722.1 | 439.4 | 282.68 | 2.554 | | |

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|---------------------------|--|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Existing Wells Sec.29-T5N-R64W - Carlson 29-1 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | Offset Site Error: | | 0.0 ft | |
|-----------------|----------------|--|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|--------------------|------------|---------|--|
| Survey Program: | | 100-NS-GYRO-MS | | | | | | | | | | Offset Well Error: | | 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 7,900.0 | 6,803.3 | 6,774.0 | 6,772.7 | 34.7 | 16.2 | -84.65 | -1,550.1 | -843.8 | 795.1 | 750.1 | 44.98 | 17.677 | | | |
| 8,000.0 | 6,802.6 | 6,775.1 | 6,773.7 | 36.1 | 16.2 | -84.94 | -1,550.1 | -843.8 | 699.3 | 652.6 | 46.73 | 14.964 | | | |
| 8,100.0 | 6,801.8 | 6,776.2 | 6,774.8 | 37.6 | 16.2 | -85.22 | -1,550.1 | -843.7 | 604.9 | 556.3 | 48.57 | 12.455 | | | |
| 8,200.0 | 6,801.1 | 6,777.2 | 6,775.9 | 39.2 | 16.2 | -85.51 | -1,550.1 | -843.7 | 512.6 | 462.1 | 50.47 | 10.157 | | | |
| 8,300.0 | 6,800.3 | 6,778.3 | 6,776.9 | 40.9 | 16.2 | -85.79 | -1,550.2 | -843.6 | 423.8 | 371.4 | 52.42 | 8.085 | | | |
| 8,400.0 | 6,799.6 | 6,779.4 | 6,778.0 | 42.6 | 16.2 | -86.08 | -1,550.2 | -843.5 | 341.3 | 286.9 | 54.43 | 6.271 | | | |
| 8,500.0 | 6,798.9 | 6,780.4 | 6,779.1 | 44.4 | 16.2 | -86.36 | -1,550.2 | -843.5 | 270.8 | 214.3 | 56.47 | 4.795 | | | |
| 8,600.0 | 6,798.1 | 6,781.5 | 6,780.1 | 46.3 | 16.2 | -86.65 | -1,550.2 | -843.4 | 224.0 | 165.5 | 58.55 | 3.826 | | | |
| 8,665.8 | 6,797.7 | 6,782.2 | 6,780.8 | 47.6 | 16.2 | -86.84 | -1,550.2 | -843.4 | 214.1 | 154.2 | 59.94 | 3.573 | CC, ES, SF | | |
| 8,700.0 | 6,797.4 | 6,782.6 | 6,781.2 | 48.2 | 16.2 | -86.93 | -1,550.2 | -843.4 | 216.9 | 156.2 | 60.66 | 3.575 | | | |
| 8,800.0 | 6,796.7 | 6,783.6 | 6,782.3 | 50.2 | 16.2 | -87.22 | -1,550.3 | -843.3 | 252.7 | 189.9 | 62.80 | 4.024 | | | |
| 8,900.0 | 6,795.9 | 6,784.7 | 6,783.3 | 52.2 | 16.2 | -87.51 | -1,550.3 | -843.2 | 317.4 | 252.4 | 64.96 | 4.886 | | | |
| 9,000.0 | 6,795.2 | 6,785.8 | 6,784.4 | 54.2 | 16.2 | -87.79 | -1,550.3 | -843.2 | 396.9 | 329.8 | 67.13 | 5.913 | | | |
| 9,100.0 | 6,794.5 | 6,786.8 | 6,785.5 | 56.2 | 16.3 | -88.08 | -1,550.3 | -843.1 | 484.1 | 414.8 | 69.33 | 6.983 | | | |
| 9,200.0 | 6,793.7 | 6,787.9 | 6,786.5 | 58.3 | 16.3 | -88.36 | -1,550.3 | -843.1 | 575.5 | 504.0 | 71.54 | 8.045 | | | |
| 9,300.0 | 6,793.0 | 6,789.0 | 6,787.6 | 60.4 | 16.3 | -88.65 | -1,550.3 | -843.0 | 669.4 | 595.6 | 73.76 | 9.075 | | | |
| 9,400.0 | 6,792.2 | 6,790.0 | 6,788.7 | 62.5 | 16.3 | -88.93 | -1,550.4 | -843.0 | 764.8 | 688.8 | 75.99 | 10.065 | | | |

| | | | |
|---------------------------|--|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Existing Wells Sec.29-T5N-R64W - DIC Cross #31-32 (P&A) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|---------------------|---------|--------|
| Survey Program: 7025-UNKNOWN | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 11,800.0 | 6,774.6 | 6,799.6 | 6,799.6 | 115.9 | 166.6 | -91.47 | -5,409.2 | -852.5 | 753.9 | 472.9 | 281.05 | 2.683 | | | |
| 11,900.0 | 6,773.8 | 6,798.8 | 6,798.8 | 118.2 | 166.6 | -91.27 | -5,409.2 | -852.5 | 658.4 | 375.0 | 283.35 | 2.324 | | | |
| 12,000.0 | 6,773.1 | 6,798.1 | 6,798.1 | 120.5 | 166.6 | -91.07 | -5,409.2 | -852.5 | 564.4 | 278.7 | 285.65 | 1.976 | | | |
| 12,100.0 | 6,772.4 | 6,797.4 | 6,797.4 | 122.8 | 166.5 | -90.86 | -5,409.2 | -852.5 | 472.8 | 184.9 | 287.94 | 1.642 | | | |
| 12,200.0 | 6,771.6 | 6,796.6 | 6,796.6 | 125.1 | 166.5 | -90.66 | -5,409.2 | -852.5 | 385.5 | 95.2 | 290.24 | 1.328 | Level 3 | | |
| 12,300.0 | 6,770.9 | 6,795.9 | 6,795.9 | 127.4 | 166.5 | -90.46 | -5,409.2 | -852.5 | 306.0 | 13.4 | 292.53 | 1.046 | Level 2 | | |
| 12,400.0 | 6,770.2 | 6,795.2 | 6,795.2 | 129.7 | 166.5 | -90.25 | -5,409.2 | -852.5 | 242.2 | -52.6 | 294.83 | 0.822 | Level 1 | | |
| 12,500.0 | 6,769.4 | 6,794.4 | 6,794.4 | 132.0 | 166.5 | -90.05 | -5,409.2 | -852.5 | 209.0 | -88.1 | 297.12 | 0.704 | Level 1 | | |
| 12,524.8 | 6,769.2 | 6,794.2 | 6,794.2 | 132.6 | 166.5 | -90.00 | -5,409.2 | -852.5 | 207.6 | -90.1 | 297.68 | 0.697 | Level 1, CC, ES, SF | | |
| 12,600.0 | 6,768.7 | 6,793.7 | 6,793.7 | 134.3 | 166.4 | -89.85 | -5,409.2 | -852.5 | 220.8 | -78.6 | 299.40 | 0.737 | Level 1 | | |
| 12,700.0 | 6,768.0 | 6,793.0 | 6,793.0 | 136.6 | 166.4 | -89.64 | -5,409.2 | -852.5 | 271.6 | -30.1 | 301.69 | 0.900 | Level 1 | | |
| 12,800.0 | 6,767.2 | 6,792.2 | 6,792.2 | 138.9 | 166.4 | -89.44 | -5,409.2 | -852.5 | 344.7 | 40.7 | 303.97 | 1.134 | Level 2 | | |
| 12,900.0 | 6,766.5 | 6,791.5 | 6,791.5 | 141.2 | 166.4 | -89.24 | -5,409.2 | -852.5 | 428.8 | 122.5 | 306.25 | 1.400 | Level 3 | | |
| 13,000.0 | 6,765.7 | 6,790.7 | 6,790.7 | 143.5 | 166.4 | -89.03 | -5,409.2 | -852.5 | 518.5 | 210.0 | 308.53 | 1.681 | | | |
| 13,100.0 | 6,765.0 | 6,790.0 | 6,790.0 | 145.8 | 166.4 | -88.83 | -5,409.2 | -852.5 | 611.5 | 300.7 | 310.80 | 1.967 | | | |
| 13,200.0 | 6,764.3 | 6,789.3 | 6,789.3 | 148.1 | 166.3 | -88.63 | -5,409.2 | -852.5 | 706.4 | 393.3 | 313.07 | 2.256 | | | |

| | | | |
|---------------------------|--|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Existing Wells Sec.29-T5N-R64W - Ottenhoff #29-1 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: 0.0 ft | |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|---------------------------|---------|
| Survey Program: 100-NS-GYRO-MS | | | | | | | | | | | | | Offset Well Error: 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | |
| 2,000.0 | 1,981.4 | 1,981.7 | 1,981.7 | 6.8 | 5.1 | -39.74 | -110.0 | -931.2 | 787.2 | 776.3 | 10.94 | 71.987 | | |
| 2,100.0 | 2,077.7 | 2,079.3 | 2,079.2 | 7.5 | 5.2 | -41.06 | -110.3 | -930.1 | 765.5 | 753.9 | 11.59 | 66.065 | | |
| 2,200.0 | 2,174.1 | 2,170.8 | 2,170.7 | 8.1 | 5.4 | -42.35 | -110.3 | -929.2 | 744.4 | 732.1 | 12.25 | 60.776 | | |
| 2,300.0 | 2,270.4 | 2,269.3 | 2,269.2 | 8.7 | 5.5 | -43.80 | -110.4 | -928.7 | 724.0 | 711.0 | 12.97 | 55.834 | | |
| 2,400.0 | 2,366.8 | 2,364.2 | 2,364.2 | 9.4 | 5.8 | -45.26 | -110.2 | -927.9 | 703.7 | 690.0 | 13.77 | 51.116 | | |
| 2,500.0 | 2,463.1 | 2,457.6 | 2,457.5 | 10.1 | 6.0 | -46.77 | -109.9 | -927.6 | 684.4 | 669.8 | 14.58 | 46.957 | | |
| 2,600.0 | 2,559.5 | 2,553.4 | 2,553.3 | 10.7 | 6.1 | -48.42 | -110.1 | -927.4 | 665.9 | 650.5 | 15.35 | 43.368 | | |
| 2,700.0 | 2,655.8 | 2,650.9 | 2,650.8 | 11.4 | 6.3 | -50.21 | -110.5 | -927.1 | 647.9 | 631.7 | 16.15 | 40.109 | | |
| 2,800.0 | 2,752.2 | 2,749.5 | 2,749.4 | 12.1 | 6.5 | -52.13 | -110.7 | -926.4 | 630.2 | 613.2 | 17.03 | 37.009 | | |
| 2,900.0 | 2,848.5 | 2,847.1 | 2,847.0 | 12.7 | 6.7 | -54.11 | -110.6 | -925.6 | 612.9 | 595.0 | 17.98 | 34.086 | | |
| 3,000.0 | 2,944.9 | 2,941.4 | 2,941.2 | 13.4 | 7.0 | -56.09 | -110.1 | -925.0 | 596.4 | 577.5 | 18.97 | 31.439 | | |
| 3,100.0 | 3,041.2 | 3,036.5 | 3,036.4 | 14.1 | 7.3 | -58.20 | -110.0 | -924.7 | 581.2 | 561.2 | 19.99 | 29.082 | | |
| 3,200.0 | 3,137.6 | 3,135.0 | 3,134.9 | 14.8 | 7.5 | -60.51 | -109.9 | -924.0 | 566.5 | 545.5 | 21.04 | 26.926 | | |
| 3,300.0 | 3,233.9 | 3,231.8 | 3,231.7 | 15.5 | 7.8 | -62.89 | -109.6 | -923.4 | 552.7 | 530.6 | 22.12 | 24.986 | | |
| 3,400.0 | 3,330.3 | 3,330.4 | 3,330.2 | 16.2 | 8.1 | -65.36 | -108.5 | -922.7 | 539.5 | 516.3 | 23.23 | 23.222 | | |
| 3,500.0 | 3,426.7 | 3,426.9 | 3,426.7 | 16.8 | 8.4 | -67.87 | -107.3 | -922.1 | 527.2 | 502.9 | 24.35 | 21.650 | | |
| 3,600.0 | 3,523.0 | 3,524.3 | 3,524.1 | 17.5 | 8.7 | -70.50 | -106.0 | -921.5 | 515.9 | 490.4 | 25.49 | 20.243 | | |
| 3,700.0 | 3,619.4 | 3,622.5 | 3,622.3 | 18.2 | 9.0 | -73.25 | -104.3 | -920.7 | 505.5 | 478.8 | 26.63 | 18.982 | | |
| 3,800.0 | 3,715.7 | 3,719.9 | 3,719.7 | 18.9 | 9.3 | -76.11 | -102.5 | -919.6 | 496.0 | 468.2 | 27.77 | 17.859 | | |
| 3,900.0 | 3,812.1 | 3,815.8 | 3,815.6 | 19.6 | 9.6 | -79.04 | -100.9 | -918.3 | 487.7 | 458.8 | 28.90 | 16.876 | | |
| 4,000.0 | 3,908.4 | 3,910.8 | 3,910.6 | 20.3 | 9.9 | -82.02 | -99.3 | -917.1 | 481.0 | 451.0 | 30.01 | 16.029 | | |
| 4,100.0 | 4,004.8 | 4,003.1 | 4,002.8 | 21.0 | 10.2 | -84.96 | -98.1 | -916.5 | 476.3 | 445.3 | 31.08 | 15.325 | | |
| 4,200.0 | 4,101.1 | 4,096.9 | 4,096.6 | 21.7 | 10.5 | -88.00 | -97.5 | -916.0 | 473.8 | 441.7 | 32.12 | 14.749 | | |
| 4,300.0 | 4,197.5 | 4,193.4 | 4,193.2 | 22.4 | 10.8 | -91.16 | -97.2 | -915.4 | 473.1 | 439.9 | 33.14 | 14.275 | | |
| 4,301.8 | 4,199.2 | 4,195.1 | 4,194.9 | 22.4 | 10.8 | -91.22 | -97.2 | -915.4 | 473.1 | 439.9 | 33.16 | 14.267 | | |
| 4,400.0 | 4,293.8 | 4,287.5 | 4,287.2 | 23.1 | 11.0 | -94.21 | -96.9 | -915.3 | 474.0 | 440.0 | 34.04 | 13.927 | | |
| 4,500.0 | 4,390.2 | 4,381.3 | 4,381.0 | 23.8 | 11.1 | -97.20 | -97.0 | -915.5 | 477.0 | 442.2 | 34.77 | 13.716 | | |
| 4,600.0 | 4,486.5 | 4,475.4 | 4,475.1 | 24.4 | 11.2 | -100.13 | -97.5 | -916.1 | 481.9 | 446.4 | 35.41 | 13.606 | | |
| 4,700.0 | 4,582.9 | 4,564.8 | 4,564.6 | 25.1 | 11.2 | -102.88 | -98.7 | -916.7 | 488.9 | 452.9 | 36.02 | 13.575 | | |
| 4,800.0 | 4,679.2 | 4,653.4 | 4,653.1 | 25.8 | 11.3 | -105.59 | -101.5 | -916.9 | 499.0 | 462.4 | 36.59 | 13.638 | | |
| 4,900.0 | 4,775.6 | 4,745.6 | 4,745.2 | 26.5 | 11.4 | -108.31 | -105.6 | -917.1 | 511.5 | 474.4 | 37.12 | 13.780 | | |
| 5,000.0 | 4,871.9 | 4,842.8 | 4,842.3 | 27.2 | 11.5 | -111.08 | -110.0 | -917.1 | 525.5 | 487.9 | 37.61 | 13.972 | | |
| 5,100.0 | 4,968.3 | 4,940.7 | 4,940.2 | 27.9 | 11.6 | -113.71 | -113.9 | -917.3 | 540.1 | 502.1 | 38.07 | 14.186 | | |
| 5,200.0 | 5,064.6 | 5,038.0 | 5,037.4 | 28.6 | 11.7 | -116.21 | -117.7 | -917.2 | 555.7 | 517.2 | 38.51 | 14.430 | | |
| 5,271.3 | 5,133.3 | 5,110.0 | 5,109.3 | 29.1 | 11.8 | -118.01 | -120.1 | -916.7 | 567.1 | 528.3 | 38.81 | 14.613 | | |
| 5,300.0 | 5,161.0 | 5,139.4 | 5,138.7 | 29.3 | 11.8 | -118.81 | -120.9 | -916.4 | 571.6 | 532.7 | 38.90 | 14.694 | | |
| 5,400.0 | 5,258.1 | 5,243.4 | 5,242.6 | 29.8 | 12.0 | -121.33 | -122.9 | -915.2 | 586.1 | 547.0 | 39.15 | 14.970 | | |
| 5,500.0 | 5,355.9 | 5,342.8 | 5,342.0 | 30.2 | 12.3 | -123.37 | -123.7 | -913.7 | 598.4 | 558.9 | 39.43 | 15.174 | | |
| 5,600.0 | 5,454.4 | 5,436.6 | 5,435.8 | 30.6 | 12.5 | -125.04 | -124.8 | -911.3 | 609.8 | 570.1 | 39.71 | 15.356 | | |
| 5,700.0 | 5,553.4 | 5,533.8 | 5,532.9 | 30.9 | 12.7 | -126.53 | -126.1 | -907.7 | 620.0 | 580.0 | 39.97 | 15.511 | | |
| 5,800.0 | 5,652.9 | 5,631.9 | 5,630.9 | 31.2 | 13.0 | -127.72 | -127.6 | -904.0 | 628.5 | 588.3 | 40.23 | 15.624 | | |
| 5,900.0 | 5,752.7 | 5,730.6 | 5,729.6 | 31.4 | 13.2 | -128.53 | -129.5 | -901.1 | 635.3 | 594.8 | 40.50 | 15.688 | | |
| 6,000.0 | 5,852.6 | 5,833.4 | 5,832.3 | 31.6 | 13.5 | -129.02 | -131.3 | -898.6 | 639.8 | 599.0 | 40.78 | 15.689 | | |
| 6,047.4 | 5,900.0 | 5,883.1 | 5,882.1 | 31.6 | 13.6 | 165.71 | -132.0 | -897.5 | 640.9 | 600.0 | 40.91 | 15.665 | | |
| 6,100.0 | 5,952.6 | 5,939.0 | 5,937.9 | 31.7 | 13.8 | 165.63 | -132.6 | -896.5 | 641.7 | 600.6 | 41.12 | 15.607 | | |
| 6,190.6 | 6,043.1 | 6,033.2 | 6,032.1 | 31.8 | 14.0 | 165.46 | -132.8 | -894.4 | 642.4 | 601.0 | 41.48 | 15.487 | | |
| 6,200.0 | 6,052.6 | 6,042.7 | 6,041.6 | 31.8 | 14.0 | -14.61 | -132.8 | -894.1 | 642.4 | 600.9 | 41.50 | 15.479 | | |
| 6,250.0 | 6,102.5 | 6,092.5 | 6,091.3 | 31.9 | 14.2 | -14.82 | -132.8 | -892.7 | 640.6 | 599.1 | 41.44 | 15.458 | | |
| 6,300.0 | 6,152.2 | 6,143.5 | 6,142.3 | 31.9 | 14.3 | -15.18 | -132.7 | -891.2 | 635.5 | 594.4 | 41.18 | 15.434 | | |
| 6,350.0 | 6,201.4 | 6,194.2 | 6,193.0 | 31.9 | 14.5 | -15.70 | -132.5 | -889.7 | 627.3 | 586.5 | 40.71 | 15.406 | | |
| 6,400.0 | 6,250.0 | 6,243.3 | 6,242.2 | 31.9 | 14.6 | -16.39 | -132.2 | -888.3 | 615.8 | 575.8 | 40.05 | 15.376 | | |

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

| | | | |
|---------------------------|--|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Existing Wells Sec.29-T5N-R64W - Ottenhoff #29-1 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|--------|
| Survey Program: 100-NS-GYRO-MS | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | |
| 6,450.0 | 6,297.6 | 6,291.4 | 6,290.2 | 31.8 | 14.8 | -17.28 | -131.8 | -886.9 | 601.4 | 562.2 | 39.19 | 15.346 | | | |
| 6,500.0 | 6,344.2 | 6,337.6 | 6,336.3 | 31.8 | 14.9 | -18.38 | -131.4 | -885.5 | 584.0 | 545.8 | 38.13 | 15.314 | | | |
| 6,550.0 | 6,389.5 | 6,382.3 | 6,381.0 | 31.7 | 15.0 | -19.76 | -131.1 | -884.0 | 563.8 | 526.9 | 36.90 | 15.279 | | | |
| 6,600.0 | 6,433.3 | 6,424.9 | 6,423.6 | 31.6 | 15.2 | -21.44 | -130.8 | -882.6 | 541.1 | 505.6 | 35.52 | 15.235 | | | |
| 6,650.0 | 6,475.4 | 6,465.5 | 6,464.2 | 31.5 | 15.3 | -23.48 | -130.6 | -881.2 | 516.0 | 481.9 | 34.01 | 15.170 | | | |
| 6,700.0 | 6,515.7 | 6,504.7 | 6,503.3 | 31.5 | 15.4 | -26.00 | -130.5 | -879.9 | 488.6 | 456.1 | 32.44 | 15.061 | | | |
| 6,750.0 | 6,553.9 | 6,542.8 | 6,541.5 | 31.3 | 15.5 | -29.15 | -130.4 | -878.6 | 459.2 | 428.3 | 30.90 | 14.860 | | | |
| 6,800.0 | 6,590.0 | 6,578.8 | 6,577.4 | 31.2 | 15.6 | -33.00 | -130.3 | -877.3 | 427.9 | 398.4 | 29.53 | 14.489 | | | |
| 6,850.0 | 6,623.7 | 6,612.4 | 6,611.0 | 31.1 | 15.7 | -37.71 | -130.3 | -876.1 | 395.2 | 366.6 | 28.56 | 13.835 | | | |
| 6,900.0 | 6,654.9 | 6,643.6 | 6,642.1 | 31.0 | 15.8 | -43.36 | -130.2 | -875.0 | 361.4 | 333.1 | 28.25 | 12.790 | | | |
| 6,950.0 | 6,683.5 | 6,672.1 | 6,670.6 | 30.9 | 15.9 | -49.97 | -130.1 | -874.0 | 327.1 | 298.2 | 28.83 | 11.345 | | | |
| 7,000.0 | 6,709.4 | 6,697.8 | 6,696.4 | 30.8 | 16.0 | -57.38 | -130.1 | -873.1 | 293.0 | 262.8 | 30.26 | 9.682 | | | |
| 7,050.0 | 6,732.4 | 6,720.8 | 6,719.3 | 30.8 | 16.1 | -65.19 | -130.1 | -872.3 | 260.4 | 228.2 | 32.22 | 8.083 | | | |
| 7,100.0 | 6,752.5 | 6,740.7 | 6,739.3 | 30.7 | 16.1 | -72.79 | -130.0 | -871.6 | 230.8 | 196.6 | 34.18 | 6.754 | | | |
| 7,150.0 | 6,769.5 | 6,757.7 | 6,756.2 | 30.6 | 16.2 | -79.49 | -130.0 | -871.0 | 206.6 | 170.8 | 35.76 | 5.777 | | | |
| 7,200.0 | 6,783.4 | 6,771.5 | 6,770.0 | 30.6 | 16.2 | -84.78 | -130.0 | -870.5 | 190.7 | 153.9 | 36.87 | 5.173 | | | |
| 7,243.2 | 6,792.9 | 6,780.9 | 6,779.4 | 30.6 | 16.2 | -87.96 | -129.9 | -870.2 | 186.1 | 148.5 | 37.52 | 4.958 CC, ES | | | |
| 7,250.0 | 6,794.1 | 6,782.1 | 6,780.6 | 30.6 | 16.2 | -88.33 | -129.9 | -870.2 | 186.2 | 148.6 | 37.61 | 4.951 SF | | | |
| 7,300.0 | 6,801.7 | 6,789.5 | 6,788.0 | 30.6 | 16.3 | -89.97 | -129.9 | -869.9 | 194.3 | 156.1 | 38.12 | 5.096 | | | |
| 7,350.0 | 6,805.9 | 6,793.7 | 6,792.2 | 30.7 | 16.3 | -89.64 | -129.9 | -869.8 | 213.9 | 175.4 | 38.50 | 5.555 | | | |
| 7,396.0 | 6,807.0 | 6,794.7 | 6,793.2 | 30.8 | 16.3 | -87.57 | -129.9 | -869.7 | 239.8 | 201.1 | 38.70 | 6.197 | | | |
| 7,396.0 | 6,807.0 | 6,794.7 | 6,793.2 | 30.8 | 16.3 | -87.57 | -129.9 | -869.7 | 239.8 | 201.1 | 38.70 | 6.197 | | | |
| 7,396.4 | 6,807.0 | 6,794.7 | 6,793.2 | 30.8 | 16.3 | -87.56 | -129.9 | -869.7 | 240.0 | 201.3 | 38.70 | 6.202 | | | |
| 7,400.0 | 6,807.0 | 6,794.7 | 6,793.1 | 30.8 | 16.3 | -87.55 | -129.9 | -869.7 | 242.3 | 203.6 | 38.73 | 6.256 | | | |
| 7,500.0 | 6,806.2 | 6,793.7 | 6,792.2 | 31.2 | 16.3 | -87.27 | -129.9 | -869.8 | 315.6 | 275.9 | 39.73 | 7.945 | | | |
| 7,600.0 | 6,805.5 | 6,792.8 | 6,791.3 | 31.8 | 16.3 | -86.99 | -129.9 | -869.8 | 400.7 | 359.8 | 40.90 | 9.796 | | | |
| 7,700.0 | 6,804.8 | 6,791.9 | 6,790.4 | 32.5 | 16.3 | -86.70 | -129.9 | -869.8 | 491.4 | 449.2 | 42.23 | 11.636 | | | |
| 7,800.0 | 6,804.0 | 6,791.0 | 6,789.5 | 33.6 | 16.3 | -86.42 | -129.9 | -869.9 | 585.1 | 541.4 | 43.69 | 13.393 | | | |
| 7,900.0 | 6,803.3 | 6,790.0 | 6,788.5 | 34.7 | 16.3 | -86.14 | -129.9 | -869.9 | 680.6 | 635.4 | 45.26 | 15.039 | | | |
| 8,000.0 | 6,802.6 | 6,789.1 | 6,787.6 | 36.1 | 16.3 | -85.85 | -129.9 | -869.9 | 777.3 | 730.4 | 46.92 | 16.565 | | | |

| | | | |
|---------------------------|--|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Existing Wells Sec.29-T5N-R64W - Ottenhoff 41-6B (Exist) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------|----------------|--|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|---------|--------|
| Survey Program: | | 488-NS-GYRO-MS | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 96.99 | -50.6 | 412.9 | 416.2 | | | | | | |
| 100.0 | 100.0 | 87.3 | 87.3 | 0.1 | 0.1 | 96.99 | -50.6 | 412.9 | 416.0 | 415.7 | 0.28 | 1,486.172 | | | |
| 200.0 | 200.0 | 187.7 | 187.7 | 0.4 | 0.3 | 97.00 | -50.7 | 412.7 | 415.8 | 415.1 | 0.72 | 578.822 | | | |
| 300.0 | 300.0 | 288.1 | 288.1 | 0.7 | 0.5 | 97.02 | -50.8 | 412.5 | 415.6 | 414.5 | 1.16 | 359.232 | | | |
| 400.0 | 400.0 | 388.5 | 388.5 | 1.0 | 0.6 | 97.04 | -50.9 | 412.2 | 415.3 | 413.7 | 1.60 | 260.295 | | | |
| 500.0 | 500.0 | 488.0 | 488.0 | 1.2 | 0.8 | 97.07 | -51.1 | 411.7 | 414.9 | 412.9 | 2.03 | 204.122 | | | |
| 600.0 | 600.0 | 587.5 | 587.5 | 1.5 | 1.0 | 97.05 | -50.9 | 411.5 | 414.6 | 412.1 | 2.51 | 165.262 | | | |
| 633.5 | 633.5 | 620.5 | 620.5 | 1.6 | 1.1 | 97.01 | -50.6 | 411.5 | 414.6 | 411.9 | 2.67 | 155.409 CC | | | |
| 700.0 | 700.0 | 685.0 | 685.0 | 1.8 | 1.2 | 96.90 | -49.8 | 411.7 | 414.7 | 411.8 | 2.95 | 140.502 ES | | | |
| 800.0 | 800.0 | 781.0 | 781.0 | 2.1 | 1.3 | 96.71 | -48.6 | 412.8 | 415.7 | 412.3 | 3.35 | 124.069 | | | |
| 900.0 | 900.0 | 879.0 | 878.9 | 2.3 | 1.5 | 161.64 | -46.9 | 414.7 | 418.7 | 414.9 | 3.79 | 110.357 | | | |
| 1,000.0 | 999.9 | 977.5 | 977.4 | 2.6 | 1.7 | 161.38 | -44.2 | 417.1 | 424.5 | 420.2 | 4.26 | 99.728 | | | |
| 1,100.0 | 1,099.7 | 1,076.8 | 1,076.5 | 2.9 | 1.9 | 161.06 | -40.3 | 419.8 | 433.0 | 428.2 | 4.78 | 90.647 | | | |
| 1,200.0 | 1,199.3 | 1,177.6 | 1,177.2 | 3.2 | 2.2 | 160.72 | -35.3 | 422.6 | 443.9 | 438.6 | 5.32 | 83.419 | | | |
| 1,300.0 | 1,298.6 | 1,278.9 | 1,278.3 | 3.5 | 2.5 | 160.41 | -29.7 | 424.9 | 456.7 | 450.8 | 5.88 | 77.632 | | | |
| 1,400.0 | 1,397.5 | 1,371.5 | 1,370.7 | 3.8 | 2.8 | 160.12 | -23.8 | 427.6 | 472.5 | 466.1 | 6.43 | 73.442 | | | |
| 1,500.0 | 1,496.1 | 1,463.2 | 1,462.0 | 4.2 | 3.1 | 159.79 | -16.9 | 431.5 | 492.0 | 485.0 | 6.99 | 70.392 | | | |
| 1,600.0 | 1,594.2 | 1,565.9 | 1,564.2 | 4.6 | 3.4 | 159.44 | -8.3 | 436.2 | 514.0 | 506.4 | 7.59 | 67.745 | | | |
| 1,700.0 | 1,691.7 | 1,671.1 | 1,669.0 | 5.1 | 3.7 | 159.12 | 1.3 | 439.8 | 537.4 | 529.2 | 8.21 | 65.485 | | | |
| 1,800.0 | 1,788.6 | 1,787.7 | 1,784.7 | 5.6 | 4.1 | 158.65 | 14.9 | 440.9 | 560.5 | 551.6 | 8.87 | 63.158 | | | |
| 1,834.8 | 1,822.2 | 1,827.8 | 1,824.4 | 5.8 | 4.3 | 158.40 | 20.7 | 440.4 | 568.3 | 559.2 | 9.11 | 62.388 | | | |
| 1,900.0 | 1,885.0 | 1,901.3 | 1,897.0 | 6.2 | 4.5 | 157.98 | 32.2 | 438.6 | 582.4 | 572.8 | 9.58 | 60.818 | | | |
| 2,000.0 | 1,981.4 | 2,022.7 | 2,016.6 | 6.8 | 4.9 | 157.30 | 51.8 | 432.4 | 601.4 | 591.1 | 10.33 | 58.222 | | | |
| 2,100.0 | 2,077.7 | 2,144.9 | 2,136.2 | 7.5 | 5.3 | 156.42 | 74.2 | 421.0 | 616.2 | 605.0 | 11.11 | 55.477 | | | |
| 2,200.0 | 2,174.1 | 2,248.0 | 2,237.0 | 8.1 | 5.6 | 155.77 | 92.6 | 409.3 | 629.1 | 617.2 | 11.83 | 53.155 | | | |
| 2,300.0 | 2,270.4 | 2,351.9 | 2,338.4 | 8.7 | 6.0 | 155.14 | 111.2 | 396.8 | 641.4 | 628.8 | 12.58 | 50.983 | | | |
| 2,400.0 | 2,366.8 | 2,461.8 | 2,445.9 | 9.4 | 6.3 | 154.62 | 129.5 | 382.4 | 652.6 | 639.3 | 13.35 | 48.894 | | | |
| 2,500.0 | 2,463.1 | 2,582.2 | 2,563.3 | 10.1 | 6.7 | 154.19 | 148.2 | 363.7 | 661.5 | 647.4 | 14.15 | 46.752 | | | |
| 2,600.0 | 2,559.5 | 2,708.4 | 2,685.7 | 10.7 | 7.1 | 153.81 | 166.9 | 339.4 | 666.7 | 651.7 | 14.97 | 44.544 | | | |
| 2,700.0 | 2,655.8 | 2,816.4 | 2,789.8 | 11.4 | 7.5 | 153.48 | 183.0 | 315.4 | 668.8 | 653.1 | 15.74 | 42.503 | | | |
| 2,800.0 | 2,752.2 | 2,909.7 | 2,880.0 | 12.1 | 7.8 | 153.29 | 195.7 | 295.4 | 671.7 | 655.3 | 16.45 | 40.822 | | | |
| 2,900.0 | 2,848.5 | 3,017.2 | 2,984.0 | 12.7 | 8.1 | 153.16 | 209.5 | 271.6 | 674.0 | 656.7 | 17.22 | 39.143 | | | |
| 3,000.0 | 2,944.9 | 3,112.2 | 3,075.7 | 13.4 | 8.4 | 153.03 | 221.8 | 250.4 | 676.0 | 658.1 | 17.95 | 37.661 | | | |
| 3,100.0 | 3,041.2 | 3,198.6 | 3,159.5 | 14.1 | 8.7 | 152.95 | 232.6 | 232.4 | 679.6 | 660.9 | 18.66 | 36.424 | | | |
| 3,200.0 | 3,137.6 | 3,281.2 | 3,240.1 | 14.8 | 9.0 | 152.94 | 242.2 | 217.1 | 685.5 | 666.2 | 19.35 | 35.427 | | | |
| 3,300.0 | 3,233.9 | 3,363.9 | 3,321.4 | 15.5 | 9.3 | 153.05 | 250.6 | 203.9 | 694.0 | 673.9 | 20.03 | 34.646 | | | |
| 3,400.0 | 3,330.3 | 3,454.3 | 3,410.5 | 16.2 | 9.6 | 153.25 | 258.7 | 191.3 | 704.4 | 683.6 | 20.72 | 33.991 | | | |
| 3,500.0 | 3,426.7 | 3,575.2 | 3,529.3 | 16.8 | 10.0 | 153.35 | 271.6 | 173.1 | 713.8 | 692.3 | 21.53 | 33.150 | | | |
| 3,600.0 | 3,523.0 | 3,693.3 | 3,644.6 | 17.5 | 10.4 | 153.27 | 286.2 | 152.0 | 720.3 | 698.0 | 22.36 | 32.211 | | | |
| 3,700.0 | 3,619.4 | 3,812.1 | 3,759.9 | 18.2 | 10.9 | 153.11 | 301.7 | 127.9 | 724.5 | 701.3 | 23.21 | 31.210 | | | |
| 3,800.0 | 3,715.7 | 3,920.0 | 3,863.6 | 18.9 | 11.3 | 152.71 | 318.9 | 103.7 | 726.4 | 702.4 | 24.08 | 30.170 | | | |
| 3,900.0 | 3,812.1 | 4,014.0 | 3,953.8 | 19.6 | 11.7 | 152.33 | 334.5 | 82.6 | 728.4 | 703.5 | 24.90 | 29.249 | | | |
| 4,000.0 | 3,908.4 | 4,108.0 | 4,044.5 | 20.3 | 12.0 | 152.02 | 349.0 | 62.6 | 731.7 | 705.9 | 25.72 | 28.446 | | | |
| 4,100.0 | 4,004.8 | 4,202.0 | 4,135.4 | 21.0 | 12.4 | 151.77 | 363.1 | 43.4 | 735.7 | 709.2 | 26.54 | 27.725 | | | |
| 4,200.0 | 4,101.1 | 4,297.0 | 4,227.7 | 21.7 | 12.8 | 151.64 | 375.8 | 24.4 | 740.2 | 712.9 | 27.33 | 27.084 | | | |
| 4,300.0 | 4,197.5 | 4,391.0 | 4,319.2 | 22.4 | 13.1 | 151.62 | 386.9 | 6.2 | 745.3 | 717.2 | 28.10 | 26.527 | | | |
| 4,400.0 | 4,293.8 | 4,488.5 | 4,414.1 | 23.1 | 13.5 | 151.53 | 399.5 | -12.1 | 751.0 | 722.1 | 28.90 | 25.991 | | | |
| 4,500.0 | 4,390.2 | 4,586.5 | 4,509.6 | 23.8 | 13.9 | 151.41 | 412.5 | -30.2 | 757.0 | 727.3 | 29.71 | 25.482 | | | |
| 4,600.0 | 4,486.5 | 4,675.3 | 4,596.3 | 24.4 | 14.2 | 151.36 | 423.6 | -45.8 | 764.0 | 733.5 | 30.47 | 25.070 | | | |
| 4,700.0 | 4,582.9 | 4,785.5 | 4,703.8 | 25.1 | 14.6 | 151.28 | 437.6 | -65.3 | 770.7 | 739.4 | 31.32 | 24.607 | | | |
| 4,800.0 | 4,679.2 | 4,877.9 | 4,794.0 | 25.8 | 15.0 | 151.20 | 449.6 | -81.6 | 777.5 | 745.4 | 32.11 | 24.215 | | | |

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

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|---------------------------|--|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Existing Wells Sec.29-T5N-R64W - Ottenhoff 41-6B (Exist) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------|----------------|--|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|---------|--------|
| Survey Program: | | 488-NS-GYRO-MS | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 4,900.0 | 4,775.6 | 4,983.3 | 4,896.9 | 26.5 | 15.4 | 151.11 | 463.2 | -100.1 | 784.5 | 751.6 | 32.95 | 23.811 | | | |
| 5,000.0 | 4,871.9 | 5,091.8 | 5,002.5 | 27.2 | 15.8 | 150.98 | 477.6 | -120.4 | 790.3 | 756.5 | 33.81 | 23.375 | | | |
| 5,100.0 | 4,968.3 | 5,186.8 | 5,094.9 | 27.9 | 16.1 | 150.90 | 489.9 | -138.5 | 795.8 | 761.2 | 34.61 | 22.990 SF | | | |

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|---------------------------|--|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Existing Wells Sec.29-T5N-R64W (GRID) - Blake B 29-23 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|---------|
| Survey Program: 100-NS-GYRO-MS | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | |
| 9,600.0 | 6,790.8 | 6,751.7 | 6,749.0 | 66.8 | 15.7 | -81.89 | -3,174.3 | -731.0 | 765.2 | 686.6 | 78.60 | 9.735 | | |
| 9,700.0 | 6,790.0 | 6,755.9 | 6,753.2 | 68.9 | 15.7 | -82.62 | -3,174.5 | -730.8 | 676.4 | 595.4 | 81.00 | 8.350 | | |
| 9,800.0 | 6,789.3 | 6,760.1 | 6,757.5 | 71.1 | 15.7 | -83.35 | -3,174.7 | -730.6 | 591.1 | 507.7 | 83.41 | 7.087 | | |
| 9,900.0 | 6,788.6 | 6,764.4 | 6,761.7 | 73.3 | 15.7 | -84.09 | -3,174.9 | -730.3 | 511.2 | 425.4 | 85.81 | 5.957 | | |
| 10,000.0 | 6,787.8 | 6,768.6 | 6,765.9 | 75.5 | 15.7 | -84.82 | -3,175.1 | -730.1 | 439.6 | 351.3 | 88.22 | 4.983 | | |
| 10,100.0 | 6,787.1 | 6,772.9 | 6,770.2 | 77.7 | 15.7 | -85.56 | -3,175.3 | -729.9 | 380.8 | 290.2 | 90.62 | 4.203 | | |
| 10,200.0 | 6,786.4 | 6,777.1 | 6,774.4 | 79.9 | 15.7 | -86.30 | -3,175.6 | -729.7 | 341.8 | 248.8 | 93.02 | 3.675 | | |
| 10,291.3 | 6,785.7 | 6,781.0 | 6,778.3 | 81.9 | 15.7 | -86.97 | -3,175.7 | -729.5 | 329.4 | 234.2 | 95.20 | 3.460 CC | | |
| 10,300.0 | 6,785.6 | 6,781.4 | 6,778.6 | 82.1 | 15.7 | -87.03 | -3,175.8 | -729.4 | 329.5 | 234.1 | 95.41 | 3.454 ES, SF | | |
| 10,400.0 | 6,784.9 | 6,785.6 | 6,782.9 | 84.3 | 15.8 | -87.77 | -3,176.0 | -729.2 | 346.9 | 249.1 | 97.80 | 3.547 | | |
| 10,500.0 | 6,784.1 | 6,789.8 | 6,787.1 | 86.5 | 15.8 | -88.51 | -3,176.2 | -729.0 | 389.9 | 289.7 | 100.17 | 3.892 | | |
| 10,600.0 | 6,783.4 | 6,794.1 | 6,791.3 | 88.8 | 15.8 | -89.24 | -3,176.4 | -728.8 | 451.3 | 348.7 | 102.54 | 4.401 | | |
| 10,700.0 | 6,782.7 | 6,798.3 | 6,795.6 | 91.0 | 15.8 | -89.98 | -3,176.6 | -728.5 | 524.7 | 419.8 | 104.90 | 5.001 | | |
| 10,800.0 | 6,781.9 | 6,802.6 | 6,799.8 | 93.3 | 15.8 | -90.71 | -3,176.8 | -728.3 | 605.7 | 498.4 | 107.25 | 5.648 | | |
| 10,900.0 | 6,781.2 | 6,806.8 | 6,804.0 | 95.5 | 15.8 | -91.45 | -3,177.0 | -728.1 | 691.7 | 582.1 | 109.58 | 6.312 | | |
| 11,000.0 | 6,780.5 | 6,811.1 | 6,808.2 | 97.8 | 15.8 | -92.18 | -3,177.2 | -727.9 | 781.0 | 669.1 | 111.90 | 6.979 | | |

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|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | 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 | -89.31 | 0.4 | -30.1 | 30.1 | | | | | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | -89.31 | 0.4 | -30.1 | 30.1 | 29.8 | 0.27 | 109.844 | CC, ES | | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.4 | 0.4 | -89.31 | 0.4 | -30.1 | 30.1 | 29.3 | 0.82 | 36.554 | | | |
| 300.0 | 300.0 | 298.2 | 298.2 | 0.7 | 0.7 | -88.61 | 0.8 | -31.3 | 31.3 | 29.9 | 1.36 | 22.957 | | | |
| 400.0 | 400.0 | 397.3 | 397.3 | 1.0 | 0.9 | -86.81 | 1.9 | -34.9 | 35.0 | 33.1 | 1.91 | 18.342 | | | |
| 500.0 | 500.0 | 496.2 | 495.9 | 1.2 | 1.2 | -84.52 | 3.9 | -41.0 | 41.3 | 38.8 | 2.47 | 16.715 | | | |
| 600.0 | 600.0 | 594.6 | 593.9 | 1.5 | 1.5 | -82.29 | 6.7 | -49.4 | 50.2 | 47.1 | 3.05 | 16.435 | | | |
| 700.0 | 700.0 | 692.5 | 691.2 | 1.8 | 1.9 | -80.37 | 10.2 | -60.2 | 61.6 | 57.9 | 3.66 | 16.840 | | | |
| 800.0 | 800.0 | 789.8 | 787.5 | 2.1 | 2.3 | -78.81 | 14.5 | -73.3 | 75.6 | 71.3 | 4.29 | 17.607 | | | |
| 900.0 | 900.0 | 886.5 | 882.8 | 2.3 | 2.7 | -12.57 | 19.5 | -88.6 | 90.9 | 86.2 | 4.69 | 19.375 | | | |
| 1,000.0 | 999.9 | 982.9 | 977.4 | 2.6 | 3.1 | -11.94 | 25.2 | -106.1 | 106.1 | 100.9 | 5.24 | 20.244 | | | |
| 1,100.0 | 1,099.7 | 1,078.9 | 1,071.1 | 2.9 | 3.7 | -11.61 | 31.7 | -125.8 | 121.3 | 115.5 | 5.81 | 20.898 | | | |
| 1,200.0 | 1,199.3 | 1,174.5 | 1,164.0 | 3.2 | 4.2 | -11.47 | 38.8 | -147.6 | 136.5 | 130.1 | 6.38 | 21.387 | | | |
| 1,300.0 | 1,298.6 | 1,269.8 | 1,255.8 | 3.5 | 4.8 | -11.47 | 46.6 | -171.5 | 151.5 | 144.5 | 6.97 | 21.746 | | | |
| 1,400.0 | 1,397.5 | 1,364.7 | 1,346.7 | 3.8 | 5.5 | -11.56 | 55.1 | -197.6 | 166.5 | 158.9 | 7.57 | 22.009 | | | |
| 1,500.0 | 1,496.1 | 1,459.3 | 1,436.6 | 4.2 | 6.2 | -11.73 | 64.3 | -225.6 | 181.4 | 173.2 | 8.18 | 22.168 | | | |
| 1,600.0 | 1,594.2 | 1,556.0 | 1,527.8 | 4.6 | 7.0 | -11.96 | 74.3 | -256.2 | 195.9 | 187.1 | 8.82 | 22.205 | | | |
| 1,700.0 | 1,691.7 | 1,655.2 | 1,621.2 | 5.1 | 7.8 | -12.32 | 84.7 | -287.8 | 208.1 | 198.7 | 9.48 | 21.948 | | | |
| 1,800.0 | 1,788.6 | 1,754.7 | 1,715.0 | 5.6 | 8.7 | -12.79 | 95.0 | -319.5 | 217.9 | 207.7 | 10.16 | 21.439 | | | |
| 1,834.8 | 1,822.2 | 1,789.4 | 1,747.7 | 5.8 | 9.0 | -12.98 | 98.7 | -330.6 | 220.7 | 210.3 | 10.40 | 21.210 | | | |
| 1,900.0 | 1,885.0 | 1,854.4 | 1,808.9 | 6.2 | 9.5 | -13.36 | 105.4 | -351.3 | 225.6 | 214.8 | 10.88 | 20.744 | | | |
| 2,000.0 | 1,981.4 | 1,954.0 | 1,902.8 | 6.8 | 10.4 | -13.91 | 115.8 | -383.1 | 233.3 | 221.6 | 11.62 | 20.082 | | | |
| 2,100.0 | 2,077.7 | 2,053.7 | 1,996.7 | 7.5 | 11.2 | -14.42 | 126.2 | -414.9 | 240.9 | 228.5 | 12.37 | 19.478 | | | |
| 2,200.0 | 2,174.1 | 2,153.4 | 2,090.6 | 8.1 | 12.1 | -14.90 | 136.6 | -446.6 | 248.6 | 235.4 | 13.13 | 18.927 | | | |
| 2,300.0 | 2,270.4 | 2,253.1 | 2,184.5 | 8.7 | 12.9 | -15.36 | 147.0 | -478.4 | 256.2 | 242.3 | 13.91 | 18.422 | | | |
| 2,400.0 | 2,366.8 | 2,352.8 | 2,278.4 | 9.4 | 13.8 | -15.79 | 157.4 | -510.2 | 263.9 | 249.2 | 14.70 | 17.959 | | | |
| 2,500.0 | 2,463.1 | 2,452.5 | 2,372.3 | 10.1 | 14.7 | -16.19 | 167.8 | -542.0 | 271.6 | 256.1 | 15.49 | 17.533 | | | |
| 2,600.0 | 2,559.5 | 2,552.2 | 2,466.2 | 10.7 | 15.5 | -16.57 | 178.2 | -573.8 | 279.4 | 263.1 | 16.30 | 17.140 | | | |
| 2,700.0 | 2,655.8 | 2,651.8 | 2,560.2 | 11.4 | 16.4 | -16.93 | 188.6 | -605.5 | 287.1 | 270.0 | 17.11 | 16.776 | | | |
| 2,800.0 | 2,752.2 | 2,751.5 | 2,654.1 | 12.1 | 17.3 | -17.27 | 199.0 | -637.3 | 294.8 | 276.9 | 17.93 | 16.440 | | | |
| 2,900.0 | 2,848.5 | 2,851.2 | 2,748.0 | 12.7 | 18.1 | -17.60 | 209.4 | -669.1 | 302.6 | 283.8 | 18.76 | 16.127 | | | |
| 3,000.0 | 2,944.9 | 2,950.9 | 2,841.9 | 13.4 | 19.0 | -17.91 | 219.8 | -700.9 | 310.3 | 290.7 | 19.60 | 15.836 | | | |
| 3,100.0 | 3,041.2 | 3,050.6 | 2,935.8 | 14.1 | 19.9 | -18.20 | 230.2 | -732.7 | 318.1 | 297.7 | 20.44 | 15.564 | | | |
| 3,200.0 | 3,137.6 | 3,150.3 | 3,029.7 | 14.8 | 20.7 | -18.48 | 240.6 | -764.5 | 325.9 | 304.6 | 21.28 | 15.311 | | | |
| 3,300.0 | 3,233.9 | 3,250.0 | 3,123.6 | 15.5 | 21.6 | -18.74 | 251.0 | -796.2 | 333.7 | 311.5 | 22.14 | 15.073 | | | |
| 3,400.0 | 3,330.3 | 3,349.6 | 3,217.5 | 16.2 | 22.5 | -19.00 | 261.4 | -828.0 | 341.5 | 318.5 | 22.99 | 14.851 | | | |
| 3,500.0 | 3,426.7 | 3,449.3 | 3,311.4 | 16.8 | 23.4 | -19.24 | 271.8 | -859.8 | 349.3 | 325.4 | 23.85 | 14.642 | | | |
| 3,600.0 | 3,523.0 | 3,549.0 | 3,405.3 | 17.5 | 24.2 | -19.47 | 282.2 | -891.6 | 357.1 | 332.3 | 24.72 | 14.445 | | | |
| 3,700.0 | 3,619.4 | 3,648.7 | 3,499.2 | 18.2 | 25.1 | -19.70 | 292.6 | -923.4 | 364.9 | 339.3 | 25.59 | 14.259 | | | |
| 3,800.0 | 3,715.7 | 3,748.4 | 3,593.2 | 18.9 | 26.0 | -19.91 | 303.0 | -955.1 | 372.7 | 346.2 | 26.46 | 14.084 | | | |
| 3,900.0 | 3,812.1 | 3,848.1 | 3,687.1 | 19.6 | 26.8 | -20.11 | 313.4 | -986.9 | 380.5 | 353.2 | 27.34 | 13.919 | | | |
| 4,000.0 | 3,908.4 | 3,947.7 | 3,781.0 | 20.3 | 27.7 | -20.31 | 323.8 | -1,018.7 | 388.3 | 360.1 | 28.22 | 13.762 | | | |
| 4,100.0 | 4,004.8 | 4,047.4 | 3,874.9 | 21.0 | 28.6 | -20.50 | 334.2 | -1,050.5 | 396.2 | 367.1 | 29.10 | 13.613 | | | |
| 4,200.0 | 4,101.1 | 4,147.1 | 3,968.8 | 21.7 | 29.5 | -20.68 | 344.6 | -1,082.3 | 404.0 | 374.0 | 29.99 | 13.473 | | | |
| 4,300.0 | 4,197.5 | 4,246.8 | 4,062.7 | 22.4 | 30.3 | -20.85 | 355.0 | -1,114.0 | 411.8 | 380.9 | 30.87 | 13.339 | | | |
| 4,400.0 | 4,293.8 | 4,346.5 | 4,156.6 | 23.1 | 31.2 | -21.02 | 365.4 | -1,145.8 | 419.7 | 387.9 | 31.77 | 13.211 | | | |
| 4,500.0 | 4,390.2 | 4,446.2 | 4,250.5 | 23.8 | 32.1 | -21.18 | 375.8 | -1,177.6 | 427.5 | 394.8 | 32.66 | 13.090 | | | |
| 4,600.0 | 4,486.5 | 4,545.9 | 4,344.4 | 24.4 | 32.9 | -21.34 | 386.2 | -1,209.4 | 435.3 | 401.8 | 33.55 | 12.974 | | | |
| 4,700.0 | 4,582.9 | 4,645.5 | 4,438.3 | 25.1 | 33.8 | -21.49 | 396.6 | -1,241.2 | 443.2 | 408.7 | 34.45 | 12.864 | | | |
| 4,800.0 | 4,679.2 | 4,745.2 | 4,532.2 | 25.8 | 34.7 | -21.63 | 407.0 | -1,273.0 | 451.0 | 415.7 | 35.35 | 12.758 | | | |
| 4,900.0 | 4,775.6 | 4,844.9 | 4,626.2 | 26.5 | 35.6 | -21.77 | 417.4 | -1,304.7 | 458.9 | 422.6 | 36.26 | 12.658 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|----------------|---|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|--------------------|--|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | |
| 5,000.0 | 4,871.9 | 4,944.6 | 4,720.1 | 27.2 | 36.4 | -21.91 | 427.8 | -1,336.5 | 466.8 | 429.6 | 37.16 | 12.561 | | |
| 5,100.0 | 4,968.3 | 5,059.3 | 4,828.7 | 27.9 | 37.3 | -22.11 | 439.3 | -1,371.7 | 473.4 | 435.2 | 38.11 | 12.421 | | |
| 5,200.0 | 5,064.6 | 5,178.2 | 4,942.7 | 28.6 | 38.0 | -22.47 | 449.8 | -1,403.8 | 476.1 | 437.0 | 39.09 | 12.178 | | |
| 5,271.3 | 5,133.3 | 5,263.0 | 5,024.7 | 29.1 | 38.4 | -22.82 | 456.4 | -1,424.0 | 475.6 | 435.7 | 39.82 | 11.943 | | |
| 5,300.0 | 5,161.0 | 5,297.1 | 5,057.9 | 29.3 | 38.6 | -22.97 | 458.8 | -1,431.4 | 474.9 | 434.8 | 40.10 | 11.843 | | |
| 5,400.0 | 5,258.1 | 5,415.8 | 5,174.1 | 29.8 | 39.1 | -23.49 | 466.3 | -1,454.4 | 472.2 | 431.3 | 40.98 | 11.523 | | |
| 5,500.0 | 5,355.9 | 5,534.3 | 5,291.0 | 30.2 | 39.5 | -23.98 | 472.3 | -1,472.8 | 468.8 | 427.1 | 41.77 | 11.225 | | |
| 5,600.0 | 5,454.4 | 5,652.5 | 5,408.3 | 30.6 | 39.8 | -24.45 | 476.8 | -1,486.5 | 464.7 | 422.2 | 42.46 | 10.945 | | |
| 5,700.0 | 5,553.4 | 5,770.5 | 5,525.9 | 30.9 | 40.1 | -24.89 | 479.8 | -1,495.7 | 459.8 | 416.8 | 43.05 | 10.682 | | |
| 5,800.0 | 5,652.9 | 5,888.1 | 5,643.4 | 31.2 | 40.3 | -25.30 | 481.3 | -1,500.2 | 454.2 | 410.7 | 43.54 | 10.433 | | |
| 5,900.0 | 5,752.7 | 5,996.4 | 5,751.7 | 31.4 | 40.4 | -25.64 | 481.5 | -1,500.7 | 448.5 | 404.6 | 43.91 | 10.215 | | |
| 6,000.0 | 5,852.6 | 6,096.3 | 5,851.6 | 31.6 | 40.5 | -25.80 | 481.5 | -1,500.7 | 445.4 | 401.3 | 44.13 | 10.094 | | |
| 6,047.4 | 5,900.0 | 6,143.7 | 5,899.0 | 31.6 | 40.5 | -90.97 | 481.5 | -1,500.7 | 445.1 | 400.8 | 44.21 | 10.068 | | |
| 6,100.0 | 5,952.6 | 6,196.3 | 5,951.6 | 31.7 | 40.6 | -90.97 | 481.5 | -1,500.7 | 445.1 | 400.7 | 44.39 | 10.027 | | |
| 6,190.6 | 6,043.1 | 6,285.8 | 6,040.9 | 31.8 | 40.7 | -91.48 | 477.5 | -1,500.7 | 445.1 | 400.2 | 44.91 | 9.912 | | |
| 6,200.0 | 6,052.6 | 6,295.0 | 6,050.1 | 31.8 | 40.7 | 88.35 | 476.5 | -1,500.7 | 445.2 | 400.2 | 44.98 | 9.898 | | |
| 6,250.0 | 6,102.5 | 6,343.8 | 6,098.4 | 31.9 | 40.7 | 87.71 | 469.4 | -1,500.7 | 445.3 | 400.0 | 45.38 | 9.814 | | |
| 6,300.0 | 6,152.2 | 6,392.2 | 6,145.8 | 31.9 | 40.7 | 87.08 | 459.3 | -1,500.7 | 445.6 | 399.9 | 45.72 | 9.746 | | |
| 6,350.0 | 6,201.4 | 6,440.4 | 6,192.1 | 31.9 | 40.6 | 86.46 | 446.3 | -1,500.7 | 445.8 | 399.9 | 45.98 | 9.696 | | |
| 6,400.0 | 6,250.0 | 6,488.3 | 6,237.4 | 31.9 | 40.6 | 85.85 | 430.6 | -1,500.7 | 446.2 | 400.0 | 46.17 | 9.663 | | |
| 6,450.0 | 6,297.6 | 6,535.9 | 6,281.2 | 31.8 | 40.6 | 85.27 | 412.1 | -1,500.7 | 446.5 | 400.2 | 46.29 | 9.646 | | |
| 6,500.0 | 6,344.2 | 6,583.3 | 6,323.7 | 31.8 | 40.5 | 84.71 | 391.0 | -1,500.8 | 446.9 | 400.6 | 46.33 | 9.646 | | |
| 6,550.0 | 6,389.5 | 6,630.5 | 6,364.5 | 31.7 | 40.4 | 84.17 | 367.5 | -1,500.8 | 447.3 | 401.0 | 46.31 | 9.660 | | |
| 6,600.0 | 6,433.3 | 6,677.4 | 6,403.7 | 31.6 | 40.4 | 83.66 | 341.7 | -1,500.8 | 447.7 | 401.5 | 46.22 | 9.688 | | |
| 6,650.0 | 6,475.4 | 6,724.1 | 6,441.0 | 31.5 | 40.3 | 83.17 | 313.6 | -1,500.8 | 448.2 | 402.1 | 46.08 | 9.727 | | |
| 6,700.0 | 6,515.7 | 6,770.6 | 6,476.3 | 31.5 | 40.2 | 82.71 | 283.4 | -1,500.8 | 448.6 | 402.7 | 45.89 | 9.776 | | |
| 6,750.0 | 6,553.9 | 6,816.9 | 6,509.7 | 31.3 | 40.2 | 82.29 | 251.3 | -1,500.9 | 449.1 | 403.4 | 45.68 | 9.830 | | |
| 6,800.0 | 6,590.0 | 6,863.1 | 6,540.9 | 31.2 | 40.1 | 81.89 | 217.3 | -1,500.9 | 449.5 | 404.0 | 45.46 | 9.888 | | |
| 6,850.0 | 6,623.7 | 6,909.1 | 6,569.9 | 31.1 | 40.0 | 81.53 | 181.6 | -1,500.9 | 449.9 | 404.7 | 45.24 | 9.944 | | |
| 6,900.0 | 6,654.9 | 6,954.9 | 6,596.7 | 31.0 | 39.9 | 81.20 | 144.3 | -1,500.9 | 450.3 | 405.2 | 45.06 | 9.994 | | |
| 6,950.0 | 6,683.5 | 7,000.0 | 6,620.8 | 30.9 | 39.9 | 80.91 | 106.2 | -1,501.0 | 450.6 | 405.7 | 44.91 | 10.034 | | |
| 7,000.0 | 6,709.4 | 7,046.3 | 6,643.1 | 30.8 | 39.8 | 80.65 | 65.7 | -1,501.0 | 451.0 | 406.1 | 44.84 | 10.057 | | |
| 7,050.0 | 6,732.4 | 7,091.9 | 6,662.6 | 30.8 | 39.7 | 80.42 | 24.5 | -1,501.0 | 451.3 | 406.4 | 44.86 | 10.060 | | |
| 7,100.0 | 6,752.5 | 7,137.3 | 6,679.7 | 30.7 | 39.7 | 80.24 | -17.6 | -1,501.0 | 451.5 | 406.5 | 44.98 | 10.038 | | |
| 7,150.0 | 6,769.5 | 7,182.7 | 6,694.1 | 30.6 | 39.7 | 80.09 | -60.6 | -1,501.1 | 451.7 | 406.5 | 45.22 | 9.989 | | |
| 7,200.0 | 6,783.4 | 7,228.1 | 6,706.0 | 30.6 | 39.7 | 79.99 | -104.4 | -1,501.1 | 451.8 | 406.3 | 45.59 | 9.912 | | |
| 7,250.0 | 6,794.1 | 7,273.4 | 6,715.2 | 30.6 | 39.7 | 79.92 | -148.7 | -1,501.1 | 451.9 | 405.8 | 46.10 | 9.804 | | |
| 7,300.0 | 6,801.7 | 7,318.7 | 6,721.8 | 30.6 | 39.7 | 79.89 | -193.6 | -1,501.2 | 452.0 | 405.2 | 46.74 | 9.670 | | |
| 7,350.0 | 6,805.9 | 7,364.0 | 6,725.8 | 30.7 | 39.7 | 79.89 | -238.7 | -1,501.2 | 452.0 | 404.5 | 47.52 | 9.511 | | |
| 7,396.0 | 6,807.0 | 7,405.7 | 6,727.0 | 30.8 | 39.7 | 79.94 | -280.4 | -1,501.2 | 451.9 | 403.6 | 48.35 | 9.347 | | |
| 7,396.0 | 6,807.0 | 7,405.7 | 6,727.0 | 30.8 | 39.7 | 79.94 | -280.4 | -1,501.2 | 451.9 | 403.6 | 48.35 | 9.347 | | |
| 7,396.4 | 6,807.0 | 7,406.0 | 6,727.0 | 30.8 | 39.7 | 79.94 | -280.7 | -1,501.2 | 451.9 | 403.6 | 48.35 | 9.346 | | |
| 7,400.0 | 6,807.0 | 7,409.3 | 6,727.0 | 30.8 | 39.8 | 79.94 | -284.0 | -1,501.2 | 451.9 | 403.5 | 48.42 | 9.334 | | |
| 7,428.5 | 6,806.8 | 7,437.3 | 6,726.8 | 30.9 | 39.8 | 79.94 | -312.0 | -1,501.2 | 451.9 | 402.9 | 48.97 | 9.229 | | |
| 7,500.0 | 6,806.2 | 7,508.8 | 6,726.3 | 31.2 | 40.0 | 79.94 | -383.5 | -1,501.3 | 451.9 | 401.5 | 50.39 | 8.969 | | |
| 7,600.0 | 6,805.5 | 7,608.8 | 6,725.6 | 31.8 | 40.3 | 79.94 | -483.5 | -1,501.4 | 451.9 | 399.1 | 52.77 | 8.564 | | |
| 7,700.0 | 6,804.8 | 7,708.8 | 6,724.8 | 32.5 | 40.7 | 79.94 | -583.5 | -1,501.5 | 451.9 | 396.5 | 55.44 | 8.152 | | |
| 7,800.0 | 6,804.0 | 7,808.8 | 6,724.1 | 33.6 | 41.3 | 79.94 | -683.5 | -1,501.5 | 451.9 | 393.6 | 58.35 | 7.745 | | |
| 7,900.0 | 6,803.3 | 7,908.8 | 6,723.4 | 34.7 | 42.1 | 79.94 | -783.5 | -1,501.6 | 451.9 | 390.4 | 61.48 | 7.351 | | |
| 8,000.0 | 6,802.6 | 8,008.8 | 6,722.6 | 36.1 | 43.0 | 79.94 | -883.5 | -1,501.7 | 451.9 | 387.1 | 64.79 | 6.975 | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | Offset Site Error: 0.0 ft | | |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|---------------------------|---------------------------|--|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 8,100.0 | 6,801.8 | 8,108.8 | 6,721.9 | 37.6 | 44.0 | 79.94 | -983.5 | -1,501.8 | 451.9 | 383.7 | 68.25 | 6.621 | | | |
| 8,200.0 | 6,801.1 | 8,208.8 | 6,721.1 | 39.2 | 45.1 | 79.94 | -1,083.5 | -1,501.8 | 451.9 | 380.1 | 71.85 | 6.290 | | | |
| 8,300.0 | 6,800.3 | 8,308.8 | 6,720.4 | 40.9 | 46.4 | 79.94 | -1,183.5 | -1,501.9 | 451.9 | 376.4 | 75.56 | 5.981 | | | |
| 8,400.0 | 6,799.6 | 8,408.8 | 6,719.7 | 42.6 | 47.8 | 79.94 | -1,283.5 | -1,502.0 | 451.9 | 372.6 | 79.37 | 5.694 | | | |
| 8,500.0 | 6,798.9 | 8,508.8 | 6,718.9 | 44.4 | 49.3 | 79.94 | -1,383.5 | -1,502.1 | 451.9 | 368.7 | 83.27 | 5.428 | | | |
| 8,600.0 | 6,798.1 | 8,608.8 | 6,718.2 | 46.3 | 50.9 | 79.94 | -1,483.5 | -1,502.1 | 451.9 | 364.7 | 87.23 | 5.181 | | | |
| 8,700.0 | 6,797.4 | 8,708.8 | 6,717.5 | 48.2 | 52.6 | 79.94 | -1,583.5 | -1,502.2 | 451.9 | 360.7 | 91.26 | 4.952 | | | |
| 8,800.0 | 6,796.7 | 8,808.8 | 6,716.7 | 50.2 | 54.3 | 79.94 | -1,683.5 | -1,502.3 | 451.9 | 356.6 | 95.35 | 4.740 | | | |
| 8,900.0 | 6,795.9 | 8,908.8 | 6,716.0 | 52.2 | 56.1 | 79.94 | -1,783.5 | -1,502.4 | 451.9 | 352.5 | 99.48 | 4.543 | | | |
| 9,000.0 | 6,795.2 | 9,008.8 | 6,715.3 | 54.2 | 57.9 | 79.94 | -1,883.5 | -1,502.4 | 451.9 | 348.3 | 103.66 | 4.360 | | | |
| 9,100.0 | 6,794.5 | 9,108.8 | 6,714.5 | 56.2 | 59.8 | 79.94 | -1,983.5 | -1,502.5 | 451.9 | 344.1 | 107.87 | 4.190 | | | |
| 9,200.0 | 6,793.7 | 9,208.8 | 6,713.8 | 58.3 | 61.7 | 79.94 | -2,083.5 | -1,502.6 | 451.9 | 339.8 | 112.12 | 4.031 | | | |
| 9,300.0 | 6,793.0 | 9,308.8 | 6,713.0 | 60.4 | 63.7 | 79.94 | -2,183.5 | -1,502.7 | 451.9 | 335.5 | 116.40 | 3.883 | | | |
| 9,400.0 | 6,792.2 | 9,408.8 | 6,712.3 | 62.5 | 65.7 | 79.94 | -2,283.5 | -1,502.7 | 451.9 | 331.2 | 120.70 | 3.744 | | | |
| 9,500.0 | 6,791.5 | 9,508.8 | 6,711.6 | 64.6 | 67.7 | 79.94 | -2,383.4 | -1,502.8 | 451.9 | 326.9 | 125.03 | 3.615 | | | |
| 9,600.0 | 6,790.8 | 9,608.8 | 6,710.8 | 66.8 | 69.7 | 79.94 | -2,483.4 | -1,502.9 | 451.9 | 322.6 | 129.38 | 3.493 | | | |
| 9,700.0 | 6,790.0 | 9,708.8 | 6,710.1 | 68.9 | 71.8 | 79.94 | -2,583.4 | -1,503.0 | 451.9 | 318.2 | 133.75 | 3.379 | | | |
| 9,800.0 | 6,789.3 | 9,808.8 | 6,709.4 | 71.1 | 73.8 | 79.94 | -2,683.4 | -1,503.0 | 452.0 | 313.8 | 138.14 | 3.272 | | | |
| 9,900.0 | 6,788.6 | 9,908.8 | 6,708.6 | 73.3 | 75.9 | 79.94 | -2,783.4 | -1,503.1 | 452.0 | 309.4 | 142.55 | 3.171 | | | |
| 10,000.0 | 6,787.8 | 10,008.8 | 6,707.9 | 75.5 | 78.0 | 79.94 | -2,883.4 | -1,503.2 | 452.0 | 305.0 | 146.96 | 3.075 | | | |
| 10,100.0 | 6,787.1 | 10,108.8 | 6,707.1 | 77.7 | 80.1 | 79.94 | -2,983.4 | -1,503.3 | 452.0 | 300.6 | 151.39 | 2.985 | | | |
| 10,200.0 | 6,786.4 | 10,208.8 | 6,706.4 | 79.9 | 82.3 | 79.94 | -3,083.4 | -1,503.3 | 452.0 | 296.1 | 155.84 | 2.900 | | | |
| 10,300.0 | 6,785.6 | 10,308.8 | 6,705.7 | 82.1 | 84.4 | 79.94 | -3,183.4 | -1,503.4 | 452.0 | 291.7 | 160.29 | 2.820 | | | |
| 10,400.0 | 6,784.9 | 10,408.8 | 6,704.9 | 84.3 | 86.6 | 79.94 | -3,283.4 | -1,503.5 | 452.0 | 287.2 | 164.76 | 2.743 | | | |
| 10,500.0 | 6,784.1 | 10,508.8 | 6,704.2 | 86.5 | 88.8 | 79.94 | -3,383.4 | -1,503.6 | 452.0 | 282.7 | 169.23 | 2.671 | | | |
| 10,600.0 | 6,783.4 | 10,608.8 | 6,703.5 | 88.8 | 90.9 | 79.94 | -3,483.4 | -1,503.7 | 452.0 | 278.2 | 173.72 | 2.602 | | | |
| 10,700.0 | 6,782.7 | 10,708.8 | 6,702.7 | 91.0 | 93.1 | 79.94 | -3,583.4 | -1,503.7 | 452.0 | 273.8 | 178.21 | 2.536 | | | |
| 10,800.0 | 6,781.9 | 10,808.8 | 6,702.0 | 93.3 | 95.3 | 79.94 | -3,683.4 | -1,503.8 | 452.0 | 269.3 | 182.71 | 2.474 | | | |
| 10,900.0 | 6,781.2 | 10,908.8 | 6,701.3 | 95.5 | 97.5 | 79.94 | -3,783.4 | -1,503.9 | 452.0 | 264.8 | 187.21 | 2.414 | | | |
| 11,000.0 | 6,780.5 | 11,008.8 | 6,700.5 | 97.8 | 99.7 | 79.94 | -3,883.4 | -1,504.0 | 452.0 | 260.2 | 191.72 | 2.357 | | | |
| 11,100.0 | 6,779.7 | 11,108.8 | 6,699.8 | 100.0 | 101.9 | 79.94 | -3,983.4 | -1,504.0 | 452.0 | 255.7 | 196.24 | 2.303 | | | |
| 11,200.0 | 6,779.0 | 11,208.8 | 6,699.0 | 102.3 | 104.2 | 79.94 | -4,083.4 | -1,504.1 | 452.0 | 251.2 | 200.76 | 2.251 | | | |
| 11,300.0 | 6,778.3 | 11,308.8 | 6,698.3 | 104.6 | 106.4 | 79.94 | -4,183.4 | -1,504.2 | 452.0 | 246.7 | 205.29 | 2.202 | | | |
| 11,400.0 | 6,777.5 | 11,408.8 | 6,697.6 | 106.8 | 108.6 | 79.94 | -4,283.4 | -1,504.3 | 452.0 | 242.2 | 209.83 | 2.154 | | | |
| 11,500.0 | 6,776.8 | 11,508.8 | 6,696.8 | 109.1 | 110.8 | 79.94 | -4,383.4 | -1,504.3 | 452.0 | 237.6 | 214.36 | 2.108 | | | |
| 11,600.0 | 6,776.1 | 11,608.8 | 6,696.1 | 111.4 | 113.1 | 79.94 | -4,483.4 | -1,504.4 | 452.0 | 233.1 | 218.91 | 2.065 | | | |
| 11,700.0 | 6,775.3 | 11,708.8 | 6,695.4 | 113.7 | 115.3 | 79.94 | -4,583.4 | -1,504.5 | 452.0 | 228.5 | 223.45 | 2.023 | | | |
| 11,800.0 | 6,774.6 | 11,808.8 | 6,694.6 | 115.9 | 117.6 | 79.94 | -4,683.4 | -1,504.6 | 452.0 | 224.0 | 228.00 | 1.982 | | | |
| 11,900.0 | 6,773.8 | 11,908.8 | 6,693.9 | 118.2 | 119.8 | 79.94 | -4,783.4 | -1,504.6 | 452.0 | 219.4 | 232.56 | 1.944 | | | |
| 12,000.0 | 6,773.1 | 12,008.8 | 6,693.2 | 120.5 | 122.1 | 79.94 | -4,883.4 | -1,504.7 | 452.0 | 214.9 | 237.11 | 1.906 | | | |
| 12,100.0 | 6,772.4 | 12,108.8 | 6,692.4 | 122.8 | 124.4 | 79.94 | -4,983.4 | -1,504.8 | 452.0 | 210.3 | 241.67 | 1.870 | | | |
| 12,200.0 | 6,771.6 | 12,208.8 | 6,691.7 | 125.1 | 126.6 | 79.94 | -5,083.4 | -1,504.9 | 452.0 | 205.8 | 246.24 | 1.836 | | | |
| 12,300.0 | 6,770.9 | 12,308.8 | 6,690.9 | 127.4 | 128.9 | 79.94 | -5,183.4 | -1,504.9 | 452.0 | 201.2 | 250.80 | 1.802 | | | |
| 12,400.0 | 6,770.2 | 12,408.8 | 6,690.2 | 129.7 | 131.2 | 79.94 | -5,283.4 | -1,505.0 | 452.0 | 196.6 | 255.37 | 1.770 | | | |
| 12,500.0 | 6,769.4 | 12,508.8 | 6,689.5 | 132.0 | 133.4 | 79.94 | -5,383.4 | -1,505.1 | 452.0 | 192.1 | 259.94 | 1.739 | | | |
| 12,600.0 | 6,768.7 | 12,608.8 | 6,688.7 | 134.3 | 135.7 | 79.94 | -5,483.4 | -1,505.2 | 452.0 | 187.5 | 264.52 | 1.709 | | | |
| 12,700.0 | 6,768.0 | 12,708.8 | 6,688.0 | 136.6 | 138.0 | 79.94 | -5,583.4 | -1,505.2 | 452.0 | 182.9 | 269.09 | 1.680 | | | |
| 12,800.0 | 6,767.2 | 12,808.8 | 6,687.3 | 138.9 | 140.3 | 79.94 | -5,683.4 | -1,505.3 | 452.0 | 178.3 | 273.67 | 1.652 | | | |
| 12,900.0 | 6,766.5 | 12,908.8 | 6,686.5 | 141.2 | 142.6 | 79.94 | -5,783.4 | -1,505.4 | 452.0 | 173.8 | 278.25 | 1.624 | | | |
| 13,000.0 | 6,765.7 | 13,008.8 | 6,685.8 | 143.5 | 144.8 | 79.94 | -5,883.4 | -1,505.5 | 452.0 | 169.2 | 282.83 | 1.598 | | | |
| 13,100.0 | 6,765.0 | 13,108.8 | 6,685.1 | 145.8 | 147.1 | 79.94 | -5,983.3 | -1,505.5 | 452.0 | 164.6 | 287.42 | 1.573 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Survey Program: 0-MWD | | | | | | | | | | | | | | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 13,200.0 | 6,764.3 | 13,208.8 | 6,684.3 | 148.1 | 149.4 | 79.94 | -6,083.3 | -1,505.6 | 452.0 | 160.0 | 292.00 | 1.548 | | |
| 13,300.0 | 6,763.5 | 13,308.8 | 6,683.6 | 150.4 | 151.7 | 79.94 | -6,183.3 | -1,505.7 | 452.0 | 155.4 | 296.59 | 1.524 | | |
| 13,400.0 | 6,762.8 | 13,408.8 | 6,682.8 | 152.7 | 154.0 | 79.94 | -6,283.3 | -1,505.8 | 452.0 | 150.8 | 301.18 | 1.501 | | |
| 13,500.0 | 6,762.1 | 13,508.8 | 6,682.1 | 155.0 | 156.3 | 79.94 | -6,383.3 | -1,505.9 | 452.0 | 146.2 | 305.77 | 1.478 Level 3 | | |
| 13,600.0 | 6,761.3 | 13,608.8 | 6,681.4 | 157.4 | 158.6 | 79.94 | -6,483.3 | -1,505.9 | 452.0 | 141.7 | 310.36 | 1.456 Level 3 | | |
| 13,700.0 | 6,760.6 | 13,708.8 | 6,680.6 | 159.7 | 160.9 | 79.94 | -6,583.3 | -1,506.0 | 452.0 | 137.1 | 314.96 | 1.435 Level 3 | | |
| 13,800.0 | 6,759.9 | 13,808.8 | 6,679.9 | 162.0 | 163.2 | 79.94 | -6,683.3 | -1,506.1 | 452.0 | 132.5 | 319.55 | 1.415 Level 3 | | |
| 13,900.0 | 6,759.1 | 13,908.8 | 6,679.2 | 164.3 | 165.5 | 79.94 | -6,783.3 | -1,506.2 | 452.0 | 127.9 | 324.15 | 1.395 Level 3 | | |
| 14,000.0 | 6,758.4 | 14,008.8 | 6,678.4 | 166.6 | 167.8 | 79.94 | -6,883.3 | -1,506.2 | 452.0 | 123.3 | 328.74 | 1.375 Level 3 | | |
| 14,100.0 | 6,757.6 | 14,108.8 | 6,677.7 | 168.9 | 170.1 | 79.94 | -6,983.3 | -1,506.3 | 452.0 | 118.7 | 333.30 | 1.356 Level 3 | | |
| 14,188.1 | 6,757.0 | 14,196.9 | 6,677.0 | 171.0 | 171.7 | 79.94 | -7,071.4 | -1,506.4 | 452.0 | 115.1 | 336.96 | 1.342 Level 3, SF | | |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Spider Plot | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Survey Program: 0-MWD | | | | | | | | | | | | | | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -89.31 | 0.4 | -30.1 | 30.1 | | | | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | -89.31 | 0.4 | -30.1 | 30.1 | 29.8 | 0.27 | 109.844 | | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.4 | 0.4 | -89.31 | 0.4 | -30.1 | 30.1 | 29.3 | 0.82 | 36.554 CC, ES | | |
| 300.0 | 300.0 | 298.2 | 298.2 | 0.7 | 0.7 | -88.61 | 0.8 | -31.3 | 31.3 | 29.9 | 1.36 | 22.957 | | |
| 400.0 | 400.0 | 397.3 | 397.3 | 1.0 | 0.9 | -86.81 | 1.9 | -34.9 | 35.0 | 33.1 | 1.91 | 18.342 | | |
| 500.0 | 500.0 | 496.2 | 495.9 | 1.2 | 1.2 | -84.52 | 3.9 | -41.0 | 41.3 | 38.8 | 2.47 | 16.715 | | |
| 600.0 | 600.0 | 594.6 | 593.9 | 1.5 | 1.5 | -82.29 | 6.7 | -49.4 | 50.2 | 47.1 | 3.05 | 16.435 | | |
| 700.0 | 700.0 | 692.5 | 691.2 | 1.8 | 1.9 | -80.37 | 10.2 | -60.2 | 61.6 | 57.9 | 3.66 | 16.840 | | |
| 800.0 | 800.0 | 789.8 | 787.5 | 2.1 | 2.3 | -78.81 | 14.5 | -73.3 | 75.6 | 71.3 | 4.29 | 17.607 | | |
| 900.0 | 900.0 | 886.5 | 882.8 | 2.3 | 2.7 | -12.57 | 19.5 | -88.6 | 90.9 | 86.2 | 4.69 | 19.375 | | |
| 1,000.0 | 999.9 | 982.9 | 977.4 | 2.6 | 3.1 | -11.94 | 25.2 | -106.1 | 106.1 | 100.9 | 5.24 | 20.244 | | |
| 1,100.0 | 1,099.7 | 1,078.9 | 1,071.1 | 2.9 | 3.7 | -11.61 | 31.7 | -125.8 | 121.3 | 115.5 | 5.81 | 20.898 | | |
| 1,200.0 | 1,199.3 | 1,174.5 | 1,164.0 | 3.2 | 4.2 | -11.47 | 38.8 | -147.6 | 136.5 | 130.1 | 6.38 | 21.387 | | |
| 1,300.0 | 1,298.6 | 1,269.8 | 1,255.8 | 3.5 | 4.8 | -11.47 | 46.6 | -171.5 | 151.5 | 144.5 | 6.97 | 21.746 | | |
| 1,400.0 | 1,397.5 | 1,364.7 | 1,346.7 | 3.8 | 5.5 | -11.56 | 55.1 | -197.6 | 166.5 | 158.9 | 7.57 | 22.009 | | |
| 1,500.0 | 1,496.1 | 1,459.3 | 1,436.6 | 4.2 | 6.2 | -11.73 | 64.3 | -225.6 | 181.4 | 173.2 | 8.18 | 22.168 | | |
| 1,600.0 | 1,594.2 | 1,556.0 | 1,527.8 | 4.6 | 7.0 | -11.96 | 74.3 | -256.2 | 195.9 | 187.1 | 8.82 | 22.205 | | |
| 1,700.0 | 1,691.7 | 1,655.2 | 1,621.2 | 5.1 | 7.8 | -12.32 | 84.7 | -287.8 | 208.1 | 198.7 | 9.48 | 21.948 | | |
| 1,800.0 | 1,788.6 | 1,754.7 | 1,715.0 | 5.6 | 8.7 | -12.79 | 95.0 | -319.5 | 217.9 | 207.7 | 10.16 | 21.439 | | |
| 1,834.8 | 1,822.2 | 1,789.4 | 1,747.7 | 5.8 | 9.0 | -12.98 | 98.7 | -330.6 | 220.7 | 210.3 | 10.40 | 21.210 | | |
| 1,900.0 | 1,885.0 | 1,854.4 | 1,808.9 | 6.2 | 9.5 | -13.36 | 105.4 | -351.3 | 225.6 | 214.8 | 10.88 | 20.744 | | |
| 2,000.0 | 1,981.4 | 1,954.0 | 1,902.8 | 6.8 | 10.4 | -13.91 | 115.8 | -383.1 | 233.3 | 221.6 | 11.62 | 20.082 | | |
| 2,100.0 | 2,077.7 | 2,053.7 | 1,996.7 | 7.5 | 11.2 | -14.42 | 126.2 | -414.9 | 240.9 | 228.5 | 12.37 | 19.478 | | |
| 2,200.0 | 2,174.1 | 2,153.4 | 2,090.6 | 8.1 | 12.1 | -14.90 | 136.6 | -446.6 | 248.6 | 235.4 | 13.13 | 18.927 | | |
| 2,300.0 | 2,270.4 | 2,253.1 | 2,184.5 | 8.7 | 12.9 | -15.36 | 147.0 | -478.4 | 256.2 | 242.3 | 13.91 | 18.422 | | |
| 2,400.0 | 2,366.8 | 2,352.8 | 2,278.4 | 9.4 | 13.8 | -15.79 | 157.4 | -510.2 | 263.9 | 249.2 | 14.70 | 17.959 | | |
| 2,500.0 | 2,463.1 | 2,452.5 | 2,372.3 | 10.1 | 14.7 | -16.19 | 167.8 | -542.0 | 271.6 | 256.1 | 15.49 | 17.533 | | |
| 2,600.0 | 2,559.5 | 2,552.2 | 2,466.2 | 10.7 | 15.5 | -16.57 | 178.2 | -573.8 | 279.4 | 263.1 | 16.30 | 17.140 | | |
| 2,700.0 | 2,655.8 | 2,651.8 | 2,560.2 | 11.4 | 16.4 | -16.93 | 188.6 | -605.5 | 287.1 | 270.0 | 17.11 | 16.776 | | |
| 2,800.0 | 2,752.2 | 2,751.5 | 2,654.1 | 12.1 | 17.3 | -17.27 | 199.0 | -637.3 | 294.8 | 276.9 | 17.93 | 16.440 | | |
| 2,900.0 | 2,848.5 | 2,851.2 | 2,748.0 | 12.7 | 18.1 | -17.60 | 209.4 | -669.1 | 302.6 | 283.8 | 18.76 | 16.127 | | |
| 3,000.0 | 2,944.9 | 2,950.9 | 2,841.9 | 13.4 | 19.0 | -17.91 | 219.8 | -700.9 | 310.3 | 290.7 | 19.60 | 15.836 | | |
| 3,100.0 | 3,041.2 | 3,050.6 | 2,935.8 | 14.1 | 19.9 | -18.20 | 230.2 | -732.7 | 318.1 | 297.7 | 20.44 | 15.564 | | |
| 3,200.0 | 3,137.6 | 3,150.3 | 3,029.7 | 14.8 | 20.7 | -18.48 | 240.6 | -764.5 | 325.9 | 304.6 | 21.28 | 15.311 | | |
| 3,300.0 | 3,233.9 | 3,250.0 | 3,123.6 | 15.5 | 21.6 | -18.74 | 251.0 | -796.2 | 333.7 | 311.5 | 22.14 | 15.073 | | |
| 3,400.0 | 3,330.3 | 3,349.6 | 3,217.5 | 16.2 | 22.5 | -19.00 | 261.4 | -828.0 | 341.5 | 318.5 | 22.99 | 14.851 | | |
| 3,500.0 | 3,426.7 | 3,449.3 | 3,311.4 | 16.8 | 23.4 | -19.24 | 271.8 | -859.8 | 349.3 | 325.4 | 23.85 | 14.642 | | |
| 3,600.0 | 3,523.0 | 3,549.0 | 3,405.3 | 17.5 | 24.2 | -19.47 | 282.2 | -891.6 | 357.1 | 332.3 | 24.72 | 14.445 | | |
| 3,700.0 | 3,619.4 | 3,648.7 | 3,499.2 | 18.2 | 25.1 | -19.70 | 292.6 | -923.4 | 364.9 | 339.3 | 25.59 | 14.259 | | |
| 3,800.0 | 3,715.7 | 3,748.4 | 3,593.2 | 18.9 | 26.0 | -19.91 | 303.0 | -955.1 | 372.7 | 346.2 | 26.46 | 14.084 | | |
| 3,900.0 | 3,812.1 | 3,848.1 | 3,687.1 | 19.6 | 26.8 | -20.11 | 313.4 | -986.9 | 380.5 | 353.2 | 27.34 | 13.919 | | |
| 4,000.0 | 3,908.4 | 3,947.7 | 3,781.0 | 20.3 | 27.7 | -20.31 | 323.8 | -1,018.7 | 388.3 | 360.1 | 28.22 | 13.762 | | |
| 4,100.0 | 4,004.8 | 4,047.4 | 3,874.9 | 21.0 | 28.6 | -20.50 | 334.2 | -1,050.5 | 396.2 | 367.1 | 29.10 | 13.613 | | |
| 4,200.0 | 4,101.1 | 4,147.1 | 3,968.8 | 21.7 | 29.5 | -20.68 | 344.6 | -1,082.3 | 404.0 | 374.0 | 29.99 | 13.473 | | |
| 4,300.0 | 4,197.5 | 4,246.8 | 4,062.7 | 22.4 | 30.3 | -20.85 | 355.0 | -1,114.0 | 411.8 | 380.9 | 30.87 | 13.339 | | |
| 4,400.0 | 4,293.8 | 4,346.5 | 4,156.6 | 23.1 | 31.2 | -21.02 | 365.4 | -1,145.8 | 419.7 | 387.9 | 31.77 | 13.211 | | |
| 4,500.0 | 4,390.2 | 4,446.2 | 4,250.5 | 23.8 | 32.1 | -21.18 | 375.8 | -1,177.6 | 427.5 | 394.8 | 32.66 | 13.090 | | |
| 4,600.0 | 4,486.5 | 4,545.9 | 4,344.4 | 24.4 | 32.9 | -21.34 | 386.2 | -1,209.4 | 435.3 | 401.8 | 33.55 | 12.974 | | |
| 4,700.0 | 4,582.9 | 4,645.5 | 4,438.3 | 25.1 | 33.8 | -21.49 | 396.6 | -1,241.2 | 443.2 | 408.7 | 34.45 | 12.864 | | |
| 4,800.0 | 4,679.2 | 4,745.2 | 4,532.2 | 25.8 | 34.7 | -21.63 | 407.0 | -1,273.0 | 451.0 | 415.7 | 35.35 | 12.758 | | |
| 4,900.0 | 4,775.6 | 4,844.9 | 4,626.2 | 26.5 | 35.6 | -21.77 | 417.4 | -1,304.7 | 458.9 | 422.6 | 36.26 | 12.658 | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Spider Plot | | | | | | | | | | | | | Offset Site Error: | 0.0 ft | |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 5,000.0 | 4,871.9 | 4,944.6 | 4,720.1 | 27.2 | 36.4 | -21.91 | 427.8 | -1,336.5 | 466.8 | 429.6 | 37.16 | 12.561 | | | |
| 5,100.0 | 4,968.3 | 5,059.3 | 4,828.7 | 27.9 | 37.3 | -22.11 | 439.3 | -1,371.7 | 473.4 | 435.2 | 38.11 | 12.421 | | | |
| 5,200.0 | 5,064.6 | 5,178.2 | 4,942.7 | 28.6 | 38.0 | -22.47 | 449.8 | -1,403.8 | 476.1 | 437.0 | 39.09 | 12.178 | | | |
| 5,271.3 | 5,133.3 | 5,263.0 | 5,024.7 | 29.1 | 38.4 | -22.82 | 456.4 | -1,424.0 | 475.6 | 435.7 | 39.82 | 11.943 | | | |
| 5,300.0 | 5,161.0 | 5,297.1 | 5,057.9 | 29.3 | 38.6 | -22.97 | 458.8 | -1,431.4 | 474.9 | 434.8 | 40.10 | 11.843 | | | |
| 5,400.0 | 5,258.1 | 5,415.8 | 5,174.1 | 29.8 | 39.1 | -23.49 | 466.3 | -1,454.4 | 472.2 | 431.3 | 40.98 | 11.523 | | | |
| 5,500.0 | 5,355.9 | 5,534.3 | 5,291.0 | 30.2 | 39.5 | -23.98 | 472.3 | -1,472.8 | 468.8 | 427.1 | 41.77 | 11.225 | | | |
| 5,600.0 | 5,454.4 | 5,652.5 | 5,408.3 | 30.6 | 39.8 | -24.45 | 476.8 | -1,486.5 | 464.7 | 422.2 | 42.46 | 10.945 | | | |
| 5,700.0 | 5,553.4 | 5,770.5 | 5,525.9 | 30.9 | 40.1 | -24.89 | 479.8 | -1,495.7 | 459.8 | 416.8 | 43.05 | 10.682 | | | |
| 5,800.0 | 5,652.9 | 5,888.1 | 5,643.4 | 31.2 | 40.3 | -25.30 | 481.3 | -1,500.2 | 454.2 | 410.7 | 43.54 | 10.433 | | | |
| 5,900.0 | 5,752.7 | 5,996.4 | 5,751.7 | 31.4 | 40.4 | -25.64 | 481.5 | -1,500.7 | 448.5 | 404.6 | 43.91 | 10.215 | | | |
| 6,000.0 | 5,852.6 | 6,096.3 | 5,851.6 | 31.6 | 40.5 | -25.80 | 481.5 | -1,500.7 | 445.4 | 401.3 | 44.13 | 10.094 | | | |
| 6,047.4 | 5,900.0 | 6,143.7 | 5,899.0 | 31.6 | 40.5 | -90.97 | 481.5 | -1,500.7 | 445.1 | 400.8 | 44.21 | 10.068 | | | |
| 6,100.0 | 5,952.6 | 6,196.3 | 5,951.6 | 31.7 | 40.6 | -90.97 | 481.5 | -1,500.7 | 445.1 | 400.7 | 44.39 | 10.027 | | | |
| 6,190.6 | 6,043.1 | 6,285.8 | 6,040.9 | 31.8 | 40.7 | -91.48 | 477.5 | -1,500.7 | 445.1 | 400.2 | 44.91 | 9.912 | | | |
| 6,200.0 | 6,052.6 | 6,295.0 | 6,050.1 | 31.8 | 40.7 | 88.35 | 476.5 | -1,500.7 | 445.2 | 400.2 | 44.98 | 9.898 | | | |
| 6,250.0 | 6,102.5 | 6,343.8 | 6,098.4 | 31.9 | 40.7 | 87.71 | 469.4 | -1,500.7 | 445.3 | 400.0 | 45.38 | 9.814 | | | |
| 6,300.0 | 6,152.2 | 6,392.2 | 6,145.8 | 31.9 | 40.7 | 87.08 | 459.3 | -1,500.7 | 445.6 | 399.9 | 45.72 | 9.746 | | | |
| 6,350.0 | 6,201.4 | 6,440.4 | 6,192.1 | 31.9 | 40.6 | 86.46 | 446.3 | -1,500.7 | 445.8 | 399.9 | 45.98 | 9.696 | | | |
| 6,400.0 | 6,250.0 | 6,488.3 | 6,237.4 | 31.9 | 40.6 | 85.85 | 430.6 | -1,500.7 | 446.2 | 400.0 | 46.17 | 9.663 | | | |
| 6,450.0 | 6,297.6 | 6,535.9 | 6,281.2 | 31.8 | 40.6 | 85.27 | 412.1 | -1,500.7 | 446.5 | 400.2 | 46.29 | 9.646 | | | |
| 6,500.0 | 6,344.2 | 6,583.3 | 6,323.7 | 31.8 | 40.5 | 84.71 | 391.0 | -1,500.8 | 446.9 | 400.6 | 46.33 | 9.646 | | | |
| 6,550.0 | 6,389.5 | 6,630.5 | 6,364.5 | 31.7 | 40.4 | 84.17 | 367.5 | -1,500.8 | 447.3 | 401.0 | 46.31 | 9.660 | | | |
| 6,600.0 | 6,433.3 | 6,677.4 | 6,403.7 | 31.6 | 40.4 | 83.66 | 341.7 | -1,500.8 | 447.7 | 401.5 | 46.22 | 9.688 | | | |
| 6,650.0 | 6,475.4 | 6,724.1 | 6,441.0 | 31.5 | 40.3 | 83.17 | 313.6 | -1,500.8 | 448.2 | 402.1 | 46.08 | 9.727 | | | |
| 6,700.0 | 6,515.7 | 6,770.6 | 6,476.3 | 31.5 | 40.2 | 82.71 | 283.4 | -1,500.8 | 448.6 | 402.7 | 45.89 | 9.776 | | | |
| 6,750.0 | 6,553.9 | 6,816.9 | 6,509.7 | 31.3 | 40.2 | 82.29 | 251.3 | -1,500.9 | 449.1 | 403.4 | 45.68 | 9.830 | | | |
| 6,800.0 | 6,590.0 | 6,863.1 | 6,540.9 | 31.2 | 40.1 | 81.89 | 217.3 | -1,500.9 | 449.5 | 404.0 | 45.46 | 9.888 | | | |
| 6,850.0 | 6,623.7 | 6,909.1 | 6,569.9 | 31.1 | 40.0 | 81.53 | 181.6 | -1,500.9 | 449.9 | 404.7 | 45.24 | 9.944 | | | |
| 6,900.0 | 6,654.9 | 6,954.9 | 6,596.7 | 31.0 | 39.9 | 81.20 | 144.3 | -1,500.9 | 450.3 | 405.2 | 45.06 | 9.994 | | | |
| 6,950.0 | 6,683.5 | 7,000.0 | 6,620.8 | 30.9 | 39.9 | 80.91 | 106.2 | -1,501.0 | 450.6 | 405.7 | 44.91 | 10.034 | | | |
| 7,000.0 | 6,709.4 | 7,046.3 | 6,643.1 | 30.8 | 39.8 | 80.65 | 65.7 | -1,501.0 | 451.0 | 406.1 | 44.84 | 10.057 | | | |
| 7,050.0 | 6,732.4 | 7,091.9 | 6,662.6 | 30.8 | 39.7 | 80.42 | 24.5 | -1,501.0 | 451.3 | 406.4 | 44.86 | 10.060 | | | |
| 7,100.0 | 6,752.5 | 7,137.3 | 6,679.7 | 30.7 | 39.7 | 80.24 | -17.6 | -1,501.0 | 451.5 | 406.5 | 44.98 | 10.038 | | | |
| 7,150.0 | 6,769.5 | 7,182.7 | 6,694.1 | 30.6 | 39.7 | 80.09 | -60.6 | -1,501.1 | 451.7 | 406.5 | 45.22 | 9.989 | | | |
| 7,200.0 | 6,783.4 | 7,228.1 | 6,706.0 | 30.6 | 39.7 | 79.99 | -104.4 | -1,501.1 | 451.8 | 406.3 | 45.59 | 9.912 | | | |
| 7,250.0 | 6,794.1 | 7,273.4 | 6,715.2 | 30.6 | 39.7 | 79.92 | -148.7 | -1,501.1 | 451.9 | 405.8 | 46.10 | 9.804 | | | |
| 7,300.0 | 6,801.7 | 7,318.7 | 6,721.8 | 30.6 | 39.7 | 79.89 | -193.6 | -1,501.2 | 452.0 | 405.2 | 46.74 | 9.670 | | | |
| 7,350.0 | 6,805.9 | 7,364.0 | 6,725.8 | 30.7 | 39.7 | 79.89 | -238.7 | -1,501.2 | 452.0 | 404.5 | 47.52 | 9.511 | | | |
| 7,396.0 | 6,807.0 | 7,405.7 | 6,727.0 | 30.8 | 39.7 | 79.94 | -280.4 | -1,501.2 | 451.9 | 403.6 | 48.35 | 9.347 | | | |
| 7,396.0 | 6,807.0 | 7,405.7 | 6,727.0 | 30.8 | 39.7 | 79.94 | -280.4 | -1,501.2 | 451.9 | 403.6 | 48.35 | 9.347 | | | |
| 7,396.4 | 6,807.0 | 7,406.0 | 6,727.0 | 30.8 | 39.7 | 79.94 | -280.7 | -1,501.2 | 451.9 | 403.6 | 48.35 | 9.346 | | | |
| 7,400.0 | 6,807.0 | 7,409.3 | 6,727.0 | 30.8 | 39.8 | 79.94 | -284.0 | -1,501.2 | 451.9 | 403.5 | 48.42 | 9.334 | | | |
| 7,428.5 | 6,806.8 | 7,437.3 | 6,726.8 | 30.9 | 39.8 | 79.94 | -312.0 | -1,501.2 | 451.9 | 402.9 | 48.97 | 9.229 | | | |
| 7,500.0 | 6,806.2 | 7,508.8 | 6,726.3 | 31.2 | 40.0 | 79.94 | -383.5 | -1,501.3 | 451.9 | 401.5 | 50.39 | 8.969 | | | |
| 7,600.0 | 6,805.5 | 7,608.8 | 6,725.6 | 31.8 | 40.3 | 79.94 | -483.5 | -1,501.4 | 451.9 | 399.1 | 52.77 | 8.564 | | | |
| 7,700.0 | 6,804.8 | 7,708.8 | 6,724.8 | 32.5 | 40.7 | 79.94 | -583.5 | -1,501.5 | 451.9 | 396.5 | 55.44 | 8.152 | | | |
| 7,800.0 | 6,804.0 | 7,808.8 | 6,724.1 | 33.6 | 41.3 | 79.94 | -683.5 | -1,501.5 | 451.9 | 393.6 | 58.35 | 7.745 | | | |
| 7,900.0 | 6,803.3 | 7,908.8 | 6,723.4 | 34.7 | 42.1 | 79.94 | -783.5 | -1,501.6 | 451.9 | 390.4 | 61.48 | 7.351 | | | |
| 8,000.0 | 6,802.6 | 8,008.8 | 6,722.6 | 36.1 | 43.0 | 79.94 | -883.5 | -1,501.7 | 451.9 | 387.1 | 64.79 | 6.975 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Spider Plot | | | | | | | | | | | | | Offset Site Error: 0.0 ft | | |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|---------------------------|---------------------------|--|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | |
| 8,100.0 | 6,801.8 | 8,108.8 | 6,721.9 | 37.6 | 44.0 | 79.94 | -983.5 | -1,501.8 | 451.9 | 383.7 | 68.25 | 6.621 | | | |
| 8,200.0 | 6,801.1 | 8,208.8 | 6,721.1 | 39.2 | 45.1 | 79.94 | -1,083.5 | -1,501.8 | 451.9 | 380.1 | 71.85 | 6.290 | | | |
| 8,300.0 | 6,800.3 | 8,308.8 | 6,720.4 | 40.9 | 46.4 | 79.94 | -1,183.5 | -1,501.9 | 451.9 | 376.4 | 75.56 | 5.981 | | | |
| 8,400.0 | 6,799.6 | 8,408.8 | 6,719.7 | 42.6 | 47.8 | 79.94 | -1,283.5 | -1,502.0 | 451.9 | 372.6 | 79.37 | 5.694 | | | |
| 8,500.0 | 6,798.9 | 8,508.8 | 6,718.9 | 44.4 | 49.3 | 79.94 | -1,383.5 | -1,502.1 | 451.9 | 368.7 | 83.27 | 5.428 | | | |
| 8,600.0 | 6,798.1 | 8,608.8 | 6,718.2 | 46.3 | 50.9 | 79.94 | -1,483.5 | -1,502.1 | 451.9 | 364.7 | 87.23 | 5.181 | | | |
| 8,700.0 | 6,797.4 | 8,708.8 | 6,717.5 | 48.2 | 52.6 | 79.94 | -1,583.5 | -1,502.2 | 451.9 | 360.7 | 91.26 | 4.952 | | | |
| 8,800.0 | 6,796.7 | 8,808.8 | 6,716.7 | 50.2 | 54.3 | 79.94 | -1,683.5 | -1,502.3 | 451.9 | 356.6 | 95.35 | 4.740 | | | |
| 8,900.0 | 6,795.9 | 8,908.8 | 6,716.0 | 52.2 | 56.1 | 79.94 | -1,783.5 | -1,502.4 | 451.9 | 352.5 | 99.48 | 4.543 | | | |
| 9,000.0 | 6,795.2 | 9,008.8 | 6,715.3 | 54.2 | 57.9 | 79.94 | -1,883.5 | -1,502.4 | 451.9 | 348.3 | 103.66 | 4.360 | | | |
| 9,100.0 | 6,794.5 | 9,108.8 | 6,714.5 | 56.2 | 59.8 | 79.94 | -1,983.5 | -1,502.5 | 451.9 | 344.1 | 107.87 | 4.190 | | | |
| 9,200.0 | 6,793.7 | 9,208.8 | 6,713.8 | 58.3 | 61.7 | 79.94 | -2,083.5 | -1,502.6 | 451.9 | 339.8 | 112.12 | 4.031 | | | |
| 9,300.0 | 6,793.0 | 9,308.8 | 6,713.0 | 60.4 | 63.7 | 79.94 | -2,183.5 | -1,502.7 | 451.9 | 335.5 | 116.40 | 3.883 | | | |
| 9,400.0 | 6,792.2 | 9,408.8 | 6,712.3 | 62.5 | 65.7 | 79.94 | -2,283.5 | -1,502.7 | 451.9 | 331.2 | 120.70 | 3.744 | | | |
| 9,500.0 | 6,791.5 | 9,508.8 | 6,711.6 | 64.6 | 67.7 | 79.94 | -2,383.4 | -1,502.8 | 451.9 | 326.9 | 125.03 | 3.615 | | | |
| 9,600.0 | 6,790.8 | 9,608.8 | 6,710.8 | 66.8 | 69.7 | 79.94 | -2,483.4 | -1,502.9 | 451.9 | 322.6 | 129.38 | 3.493 | | | |
| 9,700.0 | 6,790.0 | 9,708.8 | 6,710.1 | 68.9 | 71.8 | 79.94 | -2,583.4 | -1,503.0 | 451.9 | 318.2 | 133.75 | 3.379 | | | |
| 9,800.0 | 6,789.3 | 9,808.8 | 6,709.4 | 71.1 | 73.8 | 79.94 | -2,683.4 | -1,503.0 | 452.0 | 313.8 | 138.14 | 3.272 | | | |
| 9,900.0 | 6,788.6 | 9,908.8 | 6,708.6 | 73.3 | 75.9 | 79.94 | -2,783.4 | -1,503.1 | 452.0 | 309.4 | 142.55 | 3.171 | | | |
| 10,000.0 | 6,787.8 | 10,008.8 | 6,707.9 | 75.5 | 78.0 | 79.94 | -2,883.4 | -1,503.2 | 452.0 | 305.0 | 146.96 | 3.075 | | | |
| 10,100.0 | 6,787.1 | 10,108.8 | 6,707.1 | 77.7 | 80.1 | 79.94 | -2,983.4 | -1,503.3 | 452.0 | 300.6 | 151.39 | 2.985 | | | |
| 10,200.0 | 6,786.4 | 10,208.8 | 6,706.4 | 79.9 | 82.3 | 79.94 | -3,083.4 | -1,503.3 | 452.0 | 296.1 | 155.84 | 2.900 | | | |
| 10,300.0 | 6,785.6 | 10,308.8 | 6,705.7 | 82.1 | 84.4 | 79.94 | -3,183.4 | -1,503.4 | 452.0 | 291.7 | 160.29 | 2.820 | | | |
| 10,400.0 | 6,784.9 | 10,408.8 | 6,704.9 | 84.3 | 86.6 | 79.94 | -3,283.4 | -1,503.5 | 452.0 | 287.2 | 164.76 | 2.743 | | | |
| 10,500.0 | 6,784.1 | 10,508.8 | 6,704.2 | 86.5 | 88.8 | 79.94 | -3,383.4 | -1,503.6 | 452.0 | 282.7 | 169.23 | 2.671 | | | |
| 10,600.0 | 6,783.4 | 10,608.8 | 6,703.5 | 88.8 | 90.9 | 79.94 | -3,483.4 | -1,503.7 | 452.0 | 278.2 | 173.72 | 2.602 | | | |
| 10,700.0 | 6,782.7 | 10,708.8 | 6,702.7 | 91.0 | 93.1 | 79.94 | -3,583.4 | -1,503.7 | 452.0 | 273.8 | 178.21 | 2.536 | | | |
| 10,800.0 | 6,781.9 | 10,808.8 | 6,702.0 | 93.3 | 95.3 | 79.94 | -3,683.4 | -1,503.8 | 452.0 | 269.3 | 182.71 | 2.474 | | | |
| 10,900.0 | 6,781.2 | 10,908.8 | 6,701.3 | 95.5 | 97.5 | 79.94 | -3,783.4 | -1,503.9 | 452.0 | 264.8 | 187.21 | 2.414 | | | |
| 11,000.0 | 6,780.5 | 11,008.8 | 6,700.5 | 97.8 | 99.7 | 79.94 | -3,883.4 | -1,504.0 | 452.0 | 260.2 | 191.72 | 2.357 | | | |
| 11,100.0 | 6,779.7 | 11,108.8 | 6,699.8 | 100.0 | 101.9 | 79.94 | -3,983.4 | -1,504.0 | 452.0 | 255.7 | 196.24 | 2.303 | | | |
| 11,200.0 | 6,779.0 | 11,208.8 | 6,699.0 | 102.3 | 104.2 | 79.94 | -4,083.4 | -1,504.1 | 452.0 | 251.2 | 200.76 | 2.251 | | | |
| 11,300.0 | 6,778.3 | 11,308.8 | 6,698.3 | 104.6 | 106.4 | 79.94 | -4,183.4 | -1,504.2 | 452.0 | 246.7 | 205.29 | 2.202 | | | |
| 11,400.0 | 6,777.5 | 11,408.8 | 6,697.6 | 106.8 | 108.6 | 79.94 | -4,283.4 | -1,504.3 | 452.0 | 242.2 | 209.83 | 2.154 | | | |
| 11,500.0 | 6,776.8 | 11,508.8 | 6,696.8 | 109.1 | 110.8 | 79.94 | -4,383.4 | -1,504.3 | 452.0 | 237.6 | 214.36 | 2.108 | | | |
| 11,600.0 | 6,776.1 | 11,608.8 | 6,696.1 | 111.4 | 113.1 | 79.94 | -4,483.4 | -1,504.4 | 452.0 | 233.1 | 218.91 | 2.065 | | | |
| 11,700.0 | 6,775.3 | 11,708.8 | 6,695.4 | 113.7 | 115.3 | 79.94 | -4,583.4 | -1,504.5 | 452.0 | 228.5 | 223.45 | 2.023 | | | |
| 11,800.0 | 6,774.6 | 11,808.8 | 6,694.6 | 115.9 | 117.6 | 79.94 | -4,683.4 | -1,504.6 | 452.0 | 224.0 | 228.00 | 1.982 | | | |
| 11,900.0 | 6,773.8 | 11,908.8 | 6,693.9 | 118.2 | 119.8 | 79.94 | -4,783.4 | -1,504.6 | 452.0 | 219.4 | 232.56 | 1.944 | | | |
| 12,000.0 | 6,773.1 | 12,008.8 | 6,693.2 | 120.5 | 122.1 | 79.94 | -4,883.4 | -1,504.7 | 452.0 | 214.9 | 237.11 | 1.906 | | | |
| 12,100.0 | 6,772.4 | 12,108.8 | 6,692.4 | 122.8 | 124.4 | 79.94 | -4,983.4 | -1,504.8 | 452.0 | 210.3 | 241.67 | 1.870 | | | |
| 12,200.0 | 6,771.6 | 12,208.8 | 6,691.7 | 125.1 | 126.6 | 79.94 | -5,083.4 | -1,504.9 | 452.0 | 205.8 | 246.24 | 1.836 | | | |
| 12,300.0 | 6,770.9 | 12,308.8 | 6,690.9 | 127.4 | 128.9 | 79.94 | -5,183.4 | -1,504.9 | 452.0 | 201.2 | 250.80 | 1.802 | | | |
| 12,400.0 | 6,770.2 | 12,408.8 | 6,690.2 | 129.7 | 131.2 | 79.94 | -5,283.4 | -1,505.0 | 452.0 | 196.6 | 255.37 | 1.770 | | | |
| 12,500.0 | 6,769.4 | 12,508.8 | 6,689.5 | 132.0 | 133.4 | 79.94 | -5,383.4 | -1,505.1 | 452.0 | 192.1 | 259.94 | 1.739 | | | |
| 12,600.0 | 6,768.7 | 12,608.8 | 6,688.7 | 134.3 | 135.7 | 79.94 | -5,483.4 | -1,505.2 | 452.0 | 187.5 | 264.52 | 1.709 | | | |
| 12,700.0 | 6,768.0 | 12,708.8 | 6,688.0 | 136.6 | 138.0 | 79.94 | -5,583.4 | -1,505.2 | 452.0 | 182.9 | 269.09 | 1.680 | | | |
| 12,800.0 | 6,767.2 | 12,808.8 | 6,687.3 | 138.9 | 140.3 | 79.94 | -5,683.4 | -1,505.3 | 452.0 | 178.3 | 273.67 | 1.652 | | | |
| 12,900.0 | 6,766.5 | 12,908.8 | 6,686.5 | 141.2 | 142.6 | 79.94 | -5,783.4 | -1,505.4 | 452.0 | 173.8 | 278.25 | 1.624 | | | |
| 13,000.0 | 6,765.7 | 13,008.8 | 6,685.8 | 143.5 | 144.8 | 79.94 | -5,883.4 | -1,505.5 | 452.0 | 169.2 | 282.83 | 1.598 | | | |
| 13,100.0 | 6,765.0 | 13,108.8 | 6,685.1 | 145.8 | 147.1 | 79.94 | -5,983.3 | -1,505.5 | 452.0 | 164.6 | 287.42 | 1.573 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Spider Plot | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------|----------------|---|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|--------------------|-------------|--------|
| Survey Program: | | 0-MWD | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | Warning | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | |
| 13,200.0 | 6,764.3 | 13,208.8 | 6,684.3 | 148.1 | 149.4 | 79.94 | -6,083.3 | -1,505.6 | 452.0 | 160.0 | 292.00 | 1.548 | | |
| 13,300.0 | 6,763.5 | 13,308.8 | 6,683.6 | 150.4 | 151.7 | 79.94 | -6,183.3 | -1,505.7 | 452.0 | 155.4 | 296.59 | 1.524 | | |
| 13,400.0 | 6,762.8 | 13,408.8 | 6,682.8 | 152.7 | 154.0 | 79.94 | -6,283.3 | -1,505.8 | 452.0 | 150.8 | 301.18 | 1.501 | | |
| 13,500.0 | 6,762.1 | 13,508.8 | 6,682.1 | 155.0 | 156.3 | 79.94 | -6,383.3 | -1,505.9 | 452.0 | 146.2 | 305.77 | 1.478 | Level 3 | |
| 13,600.0 | 6,761.3 | 13,608.8 | 6,681.4 | 157.4 | 158.6 | 79.94 | -6,483.3 | -1,505.9 | 452.0 | 141.7 | 310.36 | 1.456 | Level 3 | |
| 13,700.0 | 6,760.6 | 13,708.8 | 6,680.6 | 159.7 | 160.9 | 79.94 | -6,583.3 | -1,506.0 | 452.0 | 137.1 | 314.96 | 1.435 | Level 3 | |
| 13,800.0 | 6,759.9 | 13,808.8 | 6,679.9 | 162.0 | 163.2 | 79.94 | -6,683.3 | -1,506.1 | 452.0 | 132.5 | 319.55 | 1.415 | Level 3 | |
| 13,900.0 | 6,759.1 | 13,908.8 | 6,679.2 | 164.3 | 165.5 | 79.94 | -6,783.3 | -1,506.2 | 452.0 | 127.9 | 324.15 | 1.395 | Level 3 | |
| 14,000.0 | 6,758.4 | 14,008.8 | 6,678.4 | 166.6 | 167.8 | 79.94 | -6,883.3 | -1,506.2 | 452.0 | 123.3 | 328.74 | 1.375 | Level 3 | |
| 14,100.0 | 6,757.6 | 14,108.8 | 6,677.7 | 168.9 | 170.1 | 79.94 | -6,983.3 | -1,506.3 | 452.0 | 118.7 | 333.30 | 1.356 | Level 3 | |
| 14,188.1 | 6,757.0 | 14,196.9 | 6,677.0 | 171.0 | 171.7 | 79.94 | -7,071.4 | -1,506.4 | 452.0 | 115.1 | 336.96 | 1.342 | Level 3, SF | |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-423 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | Warning | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -89.97 | 0.0 | -15.0 | 15.1 | 15.1 | 0.00 | N/A | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | -89.97 | 0.0 | -15.0 | 15.0 | 14.8 | 0.27 | 54.918 | | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.4 | 0.4 | -89.97 | 0.0 | -15.0 | 15.0 | 14.2 | 0.82 | 18.276 | | |
| 300.0 | 300.0 | 299.0 | 299.0 | 0.7 | 0.7 | -89.97 | 0.0 | -15.0 | 15.0 | 13.7 | 1.37 | 10.951 | | |
| 400.0 | 400.0 | 399.0 | 399.0 | 1.0 | 1.0 | -89.97 | 0.0 | -15.0 | 15.0 | 13.1 | 1.92 | 7.817 CC | | |
| 500.0 | 500.0 | 498.6 | 498.6 | 1.2 | 1.2 | -88.36 | 0.5 | -16.2 | 16.2 | 13.8 | 2.47 | 6.589 | | |
| 600.0 | 600.0 | 598.1 | 598.0 | 1.5 | 1.5 | -84.68 | 1.8 | -19.8 | 20.0 | 16.9 | 3.01 | 6.636 | | |
| 700.0 | 700.0 | 697.3 | 697.0 | 1.8 | 1.8 | -80.88 | 4.1 | -25.8 | 26.3 | 22.7 | 3.56 | 7.373 | | |
| 800.0 | 800.0 | 796.1 | 795.4 | 2.1 | 2.1 | -77.86 | 7.4 | -34.2 | 35.2 | 31.0 | 4.13 | 8.513 | | |
| 900.0 | 900.0 | 894.5 | 893.2 | 2.3 | 2.4 | -10.81 | 11.5 | -44.9 | 45.4 | 40.8 | 4.64 | 9.792 | | |
| 1,000.0 | 999.9 | 992.7 | 990.3 | 2.6 | 2.8 | -9.79 | 16.4 | -57.9 | 55.7 | 50.5 | 5.18 | 10.757 | | |
| 1,100.0 | 1,099.7 | 1,090.6 | 1,086.9 | 2.9 | 3.2 | -9.23 | 22.3 | -73.2 | 65.9 | 60.2 | 5.72 | 11.519 | | |
| 1,200.0 | 1,199.3 | 1,188.3 | 1,182.7 | 3.2 | 3.6 | -8.95 | 29.0 | -90.7 | 76.1 | 69.9 | 6.28 | 12.125 | | |
| 1,300.0 | 1,298.6 | 1,285.7 | 1,277.8 | 3.5 | 4.1 | -8.86 | 36.6 | -110.5 | 86.3 | 79.5 | 6.85 | 12.607 | | |
| 1,400.0 | 1,397.5 | 1,382.9 | 1,372.1 | 3.8 | 4.7 | -8.88 | 45.0 | -132.5 | 96.4 | 89.0 | 7.42 | 12.989 | | |
| 1,500.0 | 1,496.1 | 1,479.8 | 1,465.5 | 4.2 | 5.3 | -8.99 | 54.3 | -156.6 | 106.5 | 98.5 | 8.01 | 13.289 | | |
| 1,600.0 | 1,594.2 | 1,579.3 | 1,561.0 | 4.6 | 5.9 | -9.22 | 64.3 | -182.6 | 115.4 | 106.7 | 8.62 | 13.383 | | |
| 1,700.0 | 1,691.7 | 1,679.1 | 1,656.8 | 5.1 | 6.6 | -9.63 | 74.3 | -208.7 | 121.6 | 112.4 | 9.25 | 13.155 | | |
| 1,800.0 | 1,788.6 | 1,779.0 | 1,752.8 | 5.6 | 7.3 | -10.21 | 84.3 | -234.8 | 125.4 | 115.5 | 9.88 | 12.682 | | |
| 1,834.8 | 1,822.2 | 1,813.8 | 1,786.2 | 5.8 | 7.5 | -10.45 | 87.8 | -243.9 | 126.0 | 115.9 | 10.11 | 12.467 | | |
| 1,900.0 | 1,885.0 | 1,879.0 | 1,848.7 | 6.2 | 8.0 | -10.94 | 94.3 | -260.9 | 127.1 | 116.5 | 10.56 | 12.035 | | |
| 2,000.0 | 1,981.4 | 1,979.0 | 1,944.7 | 6.8 | 8.7 | -11.66 | 104.3 | -287.1 | 128.6 | 117.4 | 11.25 | 11.428 | | |
| 2,100.0 | 2,077.7 | 2,079.0 | 2,040.7 | 7.5 | 9.4 | -12.37 | 114.3 | -313.2 | 130.2 | 118.2 | 11.97 | 10.880 | | |
| 2,200.0 | 2,174.1 | 2,178.9 | 2,136.7 | 8.1 | 10.1 | -13.06 | 124.4 | -339.3 | 131.8 | 119.1 | 12.70 | 10.383 | | |
| 2,300.0 | 2,270.4 | 2,278.9 | 2,232.6 | 8.7 | 10.8 | -13.73 | 134.4 | -365.5 | 133.4 | 120.0 | 13.44 | 9.931 | | |
| 2,400.0 | 2,366.8 | 2,378.9 | 2,328.6 | 9.4 | 11.5 | -14.38 | 144.4 | -391.6 | 135.1 | 120.9 | 14.19 | 9.518 | | |
| 2,500.0 | 2,463.1 | 2,478.9 | 2,424.6 | 10.1 | 12.3 | -15.02 | 154.4 | -417.7 | 136.7 | 121.8 | 14.96 | 9.140 | | |
| 2,600.0 | 2,559.5 | 2,578.8 | 2,520.6 | 10.7 | 13.0 | -15.65 | 164.5 | -443.9 | 138.4 | 122.7 | 15.74 | 8.793 | | |
| 2,700.0 | 2,655.8 | 2,678.8 | 2,616.5 | 11.4 | 13.7 | -16.26 | 174.5 | -470.0 | 140.1 | 123.6 | 16.53 | 8.473 | | |
| 2,800.0 | 2,752.2 | 2,778.8 | 2,712.5 | 12.1 | 14.4 | -16.85 | 184.5 | -496.1 | 141.8 | 124.5 | 17.34 | 8.178 | | |
| 2,900.0 | 2,848.5 | 2,878.8 | 2,808.5 | 12.7 | 15.2 | -17.44 | 194.5 | -522.2 | 143.5 | 125.4 | 18.16 | 7.904 | | |
| 3,000.0 | 2,944.9 | 2,978.7 | 2,904.5 | 13.4 | 15.9 | -18.00 | 204.5 | -548.4 | 145.3 | 126.3 | 18.99 | 7.650 | | |
| 3,100.0 | 3,041.2 | 3,078.7 | 3,000.5 | 14.1 | 16.6 | -18.56 | 214.6 | -574.5 | 147.0 | 127.2 | 19.83 | 7.414 | | |
| 3,200.0 | 3,137.6 | 3,178.7 | 3,096.4 | 14.8 | 17.3 | -19.10 | 224.6 | -600.6 | 148.8 | 128.1 | 20.68 | 7.193 | | |
| 3,300.0 | 3,233.9 | 3,278.7 | 3,192.4 | 15.5 | 18.1 | -19.63 | 234.6 | -626.8 | 150.6 | 129.0 | 21.55 | 6.987 | | |
| 3,400.0 | 3,330.3 | 3,378.6 | 3,288.4 | 16.2 | 18.8 | -20.14 | 244.6 | -652.9 | 152.3 | 129.9 | 22.42 | 6.795 | | |
| 3,500.0 | 3,426.7 | 3,478.6 | 3,384.4 | 16.8 | 19.5 | -20.64 | 254.6 | -679.0 | 154.1 | 130.8 | 23.31 | 6.614 | | |
| 3,600.0 | 3,523.0 | 3,578.6 | 3,480.3 | 17.5 | 20.2 | -21.14 | 264.7 | -705.2 | 156.0 | 131.8 | 24.20 | 6.444 | | |
| 3,700.0 | 3,619.4 | 3,678.6 | 3,576.3 | 18.2 | 21.0 | -21.62 | 274.7 | -731.3 | 157.8 | 132.7 | 25.11 | 6.284 | | |
| 3,800.0 | 3,715.7 | 3,778.5 | 3,672.3 | 18.9 | 21.7 | -22.09 | 284.7 | -757.4 | 159.6 | 133.6 | 26.02 | 6.134 | | |
| 3,900.0 | 3,812.1 | 3,878.5 | 3,768.3 | 19.6 | 22.4 | -22.55 | 294.7 | -783.5 | 161.5 | 134.5 | 26.95 | 5.992 | | |
| 4,000.0 | 3,908.4 | 3,978.5 | 3,864.3 | 20.3 | 23.1 | -22.99 | 304.7 | -809.7 | 163.3 | 135.4 | 27.88 | 5.858 | | |
| 4,100.0 | 4,004.8 | 4,078.5 | 3,960.2 | 21.0 | 23.9 | -23.43 | 314.8 | -835.8 | 165.2 | 136.4 | 28.82 | 5.731 | | |
| 4,200.0 | 4,101.1 | 4,178.4 | 4,056.2 | 21.7 | 24.6 | -23.86 | 324.8 | -861.9 | 167.1 | 137.3 | 29.77 | 5.611 | | |
| 4,300.0 | 4,197.5 | 4,278.4 | 4,152.2 | 22.4 | 25.3 | -24.28 | 334.8 | -888.1 | 168.9 | 138.2 | 30.73 | 5.498 | | |
| 4,400.0 | 4,293.8 | 4,378.4 | 4,248.2 | 23.1 | 26.1 | -24.69 | 344.8 | -914.2 | 170.8 | 139.1 | 31.70 | 5.390 | | |
| 4,500.0 | 4,390.2 | 4,478.4 | 4,344.2 | 23.8 | 26.8 | -25.09 | 354.8 | -940.3 | 172.7 | 140.1 | 32.67 | 5.287 | | |
| 4,600.0 | 4,486.5 | 4,578.3 | 4,440.1 | 24.4 | 27.5 | -25.48 | 364.9 | -966.5 | 174.7 | 141.0 | 33.65 | 5.190 | | |
| 4,700.0 | 4,582.9 | 4,678.3 | 4,536.1 | 25.1 | 28.3 | -25.87 | 374.9 | -992.6 | 176.6 | 141.9 | 34.64 | 5.097 | | |
| 4,800.0 | 4,679.2 | 4,778.3 | 4,632.1 | 25.8 | 29.0 | -26.24 | 384.9 | -1,018.7 | 178.5 | 142.9 | 35.64 | 5.008 | | |
| 4,900.0 | 4,775.6 | 4,878.3 | 4,728.1 | 26.5 | 29.7 | -26.61 | 394.9 | -1,044.8 | 180.4 | 143.8 | 36.64 | 4.924 | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-423 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | Warning | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | |
| 5,000.0 | 4,871.9 | 4,978.2 | 4,824.0 | 27.2 | 30.4 | -26.97 | 404.9 | -1,071.0 | 182.4 | 144.7 | 37.65 | 4.843 | | |
| 5,100.0 | 4,968.3 | 5,078.2 | 4,920.0 | 27.9 | 31.2 | -27.32 | 415.0 | -1,097.1 | 184.3 | 145.6 | 38.67 | 4.766 | | |
| 5,200.0 | 5,064.6 | 5,178.2 | 5,016.0 | 28.6 | 31.9 | -27.67 | 425.0 | -1,123.2 | 186.3 | 146.6 | 39.69 | 4.693 | | |
| 5,271.3 | 5,133.3 | 5,249.5 | 5,084.4 | 29.1 | 32.4 | -27.91 | 432.1 | -1,141.9 | 187.7 | 147.2 | 40.43 | 4.642 | | |
| 5,300.0 | 5,161.0 | 5,278.1 | 5,112.0 | 29.3 | 32.6 | -27.99 | 435.0 | -1,149.4 | 188.4 | 147.6 | 40.71 | 4.627 | | |
| 5,400.0 | 5,258.1 | 5,378.7 | 5,208.5 | 29.8 | 33.4 | -27.97 | 445.1 | -1,175.6 | 192.7 | 151.2 | 41.50 | 4.644 | | |
| 5,500.0 | 5,355.9 | 5,485.2 | 5,311.4 | 30.2 | 33.9 | -27.74 | 454.9 | -1,201.3 | 198.2 | 156.1 | 42.09 | 4.708 | | |
| 5,600.0 | 5,454.4 | 5,591.9 | 5,415.4 | 30.6 | 34.4 | -27.49 | 463.4 | -1,223.5 | 203.3 | 160.7 | 42.57 | 4.775 | | |
| 5,700.0 | 5,553.4 | 5,698.8 | 5,520.5 | 30.9 | 34.9 | -27.21 | 470.5 | -1,242.0 | 208.1 | 165.1 | 42.95 | 4.845 | | |
| 5,800.0 | 5,652.9 | 5,805.9 | 5,626.4 | 31.2 | 35.2 | -26.91 | 476.2 | -1,256.9 | 212.6 | 169.4 | 43.23 | 4.917 | | |
| 5,900.0 | 5,752.7 | 5,913.3 | 5,733.0 | 31.4 | 35.5 | -26.59 | 480.5 | -1,268.1 | 216.8 | 173.3 | 43.41 | 4.993 | | |
| 6,000.0 | 5,852.6 | 6,020.8 | 5,840.2 | 31.6 | 35.7 | -26.25 | 483.4 | -1,275.6 | 220.6 | 177.1 | 43.50 | 5.072 | | |
| 6,047.4 | 5,900.0 | 6,071.8 | 5,891.2 | 31.6 | 35.8 | -91.22 | 484.3 | -1,277.8 | 222.3 | 178.8 | 43.52 | 5.108 | | |
| 6,100.0 | 5,952.6 | 6,128.4 | 5,947.8 | 31.7 | 35.9 | -91.07 | 484.8 | -1,279.3 | 223.7 | 180.0 | 43.65 | 5.125 | | |
| 6,190.6 | 6,043.1 | 6,222.8 | 6,042.1 | 31.8 | 36.0 | -91.02 | 485.0 | -1,279.7 | 224.1 | 180.1 | 43.96 | 5.097 | | |
| 6,200.0 | 6,052.6 | 6,232.2 | 6,051.6 | 31.8 | 36.0 | 88.95 | 485.0 | -1,279.7 | 224.1 | 180.1 | 43.97 | 5.096 | | |
| 6,250.0 | 6,102.5 | 6,282.2 | 6,101.5 | 31.9 | 36.1 | 89.53 | 485.0 | -1,279.7 | 224.0 | 180.2 | 43.87 | 5.107 | | |
| 6,270.4 | 6,122.8 | 6,302.4 | 6,121.8 | 31.9 | 36.1 | 90.00 | 485.0 | -1,279.7 | 224.0 | 180.3 | 43.71 | 5.126 | | |
| 6,300.0 | 6,152.2 | 6,332.0 | 6,151.3 | 31.9 | 36.1 | 90.75 | 484.3 | -1,279.7 | 224.1 | 180.6 | 43.44 | 5.158 | | |
| 6,350.0 | 6,201.4 | 6,382.1 | 6,201.3 | 31.9 | 36.2 | 92.02 | 480.5 | -1,279.7 | 224.2 | 181.2 | 42.95 | 5.220 | | |
| 6,400.0 | 6,250.0 | 6,432.5 | 6,251.2 | 31.9 | 36.2 | 93.27 | 473.3 | -1,279.8 | 224.4 | 182.0 | 42.43 | 5.289 | | |
| 6,450.0 | 6,297.6 | 6,483.3 | 6,300.9 | 31.8 | 36.2 | 94.52 | 462.8 | -1,279.8 | 224.7 | 182.8 | 41.90 | 5.364 | | |
| 6,500.0 | 6,344.2 | 6,534.4 | 6,350.1 | 31.8 | 36.1 | 95.75 | 448.9 | -1,279.8 | 225.2 | 183.8 | 41.37 | 5.443 | | |
| 6,550.0 | 6,389.5 | 6,585.9 | 6,398.5 | 31.7 | 36.1 | 96.95 | 431.7 | -1,279.8 | 225.7 | 184.9 | 40.85 | 5.525 | | |
| 6,600.0 | 6,433.3 | 6,637.7 | 6,446.0 | 31.6 | 36.1 | 98.12 | 411.0 | -1,279.8 | 226.3 | 186.0 | 40.35 | 5.609 | | |
| 6,650.0 | 6,475.4 | 6,689.8 | 6,492.3 | 31.5 | 36.0 | 99.25 | 387.0 | -1,279.8 | 227.0 | 187.1 | 39.88 | 5.693 | | |
| 6,700.0 | 6,515.7 | 6,742.3 | 6,537.2 | 31.5 | 35.9 | 100.34 | 359.8 | -1,279.8 | 227.8 | 188.3 | 39.44 | 5.775 | | |
| 6,750.0 | 6,553.9 | 6,795.1 | 6,580.3 | 31.3 | 35.8 | 101.38 | 329.3 | -1,279.9 | 228.6 | 189.5 | 39.04 | 5.854 | | |
| 6,800.0 | 6,590.0 | 6,848.2 | 6,621.4 | 31.2 | 35.7 | 102.36 | 295.7 | -1,279.9 | 229.4 | 190.7 | 38.69 | 5.929 | | |
| 6,850.0 | 6,623.7 | 6,901.7 | 6,660.4 | 31.1 | 35.6 | 103.29 | 259.1 | -1,279.9 | 230.2 | 191.8 | 38.39 | 5.998 | | |
| 6,900.0 | 6,654.9 | 6,955.4 | 6,696.8 | 31.0 | 35.5 | 104.16 | 219.7 | -1,279.9 | 231.1 | 192.9 | 38.15 | 6.058 | | |
| 6,950.0 | 6,683.5 | 7,009.4 | 6,730.6 | 30.9 | 35.4 | 104.96 | 177.6 | -1,280.0 | 231.9 | 193.9 | 37.97 | 6.108 | | |
| 7,000.0 | 6,709.4 | 7,063.7 | 6,761.5 | 30.8 | 35.3 | 105.69 | 132.9 | -1,280.0 | 232.7 | 194.9 | 37.87 | 6.145 | | |
| 7,050.0 | 6,732.4 | 7,118.2 | 6,789.2 | 30.8 | 35.3 | 106.34 | 86.0 | -1,280.0 | 233.5 | 195.6 | 37.85 | 6.169 | | |
| 7,100.0 | 6,752.5 | 7,173.0 | 6,813.6 | 30.7 | 35.2 | 106.93 | 37.0 | -1,280.1 | 234.2 | 196.3 | 37.91 | 6.178 | | |
| 7,150.0 | 6,769.5 | 7,227.9 | 6,834.5 | 30.6 | 35.1 | 107.43 | -13.8 | -1,280.1 | 234.8 | 196.8 | 38.06 | 6.169 | | |
| 7,200.0 | 6,783.4 | 7,283.0 | 6,851.8 | 30.6 | 35.1 | 107.86 | -66.1 | -1,280.1 | 235.4 | 197.1 | 38.32 | 6.142 | | |
| 7,250.0 | 6,794.1 | 7,338.3 | 6,865.2 | 30.6 | 35.1 | 108.20 | -119.7 | -1,280.2 | 235.8 | 197.2 | 38.68 | 6.097 | | |
| 7,300.0 | 6,801.7 | 7,393.6 | 6,874.8 | 30.6 | 35.1 | 108.47 | -174.2 | -1,280.2 | 236.2 | 197.1 | 39.13 | 6.035 | | |
| 7,350.0 | 6,805.9 | 7,449.1 | 6,880.4 | 30.7 | 35.2 | 108.65 | -229.4 | -1,280.2 | 236.4 | 196.7 | 39.70 | 5.955 | | |
| 7,396.0 | 6,807.0 | 7,500.2 | 6,882.0 | 30.8 | 35.2 | 108.74 | -280.4 | -1,280.3 | 236.6 | 196.2 | 40.32 | 5.867 | | |
| 7,396.0 | 6,807.0 | 7,500.2 | 6,882.0 | 30.8 | 35.2 | 108.74 | -280.4 | -1,280.3 | 236.6 | 196.2 | 40.32 | 5.867 | | |
| 7,396.4 | 6,807.0 | 7,500.5 | 6,882.0 | 30.8 | 35.2 | 108.74 | -280.8 | -1,280.3 | 236.6 | 196.2 | 40.33 | 5.866 | | |
| 7,400.0 | 6,807.0 | 7,504.1 | 6,882.0 | 30.8 | 35.3 | 108.75 | -284.4 | -1,280.3 | 236.6 | 196.2 | 40.39 | 5.858 | | |
| 7,500.0 | 6,806.2 | 7,604.1 | 6,881.8 | 31.2 | 35.5 | 108.88 | -384.4 | -1,280.4 | 236.8 | 194.6 | 42.16 | 5.615 | | |
| 7,600.0 | 6,805.5 | 7,704.1 | 6,881.7 | 31.8 | 36.0 | 109.01 | -484.4 | -1,280.4 | 236.9 | 192.6 | 44.37 | 5.340 | | |
| 7,700.0 | 6,804.8 | 7,804.1 | 6,881.6 | 32.5 | 36.6 | 109.15 | -584.4 | -1,280.5 | 237.1 | 190.2 | 46.89 | 5.057 | | |
| 7,800.0 | 6,804.0 | 7,904.1 | 6,881.4 | 33.6 | 37.4 | 109.28 | -684.4 | -1,280.6 | 237.3 | 187.6 | 49.69 | 4.777 | | |
| 7,900.0 | 6,803.3 | 8,004.1 | 6,881.3 | 34.7 | 38.3 | 109.42 | -784.4 | -1,280.7 | 237.5 | 184.8 | 52.70 | 4.507 | | |
| 8,000.0 | 6,802.6 | 8,104.1 | 6,881.1 | 36.1 | 39.4 | 109.55 | -884.4 | -1,280.7 | 237.7 | 181.8 | 55.90 | 4.253 | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-423 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft | |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | |
| 8,100.0 | 6,801.8 | 8,204.1 | 6,881.0 | 37.6 | 40.7 | 109.68 | -984.4 | -1,280.8 | 237.9 | 178.7 | 59.26 | 4.015 | | | |
| 8,200.0 | 6,801.1 | 8,304.1 | 6,880.8 | 39.2 | 42.1 | 109.82 | -1,084.4 | -1,280.9 | 238.1 | 175.4 | 62.74 | 3.795 | | | |
| 8,300.0 | 6,800.3 | 8,404.1 | 6,880.7 | 40.9 | 43.6 | 109.95 | -1,184.4 | -1,281.0 | 238.3 | 172.0 | 66.33 | 3.593 | | | |
| 8,400.0 | 6,799.6 | 8,504.1 | 6,880.5 | 42.6 | 45.2 | 110.08 | -1,284.4 | -1,281.0 | 238.5 | 168.5 | 70.01 | 3.407 | | | |
| 8,500.0 | 6,798.9 | 8,604.1 | 6,880.4 | 44.4 | 46.8 | 110.22 | -1,384.3 | -1,281.1 | 238.7 | 165.0 | 73.76 | 3.237 | | | |
| 8,600.0 | 6,798.1 | 8,704.1 | 6,880.2 | 46.3 | 48.6 | 110.35 | -1,484.3 | -1,281.2 | 238.9 | 161.4 | 77.58 | 3.080 | | | |
| 8,700.0 | 6,797.4 | 8,804.1 | 6,880.1 | 48.2 | 50.4 | 110.48 | -1,584.3 | -1,281.3 | 239.1 | 157.7 | 81.44 | 2.936 | | | |
| 8,800.0 | 6,796.7 | 8,904.1 | 6,879.9 | 50.2 | 52.2 | 110.61 | -1,684.3 | -1,281.3 | 239.4 | 154.0 | 85.36 | 2.804 | | | |
| 8,900.0 | 6,795.9 | 9,004.1 | 6,879.8 | 52.2 | 54.1 | 110.75 | -1,784.3 | -1,281.4 | 239.6 | 150.3 | 89.31 | 2.682 | | | |
| 9,000.0 | 6,795.2 | 9,104.1 | 6,879.6 | 54.2 | 56.0 | 110.88 | -1,884.3 | -1,281.5 | 239.8 | 146.5 | 93.29 | 2.570 | | | |
| 9,100.0 | 6,794.5 | 9,204.1 | 6,879.5 | 56.2 | 58.0 | 111.01 | -1,984.3 | -1,281.6 | 240.0 | 142.7 | 97.30 | 2.466 | | | |
| 9,200.0 | 6,793.7 | 9,304.1 | 6,879.3 | 58.3 | 60.0 | 111.14 | -2,084.3 | -1,281.6 | 240.2 | 138.9 | 101.33 | 2.370 | | | |
| 9,300.0 | 6,793.0 | 9,404.1 | 6,879.2 | 60.4 | 62.0 | 111.27 | -2,184.3 | -1,281.7 | 240.4 | 135.0 | 105.38 | 2.281 | | | |
| 9,400.0 | 6,792.2 | 9,504.1 | 6,879.1 | 62.5 | 64.1 | 111.40 | -2,284.3 | -1,281.8 | 240.6 | 131.2 | 109.45 | 2.198 | | | |
| 9,500.0 | 6,791.5 | 9,604.1 | 6,878.9 | 64.6 | 66.1 | 111.53 | -2,384.3 | -1,281.9 | 240.8 | 127.3 | 113.53 | 2.121 | | | |
| 9,600.0 | 6,790.8 | 9,704.1 | 6,878.8 | 66.8 | 68.2 | 111.66 | -2,484.3 | -1,281.9 | 241.1 | 123.4 | 117.63 | 2.049 | | | |
| 9,700.0 | 6,790.0 | 9,804.1 | 6,878.6 | 68.9 | 70.3 | 111.79 | -2,584.3 | -1,282.0 | 241.3 | 119.5 | 121.73 | 1.982 | | | |
| 9,800.0 | 6,789.3 | 9,904.1 | 6,878.5 | 71.1 | 72.5 | 111.92 | -2,684.3 | -1,282.1 | 241.5 | 115.7 | 125.84 | 1.919 | | | |
| 9,900.0 | 6,788.6 | 10,004.1 | 6,878.3 | 73.3 | 74.6 | 112.05 | -2,784.3 | -1,282.2 | 241.7 | 111.8 | 129.96 | 1.860 | | | |
| 10,000.0 | 6,787.8 | 10,104.1 | 6,878.2 | 75.5 | 76.7 | 112.18 | -2,884.3 | -1,282.2 | 241.9 | 107.9 | 134.08 | 1.804 | | | |
| 10,100.0 | 6,787.1 | 10,204.1 | 6,878.0 | 77.7 | 78.9 | 112.31 | -2,984.3 | -1,282.3 | 242.2 | 104.0 | 138.21 | 1.752 | | | |
| 10,200.0 | 6,786.4 | 10,304.1 | 6,877.9 | 79.9 | 81.1 | 112.44 | -3,084.3 | -1,282.4 | 242.4 | 100.0 | 142.34 | 1.703 | | | |
| 10,300.0 | 6,785.6 | 10,404.1 | 6,877.7 | 82.1 | 83.2 | 112.57 | -3,184.3 | -1,282.5 | 242.6 | 96.1 | 146.47 | 1.656 | | | |
| 10,400.0 | 6,784.9 | 10,504.1 | 6,877.6 | 84.3 | 85.4 | 112.69 | -3,284.3 | -1,282.5 | 242.8 | 92.2 | 150.61 | 1.612 | | | |
| 10,500.0 | 6,784.1 | 10,604.1 | 6,877.4 | 86.5 | 87.6 | 112.82 | -3,384.3 | -1,282.6 | 243.1 | 88.3 | 154.74 | 1.571 | | | |
| 10,600.0 | 6,783.4 | 10,704.1 | 6,877.3 | 88.8 | 89.8 | 112.95 | -3,484.3 | -1,282.7 | 243.3 | 84.4 | 158.88 | 1.531 | | | |
| 10,700.0 | 6,782.7 | 10,804.1 | 6,877.1 | 91.0 | 92.1 | 113.08 | -3,584.3 | -1,282.8 | 243.5 | 80.5 | 163.01 | 1.494 Level 3 | | | |
| 10,800.0 | 6,781.9 | 10,904.1 | 6,877.0 | 93.3 | 94.3 | 113.20 | -3,684.3 | -1,282.8 | 243.8 | 76.6 | 167.14 | 1.458 Level 3 | | | |
| 10,900.0 | 6,781.2 | 11,004.1 | 6,876.8 | 95.5 | 96.5 | 113.33 | -3,784.3 | -1,282.9 | 244.0 | 72.7 | 171.28 | 1.425 Level 3 | | | |
| 11,000.0 | 6,780.5 | 11,104.1 | 6,876.7 | 97.8 | 98.7 | 113.46 | -3,884.3 | -1,283.0 | 244.2 | 68.8 | 175.40 | 1.392 Level 3 | | | |
| 11,100.0 | 6,779.7 | 11,204.1 | 6,876.5 | 100.0 | 101.0 | 113.59 | -3,984.3 | -1,283.1 | 244.5 | 64.9 | 179.53 | 1.362 Level 3 | | | |
| 11,200.0 | 6,779.0 | 11,304.0 | 6,876.4 | 102.3 | 103.2 | 113.71 | -4,084.3 | -1,283.1 | 244.7 | 61.1 | 183.65 | 1.332 Level 3 | | | |
| 11,300.0 | 6,778.3 | 11,404.0 | 6,876.3 | 104.6 | 105.5 | 113.84 | -4,184.3 | -1,283.2 | 244.9 | 57.2 | 187.78 | 1.304 Level 3 | | | |
| 11,400.0 | 6,777.5 | 11,504.0 | 6,876.1 | 106.8 | 107.7 | 113.96 | -4,284.3 | -1,283.3 | 245.2 | 53.3 | 191.89 | 1.278 Level 3 | | | |
| 11,500.0 | 6,776.8 | 11,604.0 | 6,876.0 | 109.1 | 110.0 | 114.09 | -4,384.3 | -1,283.4 | 245.4 | 49.4 | 196.01 | 1.252 Level 3 | | | |
| 11,600.0 | 6,776.1 | 11,704.0 | 6,875.8 | 111.4 | 112.2 | 114.21 | -4,484.3 | -1,283.4 | 245.7 | 45.6 | 200.11 | 1.228 Level 2 | | | |
| 11,700.0 | 6,775.3 | 11,804.0 | 6,875.7 | 113.7 | 114.5 | 114.34 | -4,584.3 | -1,283.5 | 245.9 | 41.7 | 204.22 | 1.204 Level 2 | | | |
| 11,800.0 | 6,774.6 | 11,904.0 | 6,875.5 | 115.9 | 116.7 | 114.46 | -4,684.3 | -1,283.6 | 246.2 | 37.8 | 208.32 | 1.182 Level 2 | | | |
| 11,900.0 | 6,773.8 | 12,004.0 | 6,875.4 | 118.2 | 119.0 | 114.59 | -4,784.3 | -1,283.7 | 246.4 | 34.0 | 212.42 | 1.160 Level 2 | | | |
| 12,000.0 | 6,773.1 | 12,104.0 | 6,875.2 | 120.5 | 121.3 | 114.71 | -4,884.3 | -1,283.7 | 246.6 | 30.1 | 216.51 | 1.139 Level 2 | | | |
| 12,100.0 | 6,772.4 | 12,204.0 | 6,875.1 | 122.8 | 123.6 | 114.84 | -4,984.3 | -1,283.8 | 246.9 | 26.3 | 220.59 | 1.119 Level 2 | | | |
| 12,200.0 | 6,771.6 | 12,304.0 | 6,874.9 | 125.1 | 125.8 | 114.96 | -5,084.3 | -1,283.9 | 247.1 | 22.5 | 224.68 | 1.100 Level 2 | | | |
| 12,300.0 | 6,770.9 | 12,404.0 | 6,874.8 | 127.4 | 128.1 | 115.08 | -5,184.3 | -1,284.0 | 247.4 | 18.6 | 228.75 | 1.081 Level 2 | | | |
| 12,400.0 | 6,770.2 | 12,504.0 | 6,874.6 | 129.7 | 130.4 | 115.21 | -5,284.3 | -1,284.0 | 247.6 | 14.8 | 232.82 | 1.064 Level 2 | | | |
| 12,500.0 | 6,769.4 | 12,604.0 | 6,874.5 | 132.0 | 132.7 | 115.33 | -5,384.3 | -1,284.1 | 247.9 | 11.0 | 236.89 | 1.046 Level 2 | | | |
| 12,600.0 | 6,768.7 | 12,704.0 | 6,874.3 | 134.3 | 135.0 | 115.45 | -5,484.3 | -1,284.2 | 248.1 | 7.2 | 240.94 | 1.030 Level 2 | | | |
| 12,700.0 | 6,768.0 | 12,804.0 | 6,874.2 | 136.6 | 137.3 | 115.58 | -5,584.3 | -1,284.3 | 248.4 | 3.4 | 245.00 | 1.014 Level 2 | | | |
| 12,800.0 | 6,767.2 | 12,904.0 | 6,874.0 | 138.9 | 139.6 | 115.70 | -5,684.3 | -1,284.3 | 248.7 | -0.4 | 249.04 | 0.998 Level 1 | | | |
| 12,900.0 | 6,766.5 | 13,004.0 | 6,873.9 | 141.2 | 141.8 | 115.82 | -5,784.3 | -1,284.4 | 248.9 | -4.2 | 253.09 | 0.984 Level 1 | | | |
| 13,000.0 | 6,765.7 | 13,104.0 | 6,873.8 | 143.5 | 144.1 | 115.94 | -5,884.3 | -1,284.5 | 249.2 | -7.9 | 257.12 | 0.969 Level 1 | | | |
| 13,100.0 | 6,765.0 | 13,204.0 | 6,873.6 | 145.8 | 146.4 | 116.06 | -5,984.3 | -1,284.6 | 249.4 | -11.7 | 261.15 | 0.955 Level 1 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-423 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 13,200.0 | 6,764.3 | 13,304.0 | 6,873.5 | 148.1 | 148.7 | 116.19 | -6,084.3 | -1,284.6 | 249.7 | -15.5 | 265.17 | 0.942 | Level 1 | |
| 13,300.0 | 6,763.5 | 13,404.0 | 6,873.3 | 150.4 | 151.0 | 116.31 | -6,184.3 | -1,284.7 | 250.0 | -19.2 | 269.19 | 0.929 | Level 1 | |
| 13,400.0 | 6,762.8 | 13,504.0 | 6,873.2 | 152.7 | 153.3 | 116.43 | -6,284.3 | -1,284.8 | 250.2 | -23.0 | 273.20 | 0.916 | Level 1 | |
| 13,500.0 | 6,762.1 | 13,604.0 | 6,873.0 | 155.0 | 155.6 | 116.55 | -6,384.3 | -1,284.9 | 250.5 | -26.7 | 277.20 | 0.904 | Level 1 | |
| 13,600.0 | 6,761.3 | 13,704.0 | 6,872.9 | 157.4 | 157.9 | 116.67 | -6,484.3 | -1,284.9 | 250.7 | -30.5 | 281.20 | 0.892 | Level 1 | |
| 13,700.0 | 6,760.6 | 13,804.0 | 6,872.7 | 159.7 | 160.2 | 116.79 | -6,584.3 | -1,285.0 | 251.0 | -34.2 | 285.19 | 0.880 | Level 1 | |
| 13,800.0 | 6,759.9 | 13,904.0 | 6,872.6 | 162.0 | 162.6 | 116.91 | -6,684.2 | -1,285.1 | 251.3 | -37.9 | 289.17 | 0.869 | Level 1 | |
| 13,900.0 | 6,759.1 | 14,004.0 | 6,872.4 | 164.3 | 164.9 | 117.03 | -6,784.2 | -1,285.2 | 251.5 | -41.6 | 293.14 | 0.858 | Level 1 | |
| 14,000.0 | 6,758.4 | 14,104.0 | 6,872.3 | 166.6 | 167.2 | 117.15 | -6,884.2 | -1,285.2 | 251.8 | -45.3 | 297.11 | 0.848 | Level 1 | |
| 14,100.0 | 6,757.6 | 14,204.0 | 6,872.1 | 168.9 | 169.5 | 117.27 | -6,984.2 | -1,285.3 | 252.1 | -49.0 | 301.07 | 0.837 | Level 1 | |
| 14,188.1 | 6,757.0 | 14,292.1 | 6,872.0 | 171.0 | 171.5 | 117.37 | -7,072.3 | -1,285.4 | 252.3 | -52.2 | 304.56 | 0.828 | Level 1, ES, SF | |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|----------------|---|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|---------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.68 | -0.4 | 30.1 | 30.1 | | | | | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | 90.68 | -0.4 | 30.1 | 30.1 | 29.8 | 0.27 | 109.843 | | | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.4 | 0.4 | 90.68 | -0.4 | 30.1 | 30.1 | 29.3 | 0.82 | 36.554 | | | |
| 300.0 | 300.0 | 299.0 | 299.0 | 0.7 | 0.7 | 90.68 | -0.4 | 30.1 | 30.1 | 28.7 | 1.37 | 21.903 | | | |
| 400.0 | 400.0 | 399.0 | 399.0 | 1.0 | 1.0 | 90.68 | -0.4 | 30.1 | 30.1 | 28.2 | 1.92 | 15.636 | | | |
| 500.0 | 500.0 | 499.0 | 499.0 | 1.2 | 1.2 | 90.68 | -0.4 | 30.1 | 30.1 | 27.6 | 2.48 | 12.157 | | | |
| 600.0 | 600.0 | 599.0 | 599.0 | 1.5 | 1.5 | 90.68 | -0.4 | 30.1 | 30.1 | 27.1 | 3.03 | 9.945 | | | |
| 700.0 | 700.0 | 699.0 | 699.0 | 1.8 | 1.8 | 90.68 | -0.4 | 30.1 | 30.1 | 26.5 | 3.58 | 8.414 | | | |
| 800.0 | 800.0 | 799.0 | 799.0 | 2.1 | 2.1 | 90.68 | -0.4 | 30.1 | 30.1 | 26.0 | 4.13 | 7.291 CC, ES | | | |
| 900.0 | 900.0 | 899.0 | 899.0 | 2.3 | 2.3 | 156.80 | -0.4 | 30.1 | 31.3 | 26.6 | 4.67 | 6.702 | | | |
| 1,000.0 | 999.9 | 998.9 | 998.9 | 2.6 | 2.6 | 159.32 | -0.4 | 30.1 | 34.9 | 29.7 | 5.21 | 6.711 | | | |
| 1,100.0 | 1,099.7 | 1,098.7 | 1,098.7 | 2.9 | 2.9 | 162.51 | -0.4 | 30.1 | 41.1 | 35.4 | 5.74 | 7.159 | | | |
| 1,200.0 | 1,199.3 | 1,198.3 | 1,198.3 | 3.2 | 3.2 | 165.63 | -0.4 | 30.1 | 49.9 | 43.6 | 6.28 | 7.947 | | | |
| 1,300.0 | 1,298.6 | 1,299.0 | 1,299.0 | 3.5 | 3.4 | 167.81 | 0.5 | 29.1 | 60.3 | 53.4 | 6.82 | 8.841 | | | |
| 1,400.0 | 1,397.5 | 1,400.0 | 1,399.9 | 3.8 | 3.7 | 168.80 | 3.0 | 26.1 | 70.8 | 63.5 | 7.34 | 9.650 | | | |
| 1,500.0 | 1,496.1 | 1,501.2 | 1,500.9 | 4.2 | 4.0 | 169.05 | 7.3 | 21.0 | 81.6 | 73.8 | 7.87 | 10.371 | | | |
| 1,600.0 | 1,594.2 | 1,602.7 | 1,601.9 | 4.6 | 4.3 | 168.82 | 13.3 | 13.8 | 92.6 | 84.2 | 8.41 | 11.013 | | | |
| 1,700.0 | 1,691.7 | 1,704.4 | 1,702.9 | 5.1 | 4.6 | 168.26 | 21.0 | 4.6 | 103.8 | 94.8 | 8.96 | 11.584 | | | |
| 1,800.0 | 1,788.6 | 1,806.3 | 1,803.8 | 5.6 | 4.9 | 167.46 | 30.5 | -6.7 | 115.1 | 105.6 | 9.52 | 12.088 | | | |
| 1,834.8 | 1,822.2 | 1,841.9 | 1,838.9 | 5.8 | 5.0 | 167.14 | 34.2 | -11.2 | 119.1 | 109.4 | 9.73 | 12.246 | | | |
| 1,900.0 | 1,885.0 | 1,908.5 | 1,904.5 | 6.2 | 5.3 | 166.46 | 41.7 | -20.1 | 126.1 | 116.0 | 10.14 | 12.443 | | | |
| 2,000.0 | 1,981.4 | 2,009.7 | 2,003.7 | 6.8 | 5.7 | 165.16 | 54.3 | -35.2 | 135.3 | 124.5 | 10.80 | 12.530 | | | |
| 2,100.0 | 2,077.7 | 2,109.2 | 2,101.3 | 7.5 | 6.1 | 163.97 | 67.0 | -50.4 | 144.2 | 132.7 | 11.48 | 12.560 | | | |
| 2,200.0 | 2,174.1 | 2,208.8 | 2,198.9 | 8.1 | 6.5 | 162.92 | 79.7 | -65.5 | 153.1 | 140.9 | 12.19 | 12.565 | | | |
| 2,300.0 | 2,270.4 | 2,308.4 | 2,296.4 | 8.7 | 7.0 | 161.99 | 92.4 | -80.6 | 162.1 | 149.2 | 12.91 | 12.553 | | | |
| 2,400.0 | 2,366.8 | 2,407.9 | 2,394.0 | 9.4 | 7.5 | 161.15 | 105.0 | -95.7 | 171.1 | 157.5 | 13.66 | 12.528 | | | |
| 2,500.0 | 2,463.1 | 2,507.5 | 2,491.6 | 10.1 | 7.9 | 160.40 | 117.7 | -110.9 | 180.2 | 165.8 | 14.42 | 12.493 | | | |
| 2,600.0 | 2,559.5 | 2,607.0 | 2,589.2 | 10.7 | 8.4 | 159.72 | 130.4 | -126.0 | 189.3 | 174.1 | 15.20 | 12.451 | | | |
| 2,700.0 | 2,655.8 | 2,706.6 | 2,686.8 | 11.4 | 8.9 | 159.10 | 143.0 | -141.1 | 198.4 | 182.4 | 15.99 | 12.405 | | | |
| 2,800.0 | 2,752.2 | 2,806.2 | 2,784.4 | 12.1 | 9.4 | 158.54 | 155.7 | -156.3 | 207.5 | 190.7 | 16.80 | 12.356 | | | |
| 2,900.0 | 2,848.5 | 2,905.7 | 2,882.0 | 12.7 | 9.9 | 158.02 | 168.4 | -171.4 | 216.7 | 199.1 | 17.61 | 12.305 | | | |
| 3,000.0 | 2,944.9 | 3,005.3 | 2,979.5 | 13.4 | 10.4 | 157.55 | 181.1 | -186.5 | 225.8 | 207.4 | 18.43 | 12.253 | | | |
| 3,100.0 | 3,041.2 | 3,104.9 | 3,077.1 | 14.1 | 10.9 | 157.11 | 193.7 | -201.6 | 235.0 | 215.8 | 19.26 | 12.201 | | | |
| 3,200.0 | 3,137.6 | 3,204.4 | 3,174.7 | 14.8 | 11.4 | 156.70 | 206.4 | -216.8 | 244.2 | 224.1 | 20.10 | 12.149 | | | |
| 3,300.0 | 3,233.9 | 3,304.0 | 3,272.3 | 15.5 | 11.9 | 156.33 | 219.1 | -231.9 | 253.4 | 232.5 | 20.95 | 12.098 | | | |
| 3,400.0 | 3,330.3 | 3,403.5 | 3,369.9 | 16.2 | 12.4 | 155.98 | 231.7 | -247.0 | 262.6 | 240.8 | 21.80 | 12.049 | | | |
| 3,500.0 | 3,426.7 | 3,503.1 | 3,467.5 | 16.8 | 12.9 | 155.66 | 244.4 | -262.2 | 271.8 | 249.2 | 22.65 | 12.000 | | | |
| 3,600.0 | 3,523.0 | 3,602.7 | 3,565.1 | 17.5 | 13.4 | 155.35 | 257.1 | -277.3 | 281.1 | 257.6 | 23.52 | 11.953 | | | |
| 3,700.0 | 3,619.4 | 3,702.2 | 3,662.7 | 18.2 | 14.0 | 155.07 | 269.7 | -292.4 | 290.3 | 265.9 | 24.38 | 11.907 | | | |
| 3,800.0 | 3,715.7 | 3,801.8 | 3,760.2 | 18.9 | 14.5 | 154.80 | 282.4 | -307.5 | 299.6 | 274.3 | 25.25 | 11.863 | | | |
| 3,900.0 | 3,812.1 | 3,901.4 | 3,857.8 | 19.6 | 15.0 | 154.55 | 295.1 | -322.7 | 308.8 | 282.7 | 26.13 | 11.820 | | | |
| 4,000.0 | 3,908.4 | 4,000.9 | 3,955.4 | 20.3 | 15.5 | 154.31 | 307.8 | -337.8 | 318.1 | 291.1 | 27.00 | 11.779 | | | |
| 4,100.0 | 4,004.8 | 4,100.5 | 4,053.0 | 21.0 | 16.0 | 154.09 | 320.4 | -352.9 | 327.3 | 299.4 | 27.88 | 11.739 | | | |
| 4,200.0 | 4,101.1 | 4,200.0 | 4,150.6 | 21.7 | 16.6 | 153.88 | 333.1 | -368.1 | 336.6 | 307.8 | 28.77 | 11.701 | | | |
| 4,300.0 | 4,197.5 | 4,299.6 | 4,248.2 | 22.4 | 17.1 | 153.68 | 345.8 | -383.2 | 345.9 | 316.2 | 29.65 | 11.664 | | | |
| 4,400.0 | 4,293.8 | 4,399.2 | 4,345.8 | 23.1 | 17.6 | 153.49 | 358.4 | -398.3 | 355.1 | 324.6 | 30.54 | 11.628 | | | |
| 4,500.0 | 4,390.2 | 4,498.7 | 4,443.4 | 23.8 | 18.1 | 153.31 | 371.1 | -413.4 | 364.4 | 333.0 | 31.43 | 11.594 | | | |
| 4,600.0 | 4,486.5 | 4,598.3 | 4,540.9 | 24.4 | 18.6 | 153.14 | 383.8 | -428.6 | 373.7 | 341.4 | 32.32 | 11.561 | | | |
| 4,700.0 | 4,582.9 | 4,697.8 | 4,638.5 | 25.1 | 19.2 | 152.98 | 396.5 | -443.7 | 383.0 | 349.8 | 33.22 | 11.529 | | | |
| 4,800.0 | 4,679.2 | 4,797.4 | 4,736.1 | 25.8 | 19.7 | 152.82 | 409.1 | -458.8 | 392.3 | 358.2 | 34.12 | 11.499 | | | |
| 4,900.0 | 4,775.6 | 4,897.0 | 4,833.7 | 26.5 | 20.2 | 152.68 | 421.8 | -474.0 | 401.6 | 366.6 | 35.01 | 11.469 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft | |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 5,000.0 | 4,871.9 | 4,996.5 | 4,931.3 | 27.2 | 20.8 | 152.54 | 434.5 | -489.1 | 410.9 | 374.9 | 35.91 | 11.441 | | | |
| 5,100.0 | 4,968.3 | 5,096.1 | 5,028.9 | 27.9 | 21.3 | 152.40 | 447.1 | -504.2 | 420.2 | 383.3 | 36.81 | 11.413 | | | |
| 5,200.0 | 5,064.6 | 5,195.7 | 5,126.5 | 28.6 | 21.8 | 152.27 | 459.8 | -519.3 | 429.5 | 391.7 | 37.72 | 11.386 | | | |
| 5,271.3 | 5,133.3 | 5,260.1 | 5,189.7 | 29.1 | 22.1 | 152.25 | 467.6 | -528.7 | 436.6 | 398.3 | 38.28 | 11.404 | | | |
| 5,300.0 | 5,161.0 | 5,285.7 | 5,215.0 | 29.3 | 22.2 | 152.29 | 470.5 | -532.1 | 439.6 | 401.1 | 38.50 | 11.418 | | | |
| 5,400.0 | 5,258.1 | 5,375.0 | 5,303.1 | 29.8 | 22.5 | 152.48 | 479.3 | -542.6 | 449.8 | 410.7 | 39.15 | 11.490 | | | |
| 5,500.0 | 5,355.9 | 5,464.0 | 5,391.5 | 30.2 | 22.8 | 152.71 | 486.4 | -551.0 | 459.2 | 419.5 | 39.69 | 11.569 | | | |
| 5,600.0 | 5,454.4 | 5,553.0 | 5,480.1 | 30.6 | 23.0 | 152.98 | 491.6 | -557.3 | 467.8 | 427.7 | 40.14 | 11.654 | | | |
| 5,700.0 | 5,553.4 | 5,641.8 | 5,568.7 | 30.9 | 23.2 | 153.28 | 495.1 | -561.5 | 475.6 | 435.1 | 40.50 | 11.745 | | | |
| 5,800.0 | 5,652.9 | 5,730.4 | 5,657.3 | 31.2 | 23.4 | 153.62 | 496.8 | -563.6 | 482.6 | 441.9 | 40.76 | 11.841 | | | |
| 5,900.0 | 5,752.7 | 5,824.8 | 5,751.7 | 31.4 | 23.6 | 153.99 | 497.0 | -563.8 | 488.5 | 447.6 | 40.96 | 11.928 | | | |
| 6,000.0 | 5,852.6 | 5,924.7 | 5,851.6 | 31.6 | 23.7 | 154.19 | 497.0 | -563.8 | 491.6 | 450.4 | 41.18 | 11.939 | | | |
| 6,047.4 | 5,900.0 | 5,972.5 | 5,899.4 | 31.6 | 23.8 | 89.16 | 496.2 | -563.8 | 491.9 | 450.7 | 41.24 | 11.928 | | | |
| 6,100.0 | 5,952.6 | 6,025.3 | 5,952.0 | 31.7 | 23.8 | 89.66 | 491.9 | -563.8 | 491.9 | 450.7 | 41.22 | 11.933 | | | |
| 6,124.0 | 5,976.6 | 6,049.1 | 5,975.6 | 31.7 | 23.9 | 90.03 | 488.7 | -563.8 | 491.9 | 450.7 | 41.16 | 11.950 | | | |
| 6,190.6 | 6,043.1 | 6,113.9 | 6,039.2 | 31.8 | 23.8 | 91.46 | 476.5 | -563.8 | 492.0 | 451.2 | 40.82 | 12.053 | | | |
| 6,200.0 | 6,052.6 | 6,123.0 | 6,048.0 | 31.8 | 23.8 | -88.34 | 474.4 | -563.8 | 492.1 | 451.4 | 40.74 | 12.078 | | | |
| 6,250.0 | 6,102.5 | 6,170.4 | 6,093.6 | 31.9 | 23.8 | -87.05 | 461.5 | -563.8 | 492.6 | 452.2 | 40.36 | 12.204 | | | |
| 6,300.0 | 6,152.2 | 6,217.2 | 6,137.8 | 31.9 | 23.7 | -85.77 | 446.0 | -563.8 | 493.3 | 453.4 | 39.95 | 12.349 | | | |
| 6,350.0 | 6,201.4 | 6,263.3 | 6,180.3 | 31.9 | 23.7 | -84.52 | 428.1 | -563.8 | 494.3 | 454.8 | 39.51 | 12.508 | | | |
| 6,400.0 | 6,250.0 | 6,309.0 | 6,221.2 | 31.9 | 23.6 | -83.31 | 408.0 | -563.9 | 495.4 | 456.4 | 39.07 | 12.680 | | | |
| 6,450.0 | 6,297.6 | 6,354.0 | 6,260.4 | 31.8 | 23.5 | -82.13 | 385.7 | -563.9 | 496.8 | 458.2 | 38.63 | 12.859 | | | |
| 6,500.0 | 6,344.2 | 6,400.0 | 6,298.9 | 31.8 | 23.4 | -80.96 | 360.6 | -563.9 | 498.3 | 460.1 | 38.20 | 13.046 | | | |
| 6,550.0 | 6,389.5 | 6,442.8 | 6,333.4 | 31.7 | 23.3 | -79.89 | 335.2 | -563.9 | 500.0 | 462.2 | 37.80 | 13.227 | | | |
| 6,600.0 | 6,433.3 | 6,486.5 | 6,367.1 | 31.6 | 23.2 | -78.84 | 307.3 | -563.9 | 501.7 | 464.3 | 37.42 | 13.409 | | | |
| 6,650.0 | 6,475.4 | 6,529.8 | 6,398.8 | 31.5 | 23.0 | -77.83 | 277.8 | -563.9 | 503.6 | 466.5 | 37.07 | 13.585 | | | |
| 6,700.0 | 6,515.7 | 6,572.8 | 6,428.6 | 31.5 | 22.9 | -76.88 | 246.9 | -563.9 | 505.5 | 468.7 | 36.75 | 13.753 | | | |
| 6,750.0 | 6,553.9 | 6,615.4 | 6,456.3 | 31.3 | 22.8 | -75.99 | 214.5 | -564.0 | 507.4 | 470.9 | 36.48 | 13.909 | | | |
| 6,800.0 | 6,590.0 | 6,657.8 | 6,482.1 | 31.2 | 22.7 | -75.15 | 180.9 | -564.0 | 509.3 | 473.1 | 36.25 | 14.050 | | | |
| 6,850.0 | 6,623.7 | 6,700.0 | 6,505.9 | 31.1 | 22.6 | -74.37 | 146.0 | -564.0 | 511.2 | 475.1 | 36.07 | 14.173 | | | |
| 6,900.0 | 6,654.9 | 6,741.6 | 6,527.4 | 31.0 | 22.5 | -73.65 | 110.5 | -564.0 | 513.0 | 477.1 | 35.95 | 14.271 | | | |
| 6,950.0 | 6,683.5 | 6,783.2 | 6,546.9 | 30.9 | 22.4 | -73.00 | 73.8 | -564.0 | 514.8 | 478.9 | 35.89 | 14.343 | | | |
| 7,000.0 | 6,709.4 | 6,824.5 | 6,564.3 | 30.8 | 22.3 | -72.40 | 36.3 | -564.1 | 516.4 | 480.5 | 35.89 | 14.387 | | | |
| 7,050.0 | 6,732.4 | 6,865.7 | 6,579.6 | 30.8 | 22.2 | -71.87 | -1.9 | -564.1 | 517.9 | 481.9 | 35.96 | 14.400 | | | |
| 7,100.0 | 6,752.5 | 6,906.7 | 6,592.8 | 30.7 | 22.1 | -71.41 | -40.8 | -564.1 | 519.3 | 483.1 | 36.11 | 14.379 | | | |
| 7,150.0 | 6,769.5 | 6,950.0 | 6,604.5 | 30.6 | 22.1 | -70.99 | -82.5 | -564.1 | 520.5 | 484.1 | 36.35 | 14.320 | | | |
| 7,200.0 | 6,783.4 | 6,988.3 | 6,612.8 | 30.6 | 22.1 | -70.67 | -119.9 | -564.1 | 521.5 | 484.8 | 36.65 | 14.228 | | | |
| 7,250.0 | 6,794.1 | 7,029.0 | 6,619.5 | 30.6 | 22.1 | -70.40 | -160.0 | -564.2 | 522.3 | 485.3 | 37.05 | 14.098 | | | |
| 7,300.0 | 6,801.7 | 7,069.6 | 6,624.1 | 30.6 | 22.2 | -70.20 | -200.3 | -564.2 | 523.0 | 485.4 | 37.54 | 13.932 | | | |
| 7,350.0 | 6,805.9 | 7,110.1 | 6,626.6 | 30.7 | 22.4 | -70.07 | -240.8 | -564.2 | 523.4 | 485.3 | 38.10 | 13.736 | | | |
| 7,396.0 | 6,807.0 | 7,149.9 | 6,627.0 | 30.8 | 22.7 | -70.01 | -280.5 | -564.2 | 523.6 | 484.9 | 38.72 | 13.521 | | | |
| 7,396.0 | 6,807.0 | 7,149.9 | 6,627.0 | 30.8 | 22.7 | -70.01 | -280.5 | -564.2 | 523.6 | 484.9 | 38.72 | 13.521 | | | |
| 7,396.4 | 6,807.0 | 7,150.2 | 6,627.0 | 30.8 | 22.7 | -70.01 | -280.9 | -564.2 | 523.6 | 484.9 | 38.73 | 13.519 | | | |
| 7,400.0 | 6,807.0 | 7,153.8 | 6,627.0 | 30.8 | 22.7 | -70.01 | -284.5 | -564.2 | 523.6 | 484.8 | 38.79 | 13.497 | | | |
| 7,500.0 | 6,806.2 | 7,253.8 | 6,626.8 | 31.2 | 23.7 | -70.07 | -384.5 | -564.3 | 523.4 | 482.6 | 40.82 | 12.823 | | | |
| 7,600.0 | 6,805.5 | 7,353.8 | 6,626.7 | 31.8 | 25.0 | -70.13 | -484.5 | -564.3 | 523.2 | 480.0 | 43.22 | 12.105 | | | |
| 7,700.0 | 6,804.8 | 7,453.8 | 6,626.5 | 32.5 | 26.4 | -70.19 | -584.4 | -564.4 | 523.0 | 477.1 | 45.94 | 11.384 | | | |
| 7,800.0 | 6,804.0 | 7,553.8 | 6,626.4 | 33.6 | 28.0 | -70.25 | -684.4 | -564.5 | 522.8 | 473.9 | 48.93 | 10.686 | | | |
| 7,900.0 | 6,803.3 | 7,653.8 | 6,626.2 | 34.7 | 29.6 | -70.32 | -784.4 | -564.5 | 522.7 | 470.5 | 52.13 | 10.027 | | | |
| 8,000.0 | 6,802.6 | 7,753.8 | 6,626.1 | 36.1 | 31.4 | -70.38 | -884.4 | -564.6 | 522.5 | 467.0 | 55.51 | 9.413 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|----------------|----------------|----------------|---|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|---------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 8,100.0 | 6,801.8 | 7,853.8 | 6,625.9 | 37.6 | 33.2 | -70.44 | -984.4 | -564.6 | 522.3 | 463.3 | 59.03 | 8.847 | | | |
| 8,200.0 | 6,801.1 | 7,953.8 | 6,625.8 | 39.2 | 35.1 | -70.50 | -1,084.4 | -564.7 | 522.1 | 459.4 | 62.69 | 8.328 | | | |
| 8,300.0 | 6,800.3 | 8,053.8 | 6,625.7 | 40.9 | 37.0 | -70.56 | -1,184.4 | -564.8 | 521.9 | 455.5 | 66.45 | 7.854 | | | |
| 8,400.0 | 6,799.6 | 8,153.8 | 6,625.5 | 42.6 | 39.0 | -70.62 | -1,284.4 | -564.8 | 521.7 | 451.4 | 70.30 | 7.422 | | | |
| 8,500.0 | 6,798.9 | 8,253.8 | 6,625.4 | 44.4 | 41.0 | -70.68 | -1,384.4 | -564.9 | 521.6 | 447.3 | 74.22 | 7.027 | | | |
| 8,600.0 | 6,798.1 | 8,353.8 | 6,625.2 | 46.3 | 43.0 | -70.75 | -1,484.4 | -564.9 | 521.4 | 443.2 | 78.21 | 6.666 | | | |
| 8,700.0 | 6,797.4 | 8,453.8 | 6,625.1 | 48.2 | 45.1 | -70.81 | -1,584.4 | -565.0 | 521.2 | 438.9 | 82.26 | 6.336 | | | |
| 8,800.0 | 6,796.7 | 8,553.8 | 6,624.9 | 50.2 | 47.2 | -70.87 | -1,684.4 | -565.1 | 521.0 | 434.7 | 86.35 | 6.034 | | | |
| 8,900.0 | 6,795.9 | 8,653.8 | 6,624.8 | 52.2 | 49.3 | -70.93 | -1,784.4 | -565.1 | 520.8 | 430.4 | 90.48 | 5.756 | | | |
| 9,000.0 | 6,795.2 | 8,753.8 | 6,624.6 | 54.2 | 51.4 | -70.99 | -1,884.4 | -565.2 | 520.7 | 426.0 | 94.66 | 5.501 | | | |
| 9,100.0 | 6,794.5 | 8,853.8 | 6,624.5 | 56.2 | 53.6 | -71.06 | -1,984.4 | -565.2 | 520.5 | 421.6 | 98.86 | 5.265 | | | |
| 9,200.0 | 6,793.7 | 8,953.8 | 6,624.3 | 58.3 | 55.8 | -71.12 | -2,084.4 | -565.3 | 520.3 | 417.2 | 103.10 | 5.047 | | | |
| 9,300.0 | 6,793.0 | 9,053.8 | 6,624.2 | 60.4 | 57.9 | -71.18 | -2,184.4 | -565.4 | 520.1 | 412.8 | 107.35 | 4.845 | | | |
| 9,400.0 | 6,792.2 | 9,153.8 | 6,624.0 | 62.5 | 60.1 | -71.24 | -2,284.4 | -565.4 | 520.0 | 408.3 | 111.64 | 4.657 | | | |
| 9,500.0 | 6,791.5 | 9,253.8 | 6,623.9 | 64.6 | 62.4 | -71.30 | -2,384.4 | -565.5 | 519.8 | 403.8 | 115.94 | 4.483 | | | |
| 9,600.0 | 6,790.8 | 9,353.8 | 6,623.7 | 66.8 | 64.6 | -71.36 | -2,484.4 | -565.5 | 519.6 | 399.3 | 120.26 | 4.320 | | | |
| 9,700.0 | 6,790.0 | 9,453.8 | 6,623.6 | 68.9 | 66.8 | -71.43 | -2,584.4 | -565.6 | 519.4 | 394.8 | 124.61 | 4.169 | | | |
| 9,800.0 | 6,789.3 | 9,553.8 | 6,623.4 | 71.1 | 69.0 | -71.49 | -2,684.4 | -565.7 | 519.3 | 390.3 | 128.96 | 4.026 | | | |
| 9,900.0 | 6,788.6 | 9,653.8 | 6,623.3 | 73.3 | 71.3 | -71.55 | -2,784.4 | -565.7 | 519.1 | 385.7 | 133.33 | 3.893 | | | |
| 10,000.0 | 6,787.8 | 9,753.8 | 6,623.2 | 75.5 | 73.5 | -71.61 | -2,884.4 | -565.8 | 518.9 | 381.2 | 137.72 | 3.768 | | | |
| 10,100.0 | 6,787.1 | 9,853.8 | 6,623.0 | 77.7 | 75.8 | -71.68 | -2,984.4 | -565.8 | 518.7 | 376.6 | 142.11 | 3.650 | | | |
| 10,200.0 | 6,786.4 | 9,953.8 | 6,622.9 | 79.9 | 78.0 | -71.74 | -3,084.4 | -565.9 | 518.6 | 372.0 | 146.52 | 3.539 | | | |
| 10,300.0 | 6,785.6 | 10,053.8 | 6,622.7 | 82.1 | 80.3 | -71.80 | -3,184.4 | -566.0 | 518.4 | 367.5 | 150.94 | 3.434 | | | |
| 10,400.0 | 6,784.9 | 10,153.8 | 6,622.6 | 84.3 | 82.6 | -71.86 | -3,284.4 | -566.0 | 518.2 | 362.9 | 155.37 | 3.335 | | | |
| 10,500.0 | 6,784.1 | 10,253.8 | 6,622.4 | 86.5 | 84.8 | -71.93 | -3,384.4 | -566.1 | 518.1 | 358.2 | 159.81 | 3.242 | | | |
| 10,600.0 | 6,783.4 | 10,353.8 | 6,622.3 | 88.8 | 87.1 | -71.99 | -3,484.4 | -566.1 | 517.9 | 353.6 | 164.25 | 3.153 | | | |
| 10,700.0 | 6,782.7 | 10,453.8 | 6,622.1 | 91.0 | 89.4 | -72.05 | -3,584.4 | -566.2 | 517.7 | 349.0 | 168.71 | 3.069 | | | |
| 10,800.0 | 6,781.9 | 10,553.8 | 6,622.0 | 93.3 | 91.7 | -72.11 | -3,684.4 | -566.3 | 517.6 | 344.4 | 173.17 | 2.989 | | | |
| 10,900.0 | 6,781.2 | 10,653.7 | 6,621.8 | 95.5 | 94.0 | -72.18 | -3,784.4 | -566.3 | 517.4 | 339.7 | 177.65 | 2.912 | | | |
| 11,000.0 | 6,780.5 | 10,753.7 | 6,621.7 | 97.8 | 96.3 | -72.24 | -3,884.4 | -566.4 | 517.2 | 335.1 | 182.12 | 2.840 | | | |
| 11,100.0 | 6,779.7 | 10,853.7 | 6,621.5 | 100.0 | 98.6 | -72.30 | -3,984.4 | -566.4 | 517.1 | 330.4 | 186.61 | 2.771 | | | |
| 11,200.0 | 6,779.0 | 10,953.7 | 6,621.4 | 102.3 | 100.8 | -72.36 | -4,084.4 | -566.5 | 516.9 | 325.8 | 191.10 | 2.705 | | | |
| 11,300.0 | 6,778.3 | 11,053.7 | 6,621.2 | 104.6 | 103.1 | -72.43 | -4,184.4 | -566.6 | 516.7 | 321.1 | 195.60 | 2.642 | | | |
| 11,400.0 | 6,777.5 | 11,153.7 | 6,621.1 | 106.8 | 105.4 | -72.49 | -4,284.4 | -566.6 | 516.6 | 316.5 | 200.10 | 2.581 | | | |
| 11,500.0 | 6,776.8 | 11,253.7 | 6,620.9 | 109.1 | 107.7 | -72.55 | -4,384.4 | -566.7 | 516.4 | 311.8 | 204.61 | 2.524 | | | |
| 11,600.0 | 6,776.1 | 11,353.7 | 6,620.8 | 111.4 | 110.1 | -72.61 | -4,484.4 | -566.7 | 516.2 | 307.1 | 209.13 | 2.469 | | | |
| 11,700.0 | 6,775.3 | 11,453.7 | 6,620.7 | 113.7 | 112.4 | -72.68 | -4,584.4 | -566.8 | 516.1 | 302.4 | 213.65 | 2.416 | | | |
| 11,800.0 | 6,774.6 | 11,553.7 | 6,620.5 | 115.9 | 114.7 | -72.74 | -4,684.4 | -566.8 | 515.9 | 297.7 | 218.17 | 2.365 | | | |
| 11,900.0 | 6,773.8 | 11,653.7 | 6,620.4 | 118.2 | 117.0 | -72.80 | -4,784.4 | -566.9 | 515.7 | 293.0 | 222.70 | 2.316 | | | |
| 12,000.0 | 6,773.1 | 11,753.7 | 6,620.2 | 120.5 | 119.3 | -72.87 | -4,884.4 | -567.0 | 515.6 | 288.4 | 227.24 | 2.269 | | | |
| 12,100.0 | 6,772.4 | 11,853.7 | 6,620.1 | 122.8 | 121.6 | -72.93 | -4,984.4 | -567.0 | 515.4 | 283.7 | 231.78 | 2.224 | | | |
| 12,200.0 | 6,771.6 | 11,953.7 | 6,619.9 | 125.1 | 123.9 | -72.99 | -5,084.4 | -567.1 | 515.3 | 278.9 | 236.32 | 2.180 | | | |
| 12,300.0 | 6,770.9 | 12,053.7 | 6,619.8 | 127.4 | 126.2 | -73.06 | -5,184.4 | -567.1 | 515.1 | 274.2 | 240.87 | 2.139 | | | |
| 12,400.0 | 6,770.2 | 12,153.7 | 6,619.6 | 129.7 | 128.6 | -73.12 | -5,284.4 | -567.2 | 515.0 | 269.5 | 245.42 | 2.098 | | | |
| 12,500.0 | 6,769.4 | 12,253.7 | 6,619.5 | 132.0 | 130.9 | -73.18 | -5,384.4 | -567.3 | 514.8 | 264.8 | 249.98 | 2.059 | | | |
| 12,600.0 | 6,768.7 | 12,353.7 | 6,619.3 | 134.3 | 132.2 | -73.24 | -5,484.4 | -567.3 | 514.6 | 260.1 | 254.54 | 2.022 | | | |
| 12,700.0 | 6,768.0 | 12,453.7 | 6,619.2 | 136.6 | 135.5 | -73.31 | -5,584.4 | -567.4 | 514.5 | 255.4 | 259.10 | 1.986 | | | |
| 12,800.0 | 6,767.2 | 12,553.7 | 6,619.0 | 138.9 | 137.8 | -73.37 | -5,684.4 | -567.4 | 514.3 | 250.7 | 263.67 | 1.951 | | | |
| 12,900.0 | 6,766.5 | 12,653.7 | 6,618.9 | 141.2 | 140.2 | -73.43 | -5,784.4 | -567.5 | 514.2 | 245.9 | 268.24 | 1.917 | | | |
| 13,000.0 | 6,765.7 | 12,753.7 | 6,618.7 | 143.5 | 142.5 | -73.50 | -5,884.4 | -567.6 | 514.0 | 241.2 | 272.82 | 1.884 | | | |
| 13,100.0 | 6,765.0 | 12,853.7 | 6,618.6 | 145.8 | 144.8 | -73.56 | -5,984.3 | -567.6 | 513.9 | 236.5 | 277.40 | 1.852 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #2 (1-25-17) | | Offset Site Error: | | 0.0 ft | |
|-----------------------|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|---|---------|--------------------|--|--------|--|
| Survey Program: 0-MWD | | | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | | | | |
| 13,200.0 | 6,764.3 | 12,953.7 | 6,618.4 | 148.1 | 147.1 | -73.63 | -6,084.3 | -567.7 | 513.7 | 231.7 | 281.98 | 1.822 | | | | | | |
| 13,300.0 | 6,763.5 | 13,053.7 | 6,618.3 | 150.4 | 149.5 | -73.69 | -6,184.3 | -567.7 | 513.6 | 227.0 | 286.57 | 1.792 | | | | | | |
| 13,400.0 | 6,762.8 | 13,153.7 | 6,618.2 | 152.7 | 151.8 | -73.75 | -6,284.3 | -567.8 | 513.4 | 222.3 | 291.16 | 1.763 | | | | | | |
| 13,500.0 | 6,762.1 | 13,253.7 | 6,618.0 | 155.0 | 154.1 | -73.82 | -6,384.3 | -567.9 | 513.3 | 217.5 | 295.75 | 1.735 | | | | | | |
| 13,600.0 | 6,761.3 | 13,353.7 | 6,617.9 | 157.4 | 156.4 | -73.88 | -6,484.3 | -567.9 | 513.1 | 212.8 | 300.35 | 1.708 | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 13,700.0 | 6,760.6 | 13,453.7 | 6,617.7 | 159.7 | 158.8 | -73.94 | -6,584.3 | -568.0 | 513.0 | 208.0 | 304.95 | 1.682 | | | | | | |
| 13,800.0 | 6,759.9 | 13,553.7 | 6,617.6 | 162.0 | 161.1 | -74.01 | -6,684.3 | -568.0 | 512.8 | 203.3 | 309.55 | 1.657 | | | | | | |
| 13,900.0 | 6,759.1 | 13,653.7 | 6,617.4 | 164.3 | 163.4 | -74.07 | -6,784.3 | -568.1 | 512.7 | 198.5 | 314.16 | 1.632 | | | | | | |
| 14,000.0 | 6,758.4 | 13,753.7 | 6,617.3 | 166.6 | 165.8 | -74.13 | -6,884.3 | -568.2 | 512.5 | 193.8 | 318.76 | 1.608 | | | | | | |
| 14,100.0 | 6,757.6 | 13,853.7 | 6,617.1 | 168.9 | 168.1 | -74.20 | -6,984.3 | -568.2 | 512.4 | 189.0 | 323.38 | 1.584 | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 14,163.7 | 6,757.2 | 13,917.4 | 6,617.0 | 170.4 | 169.6 | -74.24 | -7,048.0 | -568.3 | 512.3 | 186.0 | 326.31 | 1.570 | | | | | | |
| 14,188.1 | 6,757.0 | 13,936.9 | 6,617.0 | 171.0 | 170.0 | -74.25 | -7,067.6 | -568.3 | 512.3 | 184.9 | 327.33 | 1.565 SF | | | | | | |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-203 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------|----------------|---|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|---------|--------|
| Survey Program: | | 0-MWD | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.69 | -0.7 | 59.9 | 59.9 | | | | | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | 90.69 | -0.7 | 59.9 | 59.9 | 59.6 | 0.27 | 218.670 | | | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.4 | 0.4 | 90.69 | -0.7 | 59.9 | 59.9 | 59.1 | 0.82 | 72.769 | | | |
| 300.0 | 300.0 | 299.0 | 299.0 | 0.7 | 0.7 | 90.69 | -0.7 | 59.9 | 59.9 | 58.5 | 1.37 | 43.603 | | | |
| 400.0 | 400.0 | 399.0 | 399.0 | 1.0 | 1.0 | 90.69 | -0.7 | 59.9 | 59.9 | 58.0 | 1.92 | 31.127 | | | |
| 500.0 | 500.0 | 499.0 | 499.0 | 1.2 | 1.2 | 90.69 | -0.7 | 59.9 | 59.9 | 57.4 | 2.48 | 24.202 | | | |
| 600.0 | 600.0 | 599.0 | 599.0 | 1.5 | 1.5 | 90.69 | -0.7 | 59.9 | 59.9 | 56.9 | 3.03 | 19.798 | | | |
| 700.0 | 700.0 | 699.0 | 699.0 | 1.8 | 1.8 | 90.69 | -0.7 | 59.9 | 59.9 | 56.3 | 3.58 | 16.750 | | | |
| 800.0 | 800.0 | 799.0 | 799.0 | 2.1 | 2.1 | 90.69 | -0.7 | 59.9 | 59.9 | 55.8 | 4.13 | 14.515 | CC, ES | | |
| 900.0 | 900.0 | 899.0 | 899.0 | 2.3 | 2.3 | 156.33 | -0.7 | 59.9 | 61.1 | 56.4 | 4.67 | 13.086 | | | |
| 1,000.0 | 999.9 | 998.9 | 998.9 | 2.6 | 2.6 | 157.71 | -0.7 | 59.9 | 64.7 | 59.5 | 5.21 | 12.433 | | | |
| 1,100.0 | 1,099.7 | 1,098.7 | 1,098.7 | 2.9 | 2.9 | 159.68 | -0.7 | 59.9 | 70.8 | 65.1 | 5.74 | 12.329 | SF | | |
| 1,200.0 | 1,199.3 | 1,198.3 | 1,198.3 | 3.2 | 3.2 | 161.93 | -0.7 | 59.9 | 79.5 | 73.2 | 6.28 | 12.647 | | | |
| 1,300.0 | 1,298.6 | 1,297.6 | 1,297.6 | 3.5 | 3.4 | 164.19 | -0.7 | 59.9 | 90.7 | 83.9 | 6.82 | 13.298 | | | |
| 1,400.0 | 1,397.5 | 1,396.5 | 1,396.5 | 3.8 | 3.7 | 166.28 | -0.7 | 59.9 | 104.6 | 97.2 | 7.36 | 14.213 | | | |
| 1,500.0 | 1,496.1 | 1,495.1 | 1,495.1 | 4.2 | 4.0 | 168.13 | -0.7 | 59.9 | 121.1 | 113.2 | 7.90 | 15.341 | | | |
| 1,600.0 | 1,594.2 | 1,593.2 | 1,593.2 | 4.6 | 4.2 | 169.71 | -0.7 | 59.9 | 140.3 | 131.9 | 8.43 | 16.642 | | | |
| 1,700.0 | 1,691.7 | 1,690.7 | 1,690.7 | 5.1 | 4.5 | 171.05 | -0.7 | 59.9 | 162.1 | 153.1 | 8.96 | 18.083 | | | |
| 1,800.0 | 1,788.6 | 1,787.6 | 1,787.6 | 5.6 | 4.8 | 172.18 | -0.7 | 59.9 | 186.4 | 176.9 | 9.49 | 19.641 | | | |
| 1,834.8 | 1,822.2 | 1,821.2 | 1,821.2 | 5.8 | 4.9 | 172.52 | -0.7 | 59.9 | 195.5 | 185.8 | 9.68 | 20.206 | | | |
| 1,900.0 | 1,885.0 | 1,884.0 | 1,884.0 | 6.2 | 5.0 | 173.14 | -0.7 | 59.9 | 212.8 | 202.8 | 10.04 | 21.189 | | | |
| 2,000.0 | 1,981.4 | 1,980.4 | 1,980.4 | 6.8 | 5.3 | 173.90 | -0.7 | 59.9 | 239.4 | 228.8 | 10.61 | 22.558 | | | |
| 2,100.0 | 2,077.7 | 2,080.0 | 2,080.0 | 7.5 | 5.6 | 174.38 | 0.1 | 59.7 | 265.6 | 254.4 | 11.20 | 23.722 | | | |
| 2,200.0 | 2,174.1 | 2,181.3 | 2,181.2 | 8.1 | 5.9 | 174.35 | 3.4 | 58.7 | 290.3 | 278.5 | 11.79 | 24.631 | | | |
| 2,300.0 | 2,270.4 | 2,283.3 | 2,283.0 | 8.7 | 6.1 | 173.92 | 9.3 | 56.9 | 313.4 | 301.1 | 12.38 | 25.309 | | | |
| 2,400.0 | 2,366.8 | 2,385.9 | 2,385.2 | 9.4 | 6.4 | 173.15 | 17.9 | 54.2 | 335.1 | 322.1 | 13.00 | 25.783 | | | |
| 2,500.0 | 2,463.1 | 2,489.0 | 2,487.6 | 10.1 | 6.7 | 172.11 | 29.2 | 50.8 | 355.3 | 341.7 | 13.63 | 26.070 | | | |
| 2,600.0 | 2,559.5 | 2,592.3 | 2,589.9 | 10.7 | 7.0 | 170.82 | 43.1 | 46.6 | 374.2 | 359.9 | 14.29 | 26.190 | | | |
| 2,700.0 | 2,655.8 | 2,690.4 | 2,686.8 | 11.4 | 7.4 | 169.54 | 57.7 | 42.2 | 392.5 | 377.6 | 14.96 | 26.238 | | | |
| 2,800.0 | 2,752.2 | 2,788.3 | 2,783.6 | 12.1 | 7.7 | 168.37 | 72.2 | 37.8 | 411.0 | 395.3 | 15.65 | 26.260 | | | |
| 2,900.0 | 2,848.5 | 2,886.3 | 2,880.4 | 12.7 | 8.0 | 167.30 | 86.8 | 33.4 | 429.6 | 413.2 | 16.36 | 26.259 | | | |
| 3,000.0 | 2,944.9 | 2,984.2 | 2,977.1 | 13.4 | 8.4 | 166.33 | 101.3 | 29.0 | 448.4 | 431.3 | 17.09 | 26.241 | | | |
| 3,100.0 | 3,041.2 | 3,082.2 | 3,073.9 | 14.1 | 8.7 | 165.43 | 115.8 | 24.5 | 467.2 | 449.4 | 17.83 | 26.208 | | | |
| 3,200.0 | 3,137.6 | 3,180.1 | 3,170.7 | 14.8 | 9.1 | 164.60 | 130.4 | 20.1 | 486.2 | 467.6 | 18.58 | 26.165 | | | |
| 3,300.0 | 3,233.9 | 3,278.1 | 3,267.4 | 15.5 | 9.4 | 163.83 | 144.9 | 15.7 | 505.2 | 485.9 | 19.35 | 26.112 | | | |
| 3,400.0 | 3,330.3 | 3,376.0 | 3,364.2 | 16.2 | 9.8 | 163.12 | 159.4 | 11.3 | 524.4 | 504.3 | 20.13 | 26.053 | | | |
| 3,500.0 | 3,426.7 | 3,474.0 | 3,461.0 | 16.8 | 10.2 | 162.46 | 174.0 | 6.9 | 543.6 | 522.7 | 20.92 | 25.989 | | | |
| 3,600.0 | 3,523.0 | 3,571.9 | 3,557.7 | 17.5 | 10.6 | 161.84 | 188.5 | 2.5 | 562.9 | 541.2 | 21.71 | 25.922 | | | |
| 3,700.0 | 3,619.4 | 3,669.9 | 3,654.5 | 18.2 | 11.0 | 161.27 | 203.0 | -1.9 | 582.2 | 559.7 | 22.52 | 25.852 | | | |
| 3,800.0 | 3,715.7 | 3,767.8 | 3,751.2 | 18.9 | 11.3 | 160.73 | 217.6 | -6.3 | 601.6 | 578.3 | 23.34 | 25.781 | | | |
| 3,900.0 | 3,812.1 | 3,865.8 | 3,848.0 | 19.6 | 11.7 | 160.22 | 232.1 | -10.7 | 621.1 | 596.9 | 24.16 | 25.709 | | | |
| 4,000.0 | 3,908.4 | 3,963.7 | 3,944.8 | 20.3 | 12.1 | 159.75 | 246.7 | -15.1 | 640.5 | 615.6 | 24.98 | 25.637 | | | |
| 4,100.0 | 4,004.8 | 4,061.7 | 4,041.5 | 21.0 | 12.5 | 159.30 | 261.2 | -19.5 | 660.1 | 634.2 | 25.82 | 25.566 | | | |
| 4,200.0 | 4,101.1 | 4,159.6 | 4,138.3 | 21.7 | 12.9 | 158.88 | 275.7 | -24.0 | 679.6 | 653.0 | 26.66 | 25.495 | | | |
| 4,300.0 | 4,197.5 | 4,257.6 | 4,235.1 | 22.4 | 13.3 | 158.49 | 290.3 | -28.4 | 699.2 | 671.7 | 27.50 | 25.425 | | | |
| 4,400.0 | 4,293.8 | 4,355.5 | 4,331.8 | 23.1 | 13.7 | 158.11 | 304.8 | -32.8 | 718.8 | 690.5 | 28.35 | 25.357 | | | |
| 4,500.0 | 4,390.2 | 4,453.5 | 4,428.6 | 23.8 | 14.2 | 157.75 | 319.3 | -37.2 | 738.5 | 709.3 | 29.20 | 25.290 | | | |
| 4,600.0 | 4,486.5 | 4,551.4 | 4,525.4 | 24.4 | 14.6 | 157.42 | 333.9 | -41.6 | 758.2 | 728.1 | 30.06 | 25.224 | | | |
| 4,700.0 | 4,582.9 | 4,649.4 | 4,622.1 | 25.1 | 15.0 | 157.10 | 348.4 | -46.0 | 777.9 | 747.0 | 30.92 | 25.160 | | | |
| 4,800.0 | 4,679.2 | 4,747.3 | 4,718.9 | 25.8 | 15.4 | 156.79 | 362.9 | -50.4 | 797.6 | 765.8 | 31.78 | 25.097 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-243 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | Offset Site Error: 0.0 ft | | |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|---------------------------|---------------------------|--|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 91.37 | -0.4 | 15.0 | 15.1 | 15.1 | 0.00 | N/A | | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | 91.37 | -0.4 | 15.0 | 15.0 | 14.8 | 0.27 | 54.934 | | | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.4 | 0.4 | 91.37 | -0.4 | 15.0 | 15.0 | 14.2 | 0.82 | 18.281 | | | |
| 300.0 | 300.0 | 299.0 | 299.0 | 0.7 | 0.7 | 91.37 | -0.4 | 15.0 | 15.0 | 13.7 | 1.37 | 10.954 | | | |
| 400.0 | 400.0 | 399.0 | 399.0 | 1.0 | 1.0 | 91.37 | -0.4 | 15.0 | 15.0 | 13.1 | 1.92 | 7.820 | | | |
| 500.0 | 500.0 | 499.0 | 499.0 | 1.2 | 1.2 | 91.37 | -0.4 | 15.0 | 15.0 | 12.6 | 2.48 | 6.080 | | | |
| 600.0 | 600.0 | 599.0 | 599.0 | 1.5 | 1.5 | 91.37 | -0.4 | 15.0 | 15.0 | 12.0 | 3.03 | 4.974 | | | |
| 700.0 | 700.0 | 699.0 | 699.0 | 1.8 | 1.8 | 91.37 | -0.4 | 15.0 | 15.0 | 11.5 | 3.58 | 4.208 | | | |
| 800.0 | 800.0 | 799.0 | 799.0 | 2.1 | 2.1 | 91.37 | -0.4 | 15.0 | 15.0 | 10.9 | 4.13 | 3.646 CC | | | |
| 900.0 | 900.0 | 899.0 | 899.0 | 2.3 | 2.3 | 158.35 | -0.4 | 15.0 | 16.3 | 11.6 | 4.67 | 3.482 | | | |
| 1,000.0 | 999.9 | 998.9 | 998.9 | 2.6 | 2.6 | 162.49 | -0.4 | 15.0 | 20.0 | 14.8 | 5.21 | 3.834 | | | |
| 1,100.0 | 1,099.7 | 1,099.3 | 1,099.3 | 2.9 | 2.9 | 165.81 | 0.3 | 13.9 | 25.1 | 19.3 | 5.74 | 4.371 | | | |
| 1,200.0 | 1,199.3 | 1,199.9 | 1,199.8 | 3.2 | 3.1 | 167.45 | 2.3 | 10.6 | 30.3 | 24.0 | 6.26 | 4.841 | | | |
| 1,300.0 | 1,298.6 | 1,300.5 | 1,300.2 | 3.5 | 3.4 | 168.16 | 5.8 | 4.9 | 35.6 | 28.8 | 6.78 | 5.246 | | | |
| 1,400.0 | 1,397.5 | 1,401.4 | 1,400.6 | 3.8 | 3.7 | 168.28 | 10.5 | -3.0 | 41.0 | 33.6 | 7.32 | 5.597 | | | |
| 1,500.0 | 1,496.1 | 1,502.3 | 1,500.9 | 4.2 | 4.0 | 168.01 | 16.7 | -13.2 | 46.4 | 38.5 | 7.86 | 5.901 | | | |
| 1,600.0 | 1,594.2 | 1,603.4 | 1,600.9 | 4.6 | 4.4 | 167.48 | 24.2 | -25.7 | 51.8 | 43.4 | 8.41 | 6.163 | | | |
| 1,700.0 | 1,691.7 | 1,704.6 | 1,700.6 | 5.1 | 4.7 | 166.76 | 33.2 | -40.4 | 57.3 | 48.4 | 8.98 | 6.388 | | | |
| 1,800.0 | 1,788.6 | 1,805.9 | 1,800.0 | 5.6 | 5.2 | 165.91 | 43.5 | -57.4 | 62.9 | 53.3 | 9.57 | 6.576 | | | |
| 1,834.8 | 1,822.2 | 1,841.3 | 1,834.5 | 5.8 | 5.3 | 165.58 | 47.4 | -63.9 | 64.9 | 55.1 | 9.78 | 6.633 | | | |
| 1,900.0 | 1,885.0 | 1,907.2 | 1,898.7 | 6.2 | 5.6 | 164.85 | 55.1 | -76.7 | 68.0 | 57.8 | 10.21 | 6.665 | | | |
| 2,000.0 | 1,981.4 | 2,007.1 | 1,995.9 | 6.8 | 6.1 | 163.72 | 67.0 | -96.4 | 72.5 | 61.6 | 10.89 | 6.655 | | | |
| 2,100.0 | 2,077.7 | 2,106.9 | 2,093.0 | 7.5 | 6.6 | 162.72 | 79.0 | -116.2 | 76.9 | 65.3 | 11.60 | 6.634 | | | |
| 2,200.0 | 2,174.1 | 2,206.8 | 2,190.2 | 8.1 | 7.2 | 161.83 | 90.9 | -136.0 | 81.4 | 69.1 | 12.33 | 6.604 | | | |
| 2,300.0 | 2,270.4 | 2,306.7 | 2,287.4 | 8.7 | 7.7 | 161.03 | 102.9 | -155.7 | 85.9 | 72.8 | 13.08 | 6.570 | | | |
| 2,400.0 | 2,366.8 | 2,406.6 | 2,384.6 | 9.4 | 8.3 | 160.31 | 114.8 | -175.5 | 90.4 | 76.6 | 13.85 | 6.532 | | | |
| 2,500.0 | 2,463.1 | 2,506.5 | 2,481.8 | 10.1 | 8.8 | 159.66 | 126.8 | -195.3 | 95.0 | 80.3 | 14.63 | 6.492 | | | |
| 2,600.0 | 2,559.5 | 2,606.4 | 2,579.0 | 10.7 | 9.4 | 159.07 | 138.7 | -215.0 | 99.5 | 84.1 | 15.42 | 6.452 | | | |
| 2,700.0 | 2,655.8 | 2,706.3 | 2,676.2 | 11.4 | 10.0 | 158.54 | 150.7 | -234.8 | 104.1 | 87.8 | 16.23 | 6.410 | | | |
| 2,800.0 | 2,752.2 | 2,806.2 | 2,773.3 | 12.1 | 10.5 | 158.04 | 162.6 | -254.5 | 108.6 | 91.6 | 17.05 | 6.370 | | | |
| 2,900.0 | 2,848.5 | 2,906.1 | 2,870.5 | 12.7 | 11.1 | 157.59 | 174.6 | -274.3 | 113.2 | 95.3 | 17.88 | 6.329 | | | |
| 3,000.0 | 2,944.9 | 3,006.0 | 2,967.7 | 13.4 | 11.7 | 157.17 | 186.5 | -294.1 | 117.8 | 99.0 | 18.72 | 6.290 | | | |
| 3,100.0 | 3,041.2 | 3,105.9 | 3,064.9 | 14.1 | 12.3 | 156.78 | 198.5 | -313.8 | 122.3 | 102.8 | 19.57 | 6.252 | | | |
| 3,200.0 | 3,137.6 | 3,205.8 | 3,162.1 | 14.8 | 12.9 | 156.42 | 210.4 | -333.6 | 126.9 | 106.5 | 20.42 | 6.216 | | | |
| 3,300.0 | 3,233.9 | 3,305.7 | 3,259.3 | 15.5 | 13.5 | 156.09 | 222.4 | -353.4 | 131.5 | 110.2 | 21.28 | 6.180 | | | |
| 3,400.0 | 3,330.3 | 3,405.5 | 3,356.5 | 16.2 | 14.1 | 155.78 | 234.3 | -373.1 | 136.1 | 114.0 | 22.14 | 6.146 | | | |
| 3,500.0 | 3,426.7 | 3,505.4 | 3,453.6 | 16.8 | 14.6 | 155.48 | 246.3 | -392.9 | 140.7 | 117.7 | 23.01 | 6.113 | | | |
| 3,600.0 | 3,523.0 | 3,605.3 | 3,550.8 | 17.5 | 15.2 | 155.21 | 258.2 | -412.6 | 145.3 | 121.4 | 23.89 | 6.082 | | | |
| 3,700.0 | 3,619.4 | 3,705.2 | 3,648.0 | 18.2 | 15.8 | 154.95 | 270.2 | -432.4 | 149.9 | 125.1 | 24.77 | 6.052 | | | |
| 3,800.0 | 3,715.7 | 3,805.1 | 3,745.2 | 18.9 | 16.4 | 154.71 | 282.1 | -452.2 | 154.5 | 128.9 | 25.65 | 6.023 | | | |
| 3,900.0 | 3,812.1 | 3,905.0 | 3,842.4 | 19.6 | 17.0 | 154.49 | 294.0 | -471.9 | 159.1 | 132.6 | 26.54 | 5.996 | | | |
| 4,000.0 | 3,908.4 | 4,004.9 | 3,939.6 | 20.3 | 17.6 | 154.27 | 306.0 | -491.7 | 163.7 | 136.3 | 27.43 | 5.969 | | | |
| 4,100.0 | 4,004.8 | 4,104.8 | 4,036.8 | 21.0 | 18.2 | 154.07 | 317.9 | -511.5 | 168.3 | 140.0 | 28.32 | 5.944 | | | |
| 4,200.0 | 4,101.1 | 4,204.7 | 4,133.9 | 21.7 | 18.8 | 153.88 | 329.9 | -531.2 | 172.9 | 143.7 | 29.22 | 5.919 | | | |
| 4,300.0 | 4,197.5 | 4,304.6 | 4,231.1 | 22.4 | 19.4 | 153.70 | 341.8 | -551.0 | 177.6 | 147.4 | 30.11 | 5.896 | | | |
| 4,400.0 | 4,293.8 | 4,404.5 | 4,328.3 | 23.1 | 20.0 | 153.52 | 353.8 | -570.8 | 182.2 | 151.2 | 31.01 | 5.874 | | | |
| 4,500.0 | 4,390.2 | 4,504.4 | 4,425.5 | 23.8 | 20.6 | 153.36 | 365.7 | -590.5 | 186.8 | 154.9 | 31.92 | 5.852 | | | |
| 4,600.0 | 4,486.5 | 4,604.2 | 4,522.7 | 24.4 | 21.3 | 153.20 | 377.7 | -610.3 | 191.4 | 158.6 | 32.82 | 5.832 | | | |
| 4,700.0 | 4,582.9 | 4,704.1 | 4,619.9 | 25.1 | 21.9 | 153.06 | 389.6 | -630.0 | 196.0 | 162.3 | 33.73 | 5.812 | | | |
| 4,800.0 | 4,679.2 | 4,804.0 | 4,717.1 | 25.8 | 22.5 | 152.91 | 401.6 | -649.8 | 200.7 | 166.0 | 34.64 | 5.793 | | | |
| 4,900.0 | 4,775.6 | 4,903.9 | 4,814.2 | 26.5 | 23.1 | 152.78 | 413.5 | -669.6 | 205.3 | 169.7 | 35.55 | 5.775 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-243 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|----------------|----------------|----------------|---|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--|--------------------|--|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | | |
| Depth (ft) | Depth (ft) | Depth (ft) | Depth (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | | |
| 5,000.0 | 4,871.9 | 5,003.8 | 4,911.4 | 27.2 | 23.7 | 152.65 | 425.5 | -689.3 | 209.9 | 173.5 | 36.46 | 5.758 | | | | |
| 5,100.0 | 4,968.3 | 5,103.7 | 5,008.6 | 27.9 | 24.3 | 152.52 | 437.4 | -709.1 | 214.5 | 177.2 | 37.37 | 5.741 | | | | |
| 5,200.0 | 5,064.6 | 5,203.6 | 5,105.8 | 28.6 | 24.9 | 152.41 | 449.4 | -728.9 | 219.2 | 180.9 | 38.28 | 5.725 | | | | |
| 5,271.3 | 5,133.3 | 5,272.5 | 5,172.9 | 29.1 | 25.3 | 152.36 | 457.5 | -742.3 | 222.7 | 183.8 | 38.90 | 5.724 | | | | |
| 5,300.0 | 5,161.0 | 5,300.0 | 5,199.7 | 29.3 | 25.4 | 152.39 | 460.5 | -747.3 | 224.3 | 185.2 | 39.13 | 5.732 | | | | |
| 5,400.0 | 5,258.1 | 5,393.1 | 5,291.1 | 29.8 | 25.8 | 152.54 | 469.9 | -762.8 | 229.7 | 189.9 | 39.78 | 5.773 | | | | |
| 5,500.0 | 5,355.9 | 5,486.6 | 5,383.4 | 30.2 | 26.1 | 152.72 | 477.7 | -775.7 | 234.7 | 194.3 | 40.34 | 5.817 | | | | |
| 5,600.0 | 5,454.4 | 5,580.1 | 5,476.0 | 30.6 | 26.4 | 152.94 | 483.9 | -786.0 | 239.3 | 198.5 | 40.81 | 5.864 | | | | |
| 5,700.0 | 5,553.4 | 5,673.4 | 5,568.9 | 30.9 | 26.7 | 153.20 | 488.6 | -793.8 | 243.5 | 202.4 | 41.18 | 5.915 | | | | |
| 5,800.0 | 5,652.9 | 5,766.6 | 5,661.9 | 31.2 | 26.9 | 153.48 | 491.7 | -798.9 | 247.4 | 206.0 | 41.45 | 5.969 | | | | |
| 5,900.0 | 5,752.7 | 5,859.7 | 5,755.0 | 31.4 | 27.0 | 153.80 | 493.3 | -801.5 | 250.9 | 209.3 | 41.63 | 6.027 | | | | |
| 6,000.0 | 5,852.6 | 5,956.3 | 5,851.6 | 31.6 | 27.2 | 154.10 | 493.4 | -801.8 | 253.6 | 211.9 | 41.75 | 6.075 | | | | |
| 6,047.4 | 5,900.0 | 6,003.7 | 5,899.0 | 31.6 | 27.2 | 89.00 | 493.4 | -801.8 | 254.0 | 212.1 | 41.85 | 6.069 | | | | |
| 6,100.0 | 5,952.6 | 6,056.3 | 5,951.6 | 31.7 | 27.3 | 89.00 | 493.4 | -801.8 | 254.0 | 211.9 | 42.05 | 6.041 | | | | |
| 6,190.6 | 6,043.1 | 6,147.1 | 6,042.2 | 31.8 | 27.4 | 89.93 | 489.3 | -801.8 | 253.9 | 211.9 | 42.00 | 6.046 | | | | |
| 6,195.0 | 6,047.6 | 6,151.5 | 6,046.6 | 31.8 | 27.4 | -90.01 | 488.9 | -801.8 | 253.9 | 212.0 | 41.96 | 6.052 | | | | |
| 6,200.0 | 6,052.6 | 6,156.5 | 6,051.5 | 31.8 | 27.4 | -89.90 | 488.3 | -801.8 | 253.9 | 212.0 | 41.93 | 6.057 | | | | |
| 6,250.0 | 6,102.5 | 6,206.0 | 6,100.5 | 31.9 | 27.4 | -88.74 | 481.0 | -801.8 | 254.0 | 212.4 | 41.59 | 6.108 | | | | |
| 6,300.0 | 6,152.2 | 6,255.2 | 6,148.6 | 31.9 | 27.4 | -87.59 | 470.6 | -801.8 | 254.2 | 213.0 | 41.20 | 6.170 | | | | |
| 6,350.0 | 6,201.4 | 6,304.1 | 6,195.6 | 31.9 | 27.4 | -86.46 | 457.2 | -801.8 | 254.4 | 213.7 | 40.77 | 6.240 | | | | |
| 6,400.0 | 6,250.0 | 6,352.7 | 6,241.4 | 31.9 | 27.3 | -85.35 | 440.9 | -801.8 | 254.8 | 214.5 | 40.33 | 6.318 | | | | |
| 6,450.0 | 6,297.6 | 6,401.0 | 6,285.8 | 31.8 | 27.3 | -84.26 | 421.9 | -801.8 | 255.2 | 215.4 | 39.88 | 6.400 | | | | |
| 6,500.0 | 6,344.2 | 6,449.0 | 6,328.6 | 31.8 | 27.2 | -83.20 | 400.3 | -801.8 | 255.8 | 216.3 | 39.43 | 6.487 | | | | |
| 6,550.0 | 6,389.5 | 6,496.7 | 6,369.8 | 31.7 | 27.1 | -82.18 | 376.2 | -801.8 | 256.4 | 217.4 | 39.00 | 6.574 | | | | |
| 6,600.0 | 6,433.3 | 6,544.2 | 6,409.2 | 31.6 | 27.0 | -81.20 | 349.7 | -801.8 | 257.0 | 218.4 | 38.58 | 6.661 | | | | |
| 6,650.0 | 6,475.4 | 6,591.4 | 6,446.7 | 31.5 | 26.9 | -80.26 | 320.9 | -801.8 | 257.7 | 219.5 | 38.20 | 6.746 | | | | |
| 6,700.0 | 6,515.7 | 6,638.4 | 6,482.1 | 31.5 | 26.8 | -79.36 | 290.0 | -801.9 | 258.5 | 220.6 | 37.86 | 6.827 | | | | |
| 6,750.0 | 6,553.9 | 6,685.2 | 6,515.4 | 31.3 | 26.7 | -78.51 | 257.2 | -801.9 | 259.2 | 221.7 | 37.56 | 6.901 | | | | |
| 6,800.0 | 6,590.0 | 6,731.8 | 6,546.6 | 31.2 | 26.5 | -77.72 | 222.6 | -801.9 | 260.0 | 222.7 | 37.31 | 6.968 | | | | |
| 6,850.0 | 6,623.7 | 6,778.2 | 6,575.4 | 31.1 | 26.4 | -76.97 | 186.2 | -801.9 | 260.7 | 223.6 | 37.12 | 7.024 | | | | |
| 6,900.0 | 6,654.9 | 6,824.5 | 6,601.9 | 31.0 | 26.3 | -76.29 | 148.4 | -801.9 | 261.5 | 224.5 | 36.99 | 7.069 | | | | |
| 6,950.0 | 6,683.5 | 6,870.5 | 6,626.0 | 30.9 | 26.2 | -75.66 | 109.1 | -802.0 | 262.2 | 225.3 | 36.93 | 7.101 | | | | |
| 7,000.0 | 6,709.4 | 6,916.5 | 6,647.6 | 30.8 | 26.1 | -75.08 | 68.6 | -802.0 | 262.9 | 226.0 | 36.94 | 7.118 | | | | |
| 7,050.0 | 6,732.4 | 6,962.3 | 6,666.7 | 30.8 | 26.0 | -74.57 | 26.9 | -802.0 | 263.6 | 226.5 | 37.02 | 7.119 | | | | |
| 7,100.0 | 6,752.5 | 7,008.0 | 6,683.3 | 30.7 | 26.0 | -74.12 | -15.6 | -802.0 | 264.1 | 227.0 | 37.19 | 7.103 | | | | |
| 7,150.0 | 6,769.5 | 7,053.6 | 6,697.2 | 30.6 | 25.9 | -73.73 | -59.1 | -802.0 | 264.7 | 227.2 | 37.44 | 7.069 | | | | |
| 7,200.0 | 6,783.4 | 7,100.0 | 6,708.7 | 30.6 | 25.9 | -73.39 | -104.0 | -802.1 | 265.1 | 227.3 | 37.78 | 7.018 | | | | |
| 7,250.0 | 6,794.1 | 7,144.5 | 6,717.1 | 30.6 | 25.9 | -73.13 | -147.7 | -802.1 | 265.5 | 227.3 | 38.20 | 6.950 | | | | |
| 7,300.0 | 6,801.7 | 7,189.9 | 6,723.0 | 30.6 | 26.0 | -72.93 | -192.7 | -802.1 | 265.8 | 227.1 | 38.72 | 6.864 | | | | |
| 7,350.0 | 6,805.9 | 7,235.2 | 6,726.3 | 30.7 | 26.1 | -72.79 | -237.9 | -802.1 | 266.0 | 226.7 | 39.33 | 6.763 | | | | |
| 7,396.0 | 6,807.0 | 7,277.3 | 6,727.0 | 30.8 | 26.2 | -72.72 | -280.0 | -802.2 | 266.1 | 226.2 | 39.95 | 6.660 | | | | |
| 7,396.0 | 6,807.0 | 7,277.3 | 6,727.0 | 30.8 | 26.2 | -72.72 | -280.0 | -802.2 | 266.1 | 226.2 | 39.95 | 6.660 | | | | |
| 7,396.4 | 6,807.0 | 7,277.7 | 6,727.0 | 30.8 | 26.2 | -72.72 | -280.4 | -802.2 | 266.1 | 226.1 | 39.96 | 6.659 | | | | |
| 7,400.0 | 6,807.0 | 7,281.3 | 6,726.9 | 30.8 | 26.3 | -72.72 | -284.0 | -802.2 | 266.1 | 226.1 | 40.02 | 6.650 | | | | |
| 7,500.0 | 6,806.2 | 7,381.3 | 6,726.2 | 31.2 | 26.8 | -72.72 | -384.0 | -802.2 | 266.1 | 224.1 | 42.00 | 6.336 | | | | |
| 7,600.0 | 6,805.5 | 7,481.3 | 6,725.5 | 31.8 | 27.7 | -72.73 | -484.0 | -802.3 | 266.1 | 221.8 | 44.37 | 5.998 | | | | |
| 7,700.0 | 6,804.8 | 7,581.3 | 6,724.7 | 32.5 | 28.8 | -72.73 | -584.0 | -802.3 | 266.1 | 219.1 | 47.06 | 5.655 | | | | |
| 7,800.0 | 6,804.0 | 7,681.3 | 6,724.0 | 33.6 | 30.1 | -72.73 | -684.0 | -802.4 | 266.2 | 216.1 | 50.01 | 5.322 | | | | |
| 7,900.0 | 6,803.3 | 7,781.3 | 6,723.3 | 34.7 | 31.6 | -72.73 | -784.0 | -802.5 | 266.2 | 213.0 | 53.19 | 5.005 | | | | |
| 8,000.0 | 6,802.6 | 7,881.3 | 6,722.5 | 36.1 | 33.2 | -72.73 | -884.0 | -802.5 | 266.2 | 209.6 | 56.54 | 4.708 | | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-243 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 8,100.0 | 6,801.8 | 7,981.3 | 6,721.8 | 37.6 | 34.9 | -72.73 | -984.0 | -802.6 | 266.2 | 206.1 | 60.05 | 4.433 | | |
| 8,200.0 | 6,801.1 | 8,081.3 | 6,721.1 | 39.2 | 36.7 | -72.73 | -1,084.0 | -802.6 | 266.2 | 202.5 | 63.69 | 4.180 | | |
| 8,300.0 | 6,800.3 | 8,181.3 | 6,720.3 | 40.9 | 38.5 | -72.73 | -1,184.0 | -802.7 | 266.2 | 198.8 | 67.44 | 3.948 | | |
| 8,400.0 | 6,799.6 | 8,281.3 | 6,719.6 | 42.6 | 40.4 | -72.73 | -1,284.0 | -802.8 | 266.2 | 195.0 | 71.27 | 3.735 | | |
| 8,500.0 | 6,798.9 | 8,381.3 | 6,718.8 | 44.4 | 42.4 | -72.73 | -1,384.0 | -802.8 | 266.2 | 191.1 | 75.19 | 3.541 | | |
| 8,600.0 | 6,798.1 | 8,481.3 | 6,718.1 | 46.3 | 44.3 | -72.73 | -1,484.0 | -802.9 | 266.3 | 187.1 | 79.16 | 3.363 | | |
| 8,700.0 | 6,797.4 | 8,581.3 | 6,717.4 | 48.2 | 46.3 | -72.73 | -1,584.0 | -803.0 | 266.3 | 183.1 | 83.20 | 3.201 | | |
| 8,800.0 | 6,796.7 | 8,681.3 | 6,716.6 | 50.2 | 48.4 | -72.74 | -1,684.0 | -803.0 | 266.3 | 179.0 | 87.28 | 3.051 | | |
| 8,900.0 | 6,795.9 | 8,781.3 | 6,715.9 | 52.2 | 50.5 | -72.74 | -1,784.0 | -803.1 | 266.3 | 174.9 | 91.40 | 2.914 | | |
| 9,000.0 | 6,795.2 | 8,881.3 | 6,715.2 | 54.2 | 52.5 | -72.74 | -1,884.0 | -803.1 | 266.3 | 170.8 | 95.56 | 2.787 | | |
| 9,100.0 | 6,794.5 | 8,981.3 | 6,714.4 | 56.2 | 54.7 | -72.74 | -1,984.0 | -803.2 | 266.3 | 166.6 | 99.75 | 2.670 | | |
| 9,200.0 | 6,793.7 | 9,081.3 | 6,713.7 | 58.3 | 56.8 | -72.74 | -2,083.9 | -803.3 | 266.3 | 162.4 | 103.97 | 2.562 | | |
| 9,300.0 | 6,793.0 | 9,181.3 | 6,713.0 | 60.4 | 58.9 | -72.74 | -2,183.9 | -803.3 | 266.4 | 158.1 | 108.21 | 2.461 | | |
| 9,400.0 | 6,792.2 | 9,281.3 | 6,712.2 | 62.5 | 61.1 | -72.74 | -2,283.9 | -803.4 | 266.4 | 153.9 | 112.48 | 2.368 | | |
| 9,500.0 | 6,791.5 | 9,381.3 | 6,711.5 | 64.6 | 63.3 | -72.74 | -2,383.9 | -803.4 | 266.4 | 149.6 | 116.76 | 2.281 | | |
| 9,600.0 | 6,790.8 | 9,481.3 | 6,710.8 | 66.8 | 65.5 | -72.74 | -2,483.9 | -803.5 | 266.4 | 145.3 | 121.06 | 2.200 | | |
| 9,700.0 | 6,790.0 | 9,581.3 | 6,710.0 | 68.9 | 67.6 | -72.74 | -2,583.9 | -803.6 | 266.4 | 141.0 | 125.38 | 2.125 | | |
| 9,800.0 | 6,789.3 | 9,681.3 | 6,709.3 | 71.1 | 69.9 | -72.74 | -2,683.9 | -803.6 | 266.4 | 136.7 | 129.71 | 2.054 | | |
| 9,900.0 | 6,788.6 | 9,781.3 | 6,708.6 | 73.3 | 72.1 | -72.75 | -2,783.9 | -803.7 | 266.4 | 132.4 | 134.06 | 1.987 | | |
| 10,000.0 | 6,787.8 | 9,881.3 | 6,707.8 | 75.5 | 74.3 | -72.75 | -2,883.9 | -803.7 | 266.4 | 128.0 | 138.41 | 1.925 | | |
| 10,100.0 | 6,787.1 | 9,981.3 | 6,707.1 | 77.7 | 76.5 | -72.75 | -2,983.9 | -803.8 | 266.5 | 123.7 | 142.78 | 1.866 | | |
| 10,200.0 | 6,786.4 | 10,081.3 | 6,706.3 | 79.9 | 78.8 | -72.75 | -3,083.9 | -803.9 | 266.5 | 119.3 | 147.16 | 1.811 | | |
| 10,300.0 | 6,785.6 | 10,181.3 | 6,705.6 | 82.1 | 81.0 | -72.75 | -3,183.9 | -803.9 | 266.5 | 114.9 | 151.54 | 1.758 | | |
| 10,400.0 | 6,784.9 | 10,281.3 | 6,704.9 | 84.3 | 83.3 | -72.75 | -3,283.9 | -804.0 | 266.5 | 110.6 | 155.93 | 1.709 | | |
| 10,500.0 | 6,784.1 | 10,381.3 | 6,704.1 | 86.5 | 85.5 | -72.75 | -3,383.9 | -804.0 | 266.5 | 106.2 | 160.33 | 1.662 | | |
| 10,600.0 | 6,783.4 | 10,481.3 | 6,703.4 | 88.8 | 87.8 | -72.75 | -3,483.9 | -804.1 | 266.5 | 101.8 | 164.74 | 1.618 | | |
| 10,700.0 | 6,782.7 | 10,581.3 | 6,702.7 | 91.0 | 90.0 | -72.75 | -3,583.9 | -804.2 | 266.5 | 97.4 | 169.15 | 1.576 | | |
| 10,800.0 | 6,781.9 | 10,681.3 | 6,701.9 | 93.3 | 92.3 | -72.75 | -3,683.9 | -804.2 | 266.5 | 93.0 | 173.57 | 1.536 | | |
| 10,900.0 | 6,781.2 | 10,781.3 | 6,701.2 | 95.5 | 94.6 | -72.75 | -3,783.9 | -804.3 | 266.6 | 88.6 | 177.99 | 1.498 Level 3 | | |
| 11,000.0 | 6,780.5 | 10,881.3 | 6,700.4 | 97.8 | 96.8 | -72.76 | -3,883.9 | -804.3 | 266.6 | 84.1 | 182.42 | 1.461 Level 3 | | |
| 11,100.0 | 6,779.7 | 10,981.3 | 6,699.7 | 100.0 | 99.1 | -72.76 | -3,983.9 | -804.4 | 266.6 | 79.7 | 186.86 | 1.427 Level 3 | | |
| 11,200.0 | 6,779.0 | 11,081.3 | 6,699.0 | 102.3 | 101.4 | -72.76 | -4,083.9 | -804.5 | 266.6 | 75.3 | 191.29 | 1.394 Level 3 | | |
| 11,300.0 | 6,778.3 | 11,181.3 | 6,698.2 | 104.6 | 103.7 | -72.76 | -4,183.9 | -804.5 | 266.6 | 70.9 | 195.73 | 1.362 Level 3 | | |
| 11,400.0 | 6,777.5 | 11,281.3 | 6,697.5 | 106.8 | 106.0 | -72.76 | -4,283.9 | -804.6 | 266.6 | 66.4 | 200.18 | 1.332 Level 3 | | |
| 11,500.0 | 6,776.8 | 11,381.3 | 6,696.8 | 109.1 | 108.3 | -72.76 | -4,383.9 | -804.7 | 266.6 | 62.0 | 204.63 | 1.303 Level 3 | | |
| 11,600.0 | 6,776.1 | 11,481.3 | 6,696.0 | 111.4 | 110.6 | -72.76 | -4,483.9 | -804.7 | 266.6 | 57.6 | 209.08 | 1.275 Level 3 | | |
| 11,700.0 | 6,775.3 | 11,581.3 | 6,695.3 | 113.7 | 112.9 | -72.76 | -4,583.9 | -804.8 | 266.7 | 53.1 | 213.54 | 1.249 Level 2 | | |
| 11,800.0 | 6,774.6 | 11,681.3 | 6,694.6 | 115.9 | 115.2 | -72.76 | -4,683.9 | -804.8 | 266.7 | 48.7 | 217.99 | 1.223 Level 2 | | |
| 11,900.0 | 6,773.8 | 11,781.3 | 6,693.8 | 118.2 | 117.5 | -72.76 | -4,783.9 | -804.9 | 266.7 | 44.2 | 222.45 | 1.199 Level 2 | | |
| 12,000.0 | 6,773.1 | 11,881.3 | 6,693.1 | 120.5 | 119.8 | -72.76 | -4,883.9 | -805.0 | 266.7 | 39.8 | 226.92 | 1.175 Level 2 | | |
| 12,100.0 | 6,772.4 | 11,981.3 | 6,692.4 | 122.8 | 122.1 | -72.77 | -4,983.9 | -805.0 | 266.7 | 35.3 | 231.38 | 1.153 Level 2 | | |
| 12,200.0 | 6,771.6 | 12,081.3 | 6,691.6 | 125.1 | 124.4 | -72.77 | -5,083.9 | -805.1 | 266.7 | 30.9 | 235.85 | 1.131 Level 2 | | |
| 12,300.0 | 6,770.9 | 12,181.3 | 6,690.9 | 127.4 | 126.7 | -72.77 | -5,183.9 | -805.1 | 266.7 | 26.4 | 240.32 | 1.110 Level 2 | | |
| 12,400.0 | 6,770.2 | 12,281.3 | 6,690.1 | 129.7 | 129.0 | -72.77 | -5,283.9 | -805.2 | 266.7 | 22.0 | 244.79 | 1.090 Level 2 | | |
| 12,500.0 | 6,769.4 | 12,381.3 | 6,689.4 | 132.0 | 131.3 | -72.77 | -5,383.9 | -805.3 | 266.8 | 17.5 | 249.27 | 1.070 Level 2 | | |
| 12,600.0 | 6,768.7 | 12,481.3 | 6,688.7 | 134.3 | 133.6 | -72.77 | -5,483.9 | -805.3 | 266.8 | 13.0 | 253.74 | 1.051 Level 2 | | |
| 12,700.0 | 6,768.0 | 12,581.3 | 6,687.9 | 136.6 | 135.9 | -72.77 | -5,583.9 | -805.4 | 266.8 | 8.6 | 258.22 | 1.033 Level 2 | | |
| 12,800.0 | 6,767.2 | 12,681.3 | 6,687.2 | 138.9 | 138.2 | -72.77 | -5,683.8 | -805.4 | 266.8 | 4.1 | 262.70 | 1.016 Level 2 | | |
| 12,900.0 | 6,766.5 | 12,781.3 | 6,686.5 | 141.2 | 140.5 | -72.77 | -5,783.8 | -805.5 | 266.8 | -0.4 | 267.18 | 0.999 Level 1 | | |
| 13,000.0 | 6,765.7 | 12,881.3 | 6,685.7 | 143.5 | 142.9 | -72.77 | -5,883.8 | -805.6 | 266.8 | -4.8 | 271.66 | 0.982 Level 1 | | |
| 13,100.0 | 6,765.0 | 12,981.3 | 6,685.0 | 145.8 | 145.2 | -72.77 | -5,983.8 | -805.6 | 266.8 | -9.3 | 276.14 | 0.966 Level 1 | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-243 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 13,200.0 | 6,764.3 | 13,081.3 | 6,684.3 | 148.1 | 147.5 | -72.77 | -6,083.8 | -805.7 | 266.8 | -13.8 | 280.63 | 0.951 | Level 1 | |
| 13,300.0 | 6,763.5 | 13,181.3 | 6,683.5 | 150.4 | 149.8 | -72.78 | -6,183.8 | -805.7 | 266.9 | -18.3 | 285.12 | 0.936 | Level 1 | |
| 13,400.0 | 6,762.8 | 13,281.3 | 6,682.8 | 152.7 | 152.1 | -72.78 | -6,283.8 | -805.8 | 266.9 | -22.7 | 289.60 | 0.922 | Level 1 | |
| 13,500.0 | 6,762.1 | 13,381.3 | 6,682.0 | 155.0 | 154.5 | -72.78 | -6,383.8 | -805.9 | 266.9 | -27.2 | 294.09 | 0.907 | Level 1 | |
| 13,600.0 | 6,761.3 | 13,481.3 | 6,681.3 | 157.4 | 156.8 | -72.78 | -6,483.8 | -805.9 | 266.9 | -31.7 | 298.58 | 0.894 | Level 1 | |
| 13,700.0 | 6,760.6 | 13,581.3 | 6,680.6 | 159.7 | 159.1 | -72.78 | -6,583.8 | -806.0 | 266.9 | -36.2 | 303.07 | 0.881 | Level 1 | |
| 13,800.0 | 6,759.9 | 13,681.3 | 6,679.8 | 162.0 | 161.4 | -72.78 | -6,683.8 | -806.0 | 266.9 | -40.6 | 307.56 | 0.868 | Level 1 | |
| 13,900.0 | 6,759.1 | 13,781.3 | 6,679.1 | 164.3 | 163.7 | -72.78 | -6,783.8 | -806.1 | 266.9 | -45.1 | 312.06 | 0.855 | Level 1 | |
| 14,000.0 | 6,758.4 | 13,881.3 | 6,678.4 | 166.6 | 166.1 | -72.78 | -6,883.8 | -806.2 | 266.9 | -49.6 | 316.55 | 0.843 | Level 1 | |
| 14,100.0 | 6,757.6 | 13,981.3 | 6,677.6 | 168.9 | 168.4 | -72.78 | -6,983.8 | -806.2 | 267.0 | -54.1 | 321.05 | 0.832 | Level 1 | |
| 14,151.7 | 6,757.3 | 14,033.0 | 6,677.3 | 170.1 | 169.6 | -72.78 | -7,035.5 | -806.3 | 267.0 | -56.4 | 323.37 | 0.826 | Level 1 | |
| 14,188.1 | 6,757.0 | 14,067.2 | 6,677.0 | 171.0 | 170.4 | -72.78 | -7,069.8 | -806.3 | 267.0 | -58.0 | 324.96 | 0.822 | Level 1, ES, SF | |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-303 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft | |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.46 | -0.4 | 45.1 | 45.1 | | | | | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | 90.46 | -0.4 | 45.1 | 45.1 | 44.9 | 0.27 | 164.759 | | | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.4 | 0.4 | 90.46 | -0.4 | 45.1 | 45.1 | 44.3 | 0.82 | 54.828 | | | |
| 300.0 | 300.0 | 299.0 | 299.0 | 0.7 | 0.7 | 90.46 | -0.4 | 45.1 | 45.1 | 43.8 | 1.37 | 32.853 | | | |
| 400.0 | 400.0 | 399.0 | 399.0 | 1.0 | 1.0 | 90.46 | -0.4 | 45.1 | 45.1 | 43.2 | 1.92 | 23.453 | | | |
| 500.0 | 500.0 | 499.0 | 499.0 | 1.2 | 1.2 | 90.46 | -0.4 | 45.1 | 45.1 | 42.7 | 2.48 | 18.235 | | | |
| 600.0 | 600.0 | 599.0 | 599.0 | 1.5 | 1.5 | 90.46 | -0.4 | 45.1 | 45.1 | 42.1 | 3.03 | 14.917 | | | |
| 700.0 | 700.0 | 699.0 | 699.0 | 1.8 | 1.8 | 90.46 | -0.4 | 45.1 | 45.1 | 41.6 | 3.58 | 12.620 | | | |
| 800.0 | 800.0 | 799.0 | 799.0 | 2.1 | 2.1 | 90.46 | -0.4 | 45.1 | 45.1 | 41.0 | 4.13 | 10.936 CC, ES | | | |
| 900.0 | 900.0 | 899.0 | 899.0 | 2.3 | 2.3 | 156.27 | -0.4 | 45.1 | 46.3 | 41.7 | 4.67 | 9.923 | | | |
| 1,000.0 | 999.9 | 998.9 | 998.9 | 2.6 | 2.6 | 158.06 | -0.4 | 45.1 | 50.0 | 44.7 | 5.21 | 9.596 | | | |
| 1,100.0 | 1,099.7 | 1,098.7 | 1,098.7 | 2.9 | 2.9 | 160.53 | -0.4 | 45.1 | 56.1 | 50.3 | 5.74 | 9.763 | | | |
| 1,200.0 | 1,199.3 | 1,198.3 | 1,198.3 | 3.2 | 3.2 | 163.19 | -0.4 | 45.1 | 64.8 | 58.5 | 6.28 | 10.310 | | | |
| 1,300.0 | 1,298.6 | 1,297.6 | 1,297.6 | 3.5 | 3.4 | 165.71 | -0.4 | 45.1 | 76.1 | 69.3 | 6.82 | 11.157 | | | |
| 1,400.0 | 1,397.5 | 1,396.5 | 1,396.5 | 3.8 | 3.7 | 167.91 | -0.4 | 45.1 | 90.1 | 82.7 | 7.36 | 12.243 | | | |
| 1,500.0 | 1,496.1 | 1,497.2 | 1,497.2 | 4.2 | 4.0 | 169.39 | 0.6 | 44.4 | 105.8 | 97.9 | 7.89 | 13.399 | | | |
| 1,600.0 | 1,594.2 | 1,598.2 | 1,598.1 | 4.6 | 4.3 | 169.92 | 3.7 | 42.0 | 122.0 | 113.6 | 8.42 | 14.481 | | | |
| 1,700.0 | 1,691.7 | 1,699.6 | 1,699.2 | 5.1 | 4.5 | 169.81 | 9.0 | 38.1 | 138.7 | 129.7 | 8.96 | 15.480 | | | |
| 1,800.0 | 1,788.6 | 1,801.1 | 1,800.4 | 5.6 | 4.8 | 169.27 | 16.4 | 32.5 | 155.9 | 146.4 | 9.51 | 16.400 | | | |
| 1,834.8 | 1,822.2 | 1,836.6 | 1,835.6 | 5.8 | 4.9 | 169.01 | 19.5 | 30.1 | 162.0 | 152.3 | 9.70 | 16.700 | | | |
| 1,900.0 | 1,885.0 | 1,903.0 | 1,901.6 | 6.2 | 5.1 | 168.43 | 26.0 | 25.2 | 173.0 | 162.9 | 10.09 | 17.146 | | | |
| 2,000.0 | 1,981.4 | 2,005.5 | 2,003.0 | 6.8 | 5.5 | 167.22 | 37.9 | 16.3 | 188.4 | 177.6 | 10.72 | 17.571 | | | |
| 2,100.0 | 2,077.7 | 2,104.8 | 2,101.0 | 7.5 | 5.8 | 165.93 | 50.6 | 6.7 | 202.6 | 191.2 | 11.37 | 17.812 | | | |
| 2,200.0 | 2,174.1 | 2,203.7 | 2,198.6 | 8.1 | 6.2 | 164.81 | 63.3 | -2.8 | 216.9 | 204.8 | 12.05 | 18.001 | | | |
| 2,300.0 | 2,270.4 | 2,302.6 | 2,296.2 | 8.7 | 6.5 | 163.83 | 76.0 | -12.4 | 231.2 | 218.5 | 12.74 | 18.147 | | | |
| 2,400.0 | 2,366.8 | 2,401.5 | 2,393.8 | 9.4 | 6.9 | 162.96 | 88.7 | -22.0 | 245.6 | 232.2 | 13.45 | 18.258 | | | |
| 2,500.0 | 2,463.1 | 2,500.4 | 2,491.4 | 10.1 | 7.3 | 162.19 | 101.3 | -31.5 | 260.1 | 245.9 | 14.18 | 18.342 | | | |
| 2,600.0 | 2,559.5 | 2,599.2 | 2,589.0 | 10.7 | 7.7 | 161.50 | 114.0 | -41.1 | 274.6 | 259.7 | 14.92 | 18.403 | | | |
| 2,700.0 | 2,655.8 | 2,698.1 | 2,686.6 | 11.4 | 8.1 | 160.88 | 126.7 | -50.6 | 289.1 | 273.4 | 15.67 | 18.446 | | | |
| 2,800.0 | 2,752.2 | 2,797.0 | 2,784.2 | 12.1 | 8.5 | 160.32 | 139.4 | -60.2 | 303.7 | 287.2 | 16.44 | 18.475 | | | |
| 2,900.0 | 2,848.5 | 2,895.9 | 2,881.8 | 12.7 | 8.9 | 159.81 | 152.1 | -69.7 | 318.3 | 301.1 | 17.21 | 18.493 | | | |
| 3,000.0 | 2,944.9 | 2,994.8 | 2,979.4 | 13.4 | 9.3 | 159.34 | 164.8 | -79.3 | 332.9 | 314.9 | 17.99 | 18.501 | | | |
| 3,100.0 | 3,041.2 | 3,093.7 | 3,077.0 | 14.1 | 9.7 | 158.92 | 177.5 | -88.9 | 347.5 | 328.7 | 18.78 | 18.503 | | | |
| 3,200.0 | 3,137.6 | 3,192.6 | 3,174.7 | 14.8 | 10.1 | 158.52 | 190.1 | -98.4 | 362.2 | 342.6 | 19.58 | 18.499 | | | |
| 3,300.0 | 3,233.9 | 3,291.5 | 3,272.3 | 15.5 | 10.6 | 158.16 | 202.8 | -108.0 | 376.8 | 356.5 | 20.38 | 18.490 | | | |
| 3,400.0 | 3,330.3 | 3,390.4 | 3,369.9 | 16.2 | 11.0 | 157.83 | 215.5 | -117.5 | 391.5 | 370.3 | 21.19 | 18.478 | | | |
| 3,500.0 | 3,426.7 | 3,489.3 | 3,467.5 | 16.8 | 11.4 | 157.52 | 228.2 | -127.1 | 406.2 | 384.2 | 22.00 | 18.463 | | | |
| 3,600.0 | 3,523.0 | 3,588.2 | 3,565.1 | 17.5 | 11.9 | 157.23 | 240.9 | -136.7 | 420.9 | 398.1 | 22.82 | 18.446 | | | |
| 3,700.0 | 3,619.4 | 3,687.1 | 3,662.7 | 18.2 | 12.3 | 156.96 | 253.6 | -146.2 | 435.6 | 412.0 | 23.64 | 18.428 | | | |
| 3,800.0 | 3,715.7 | 3,786.0 | 3,760.3 | 18.9 | 12.7 | 156.71 | 266.3 | -155.8 | 450.3 | 425.9 | 24.46 | 18.408 | | | |
| 3,900.0 | 3,812.1 | 3,884.8 | 3,857.9 | 19.6 | 13.2 | 156.47 | 278.9 | -165.3 | 465.1 | 439.8 | 25.29 | 18.388 | | | |
| 4,000.0 | 3,908.4 | 3,983.7 | 3,955.5 | 20.3 | 13.6 | 156.25 | 291.6 | -174.9 | 479.8 | 453.7 | 26.12 | 18.367 | | | |
| 4,100.0 | 4,004.8 | 4,082.6 | 4,053.1 | 21.0 | 14.0 | 156.05 | 304.3 | -184.5 | 494.6 | 467.6 | 26.96 | 18.345 | | | |
| 4,200.0 | 4,101.1 | 4,181.5 | 4,150.7 | 21.7 | 14.5 | 155.85 | 317.0 | -194.0 | 509.3 | 481.5 | 27.79 | 18.324 | | | |
| 4,300.0 | 4,197.5 | 4,280.4 | 4,248.3 | 22.4 | 14.9 | 155.67 | 329.7 | -203.6 | 524.1 | 495.4 | 28.63 | 18.302 | | | |
| 4,400.0 | 4,293.8 | 4,379.3 | 4,346.0 | 23.1 | 15.4 | 155.49 | 342.4 | -213.1 | 538.8 | 509.3 | 29.47 | 18.281 | | | |
| 4,500.0 | 4,390.2 | 4,478.2 | 4,443.6 | 23.8 | 15.8 | 155.33 | 355.0 | -222.7 | 553.6 | 523.3 | 30.32 | 18.259 | | | |
| 4,600.0 | 4,486.5 | 4,577.1 | 4,541.2 | 24.4 | 16.2 | 155.17 | 367.7 | -232.3 | 568.4 | 537.2 | 31.16 | 18.238 | | | |
| 4,700.0 | 4,582.9 | 4,676.0 | 4,638.8 | 25.1 | 16.7 | 155.02 | 380.4 | -241.8 | 583.1 | 551.1 | 32.01 | 18.217 | | | |
| 4,800.0 | 4,679.2 | 4,774.9 | 4,736.4 | 25.8 | 17.1 | 154.88 | 393.1 | -251.4 | 597.9 | 565.0 | 32.86 | 18.197 | | | |
| 4,900.0 | 4,775.6 | 4,873.8 | 4,834.0 | 26.5 | 17.6 | 154.74 | 405.8 | -260.9 | 612.7 | 579.0 | 33.71 | 18.177 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-303 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|----------------|---|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|---------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 5,000.0 | 4,871.9 | 4,972.7 | 4,931.6 | 27.2 | 18.0 | 154.62 | 418.5 | -270.5 | 627.5 | 592.9 | 34.56 | 18.157 | | | |
| 5,100.0 | 4,968.3 | 5,071.5 | 5,029.2 | 27.9 | 18.5 | 154.49 | 431.2 | -280.1 | 642.3 | 606.8 | 35.41 | 18.138 | | | |
| 5,200.0 | 5,064.6 | 5,170.4 | 5,126.8 | 28.6 | 18.9 | 154.38 | 443.8 | -289.6 | 657.0 | 620.8 | 36.26 | 18.118 | | | |
| 5,271.3 | 5,133.3 | 5,240.9 | 5,196.4 | 29.1 | 19.2 | 154.30 | 452.9 | -296.4 | 667.6 | 630.7 | 36.87 | 18.105 | | | |
| 5,300.0 | 5,161.0 | 5,269.3 | 5,224.4 | 29.3 | 19.4 | 154.30 | 456.5 | -299.2 | 671.7 | 634.6 | 37.13 | 18.090 | | | |
| 5,400.0 | 5,258.1 | 5,368.5 | 5,322.4 | 29.8 | 19.8 | 154.20 | 469.3 | -308.8 | 684.0 | 646.1 | 38.00 | 18.003 | | | |
| 5,500.0 | 5,355.9 | 5,457.8 | 5,410.6 | 30.2 | 20.1 | 154.05 | 480.0 | -316.9 | 693.9 | 655.2 | 38.72 | 17.920 | | | |
| 5,600.0 | 5,454.4 | 5,544.9 | 5,497.1 | 30.6 | 20.4 | 153.97 | 488.4 | -323.2 | 702.4 | 663.0 | 39.33 | 17.860 | | | |
| 5,700.0 | 5,553.4 | 5,632.1 | 5,583.8 | 30.9 | 20.6 | 153.94 | 494.7 | -327.9 | 709.5 | 669.7 | 39.84 | 17.810 | | | |
| 5,800.0 | 5,652.9 | 5,719.2 | 5,670.8 | 31.2 | 20.8 | 153.97 | 498.9 | -331.1 | 715.3 | 675.0 | 40.25 | 17.772 | | | |
| 5,900.0 | 5,752.7 | 5,806.3 | 5,757.9 | 31.4 | 21.0 | 154.05 | 501.0 | -332.7 | 719.7 | 679.2 | 40.56 | 17.743 | | | |
| 6,000.0 | 5,852.6 | 5,900.0 | 5,851.6 | 31.6 | 21.2 | 154.16 | 501.2 | -332.9 | 722.6 | 681.8 | 40.81 | 17.706 | | | |
| 6,047.4 | 5,900.0 | 5,947.4 | 5,899.0 | 31.6 | 21.3 | 89.03 | 501.2 | -332.9 | 722.9 | 682.0 | 40.95 | 17.656 | | | |
| 6,100.0 | 5,952.6 | 6,000.0 | 5,951.6 | 31.7 | 21.4 | 89.03 | 501.2 | -332.9 | 722.9 | 681.8 | 41.15 | 17.568 | | | |
| 6,190.6 | 6,043.1 | 6,090.9 | 6,042.5 | 31.8 | 21.5 | 89.05 | 501.0 | -332.9 | 722.9 | 681.4 | 41.50 | 17.419 | | | |
| 6,200.0 | 6,052.6 | 6,100.5 | 6,052.0 | 31.8 | 21.6 | -90.97 | 500.7 | -332.9 | 722.9 | 681.4 | 41.52 | 17.412 | | | |
| 6,250.0 | 6,102.5 | 6,151.2 | 6,102.7 | 31.9 | 21.6 | -90.87 | 497.1 | -332.9 | 722.9 | 681.3 | 41.61 | 17.374 | | | |
| 6,300.0 | 6,152.2 | 6,201.9 | 6,152.8 | 31.9 | 21.6 | -90.76 | 490.2 | -332.9 | 722.9 | 681.3 | 41.63 | 17.367 | | | |
| 6,350.0 | 6,201.4 | 6,252.4 | 6,202.3 | 31.9 | 21.6 | -90.65 | 479.9 | -332.9 | 722.9 | 681.3 | 41.58 | 17.386 | | | |
| 6,400.0 | 6,250.0 | 6,302.9 | 6,251.0 | 31.9 | 21.6 | -90.54 | 466.5 | -332.9 | 722.9 | 681.4 | 41.47 | 17.431 | | | |
| 6,450.0 | 6,297.6 | 6,353.3 | 6,298.5 | 31.8 | 21.5 | -90.43 | 449.9 | -332.9 | 722.9 | 681.5 | 41.31 | 17.498 | | | |
| 6,500.0 | 6,344.2 | 6,403.6 | 6,344.8 | 31.8 | 21.4 | -90.31 | 430.2 | -332.9 | 722.9 | 681.7 | 41.11 | 17.583 | | | |
| 6,536.5 | 6,377.4 | 6,440.2 | 6,377.6 | 31.7 | 21.4 | -90.23 | 414.0 | -332.9 | 722.9 | 681.9 | 40.94 | 17.656 | | | |
| 6,550.0 | 6,389.5 | 6,453.7 | 6,389.6 | 31.7 | 21.3 | -90.19 | 407.6 | -332.9 | 722.9 | 682.0 | 40.88 | 17.684 | | | |
| 6,600.0 | 6,433.3 | 6,503.8 | 6,432.7 | 31.6 | 21.2 | -90.07 | 382.2 | -332.9 | 722.9 | 682.2 | 40.62 | 17.794 | | | |
| 6,650.0 | 6,475.4 | 6,553.8 | 6,474.0 | 31.5 | 21.1 | -89.96 | 354.0 | -332.9 | 722.9 | 682.5 | 40.36 | 17.909 | | | |
| 6,700.0 | 6,515.7 | 6,603.7 | 6,513.2 | 31.5 | 21.0 | -89.84 | 323.3 | -333.0 | 722.9 | 682.8 | 40.11 | 18.023 | | | |
| 6,750.0 | 6,553.9 | 6,653.5 | 6,550.4 | 31.3 | 20.8 | -89.72 | 290.1 | -333.0 | 722.9 | 683.0 | 39.87 | 18.129 | | | |
| 6,800.0 | 6,590.0 | 6,703.2 | 6,585.2 | 31.2 | 20.7 | -89.60 | 254.7 | -333.0 | 722.9 | 683.2 | 39.67 | 18.221 | | | |
| 6,850.0 | 6,623.7 | 6,752.8 | 6,617.6 | 31.1 | 20.5 | -89.49 | 217.1 | -333.0 | 722.9 | 683.4 | 39.52 | 18.291 | | | |
| 6,900.0 | 6,654.9 | 6,802.3 | 6,647.4 | 31.0 | 20.4 | -89.38 | 177.6 | -333.0 | 723.0 | 683.5 | 39.43 | 18.333 | | | |
| 6,950.0 | 6,683.5 | 6,851.7 | 6,674.6 | 30.9 | 20.3 | -89.27 | 136.3 | -333.0 | 723.0 | 683.6 | 39.42 | 18.340 | | | |
| 7,000.0 | 6,709.4 | 6,901.0 | 6,698.9 | 30.8 | 20.2 | -89.16 | 93.5 | -333.1 | 723.0 | 683.5 | 39.49 | 18.306 | | | |
| 7,050.0 | 6,732.4 | 6,950.0 | 6,720.4 | 30.8 | 20.1 | -89.06 | 49.4 | -333.1 | 723.0 | 683.4 | 39.66 | 18.229 | | | |
| 7,100.0 | 6,752.5 | 6,999.4 | 6,739.1 | 30.7 | 20.0 | -88.96 | 3.7 | -333.1 | 723.1 | 683.1 | 39.94 | 18.104 | | | |
| 7,150.0 | 6,769.5 | 7,048.5 | 6,754.7 | 30.6 | 19.9 | -88.87 | -42.9 | -333.1 | 723.1 | 682.8 | 40.32 | 17.933 | | | |
| 7,200.0 | 6,783.4 | 7,097.6 | 6,767.3 | 30.6 | 19.8 | -88.78 | -90.2 | -333.1 | 723.1 | 682.3 | 40.82 | 17.717 | | | |
| 7,250.0 | 6,794.1 | 7,146.5 | 6,776.8 | 30.6 | 20.1 | -88.69 | -138.3 | -333.2 | 723.2 | 681.8 | 41.42 | 17.460 | | | |
| 7,300.0 | 6,801.7 | 7,195.4 | 6,783.2 | 30.6 | 20.5 | -88.61 | -186.7 | -333.2 | 723.2 | 681.1 | 42.13 | 17.168 | | | |
| 7,350.0 | 6,805.9 | 7,244.3 | 6,786.5 | 30.7 | 21.0 | -88.54 | -235.4 | -333.2 | 723.2 | 680.3 | 42.93 | 16.845 | | | |
| 7,396.0 | 6,807.0 | 7,289.6 | 6,786.9 | 30.8 | 21.5 | -88.49 | -280.8 | -333.2 | 723.3 | 679.5 | 43.75 | 16.533 | | | |
| 7,396.0 | 6,807.0 | 7,289.6 | 6,786.9 | 30.8 | 21.5 | -88.49 | -280.8 | -333.2 | 723.3 | 679.5 | 43.75 | 16.533 | | | |
| 7,396.4 | 6,807.0 | 7,290.0 | 6,786.9 | 30.8 | 21.5 | -88.49 | -281.2 | -333.2 | 723.3 | 679.5 | 43.75 | 16.531 | | | |
| 7,400.0 | 6,807.0 | 7,293.6 | 6,786.9 | 30.8 | 21.5 | -88.49 | -284.8 | -333.2 | 723.3 | 679.5 | 43.82 | 16.507 | | | |
| 7,500.0 | 6,806.2 | 7,393.6 | 6,786.5 | 31.2 | 22.7 | -88.51 | -384.8 | -333.3 | 723.3 | 677.3 | 45.97 | 15.733 | | | |
| 7,600.0 | 6,805.5 | 7,493.6 | 6,786.0 | 31.8 | 24.1 | -88.54 | -484.8 | -333.4 | 723.3 | 674.8 | 48.49 | 14.916 | | | |
| 7,700.0 | 6,804.8 | 7,593.6 | 6,785.6 | 32.5 | 25.6 | -88.56 | -584.8 | -333.4 | 723.3 | 672.0 | 51.32 | 14.094 | | | |
| 7,800.0 | 6,804.0 | 7,693.6 | 6,785.2 | 33.6 | 27.2 | -88.58 | -684.8 | -333.5 | 723.3 | 668.9 | 54.41 | 13.295 | | | |
| 7,900.0 | 6,803.3 | 7,793.6 | 6,784.7 | 34.7 | 28.9 | -88.61 | -784.8 | -333.5 | 723.3 | 665.6 | 57.71 | 12.533 | | | |
| 8,000.0 | 6,802.6 | 7,893.6 | 6,784.3 | 36.1 | 30.7 | -88.63 | -884.8 | -333.6 | 723.3 | 662.1 | 61.20 | 11.819 | | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-303 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|----------------|---|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|--------------------|--|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | |
| 8,100.0 | 6,801.8 | 7,993.6 | 6,783.8 | 37.6 | 32.5 | -88.65 | -984.8 | -333.7 | 723.3 | 658.5 | 64.84 | 11.155 | | |
| 8,200.0 | 6,801.1 | 8,093.6 | 6,783.4 | 39.2 | 34.4 | -88.68 | -1,084.8 | -333.7 | 723.3 | 654.7 | 68.62 | 10.542 | | |
| 8,300.0 | 6,800.3 | 8,193.6 | 6,782.9 | 40.9 | 36.4 | -88.70 | -1,184.8 | -333.8 | 723.3 | 650.8 | 72.50 | 9.978 | | |
| 8,400.0 | 6,799.6 | 8,293.6 | 6,782.5 | 42.6 | 38.4 | -88.72 | -1,284.8 | -333.8 | 723.4 | 646.9 | 76.47 | 9.459 | | |
| 8,500.0 | 6,798.9 | 8,393.6 | 6,782.1 | 44.4 | 40.4 | -88.75 | -1,384.7 | -333.9 | 723.4 | 642.8 | 80.52 | 8.984 | | |
| 8,600.0 | 6,798.1 | 8,493.6 | 6,781.6 | 46.3 | 42.5 | -88.77 | -1,484.7 | -334.0 | 723.4 | 638.7 | 84.64 | 8.546 | | |
| 8,700.0 | 6,797.4 | 8,593.6 | 6,781.2 | 48.2 | 44.6 | -88.79 | -1,584.7 | -334.0 | 723.4 | 634.6 | 88.82 | 8.145 | | |
| 8,800.0 | 6,796.7 | 8,693.6 | 6,780.7 | 50.2 | 46.7 | -88.82 | -1,684.7 | -334.1 | 723.4 | 630.3 | 93.04 | 7.775 | | |
| 8,900.0 | 6,795.9 | 8,793.6 | 6,780.3 | 52.2 | 48.8 | -88.84 | -1,784.7 | -334.1 | 723.4 | 626.1 | 97.32 | 7.433 | | |
| 9,000.0 | 6,795.2 | 8,893.6 | 6,779.9 | 54.2 | 51.0 | -88.86 | -1,884.7 | -334.2 | 723.4 | 621.8 | 101.63 | 7.118 | | |
| 9,100.0 | 6,794.5 | 8,993.6 | 6,779.4 | 56.2 | 53.2 | -88.89 | -1,984.7 | -334.2 | 723.4 | 617.4 | 105.97 | 6.827 | | |
| 9,200.0 | 6,793.7 | 9,093.6 | 6,779.0 | 58.3 | 55.4 | -88.91 | -2,084.7 | -334.3 | 723.4 | 613.1 | 110.34 | 6.556 | | |
| 9,300.0 | 6,793.0 | 9,193.6 | 6,778.5 | 60.4 | 57.6 | -88.93 | -2,184.7 | -334.4 | 723.4 | 608.7 | 114.74 | 6.305 | | |
| 9,400.0 | 6,792.2 | 9,293.6 | 6,778.1 | 62.5 | 59.8 | -88.96 | -2,284.7 | -334.4 | 723.4 | 604.3 | 119.16 | 6.071 | | |
| 9,500.0 | 6,791.5 | 9,393.6 | 6,777.7 | 64.6 | 62.0 | -88.98 | -2,384.7 | -334.5 | 723.5 | 599.9 | 123.61 | 5.853 | | |
| 9,600.0 | 6,790.8 | 9,493.6 | 6,777.2 | 66.8 | 64.2 | -89.00 | -2,484.7 | -334.5 | 723.5 | 595.4 | 128.07 | 5.649 | | |
| 9,700.0 | 6,790.0 | 9,593.6 | 6,776.8 | 68.9 | 66.5 | -89.03 | -2,584.7 | -334.6 | 723.5 | 590.9 | 132.55 | 5.458 | | |
| 9,800.0 | 6,789.3 | 9,693.6 | 6,776.3 | 71.1 | 68.7 | -89.05 | -2,684.7 | -334.7 | 723.5 | 586.4 | 137.04 | 5.279 | | |
| 9,900.0 | 6,788.6 | 9,793.6 | 6,775.9 | 73.3 | 71.0 | -89.07 | -2,784.7 | -334.7 | 723.5 | 582.0 | 141.55 | 5.111 | | |
| 10,000.0 | 6,787.8 | 9,893.6 | 6,775.4 | 75.5 | 73.2 | -89.10 | -2,884.7 | -334.8 | 723.5 | 577.4 | 146.07 | 4.953 | | |
| 10,100.0 | 6,787.1 | 9,993.6 | 6,775.0 | 77.7 | 75.5 | -89.12 | -2,984.7 | -334.8 | 723.5 | 572.9 | 150.60 | 4.804 | | |
| 10,200.0 | 6,786.4 | 10,093.6 | 6,774.6 | 79.9 | 77.8 | -89.14 | -3,084.7 | -334.9 | 723.5 | 568.4 | 155.14 | 4.664 | | |
| 10,300.0 | 6,785.6 | 10,193.6 | 6,774.1 | 82.1 | 80.0 | -89.17 | -3,184.7 | -334.9 | 723.5 | 563.9 | 159.69 | 4.531 | | |
| 10,400.0 | 6,784.9 | 10,293.6 | 6,773.7 | 84.3 | 82.3 | -89.19 | -3,284.7 | -335.0 | 723.6 | 559.3 | 164.25 | 4.405 | | |
| 10,500.0 | 6,784.1 | 10,393.6 | 6,773.2 | 86.5 | 84.6 | -89.22 | -3,384.7 | -335.1 | 723.6 | 554.7 | 168.82 | 4.286 | | |
| 10,600.0 | 6,783.4 | 10,493.6 | 6,772.8 | 88.8 | 86.9 | -89.24 | -3,484.7 | -335.1 | 723.6 | 550.2 | 173.39 | 4.173 | | |
| 10,700.0 | 6,782.7 | 10,593.6 | 6,772.4 | 91.0 | 89.2 | -89.26 | -3,584.7 | -335.2 | 723.6 | 545.6 | 177.97 | 4.066 | | |
| 10,800.0 | 6,781.9 | 10,693.6 | 6,771.9 | 93.3 | 91.5 | -89.29 | -3,684.7 | -335.2 | 723.6 | 541.0 | 182.56 | 3.964 | | |
| 10,900.0 | 6,781.2 | 10,793.6 | 6,771.5 | 95.5 | 93.8 | -89.31 | -3,784.7 | -335.3 | 723.6 | 536.5 | 187.16 | 3.866 | | |
| 11,000.0 | 6,780.5 | 10,893.6 | 6,771.0 | 97.8 | 96.0 | -89.33 | -3,884.7 | -335.4 | 723.6 | 531.9 | 191.76 | 3.774 | | |
| 11,100.0 | 6,779.7 | 10,993.6 | 6,770.6 | 100.0 | 98.3 | -89.36 | -3,984.7 | -335.4 | 723.6 | 527.3 | 196.36 | 3.685 | | |
| 11,200.0 | 6,779.0 | 11,093.6 | 6,770.2 | 102.3 | 100.7 | -89.38 | -4,084.7 | -335.5 | 723.6 | 522.7 | 200.97 | 3.601 | | |
| 11,300.0 | 6,778.3 | 11,193.6 | 6,769.7 | 104.6 | 103.0 | -89.40 | -4,184.7 | -335.5 | 723.7 | 518.1 | 205.58 | 3.520 | | |
| 11,400.0 | 6,777.5 | 11,293.6 | 6,769.3 | 106.8 | 105.3 | -89.43 | -4,284.7 | -335.6 | 723.7 | 513.5 | 210.20 | 3.443 | | |
| 11,500.0 | 6,776.8 | 11,393.6 | 6,768.8 | 109.1 | 107.6 | -89.45 | -4,384.7 | -335.7 | 723.7 | 508.9 | 214.82 | 3.369 | | |
| 11,600.0 | 6,776.1 | 11,493.6 | 6,768.4 | 111.4 | 109.9 | -89.47 | -4,484.7 | -335.7 | 723.7 | 504.3 | 219.44 | 3.298 | | |
| 11,700.0 | 6,775.3 | 11,593.6 | 6,767.9 | 113.7 | 112.2 | -89.50 | -4,584.7 | -335.8 | 723.7 | 499.6 | 224.07 | 3.230 | | |
| 11,800.0 | 6,774.6 | 11,693.6 | 6,767.5 | 115.9 | 114.5 | -89.52 | -4,684.7 | -335.8 | 723.7 | 495.0 | 228.70 | 3.164 | | |
| 11,900.0 | 6,773.8 | 11,793.6 | 6,767.1 | 118.2 | 116.8 | -89.54 | -4,784.7 | -335.9 | 723.7 | 490.4 | 233.34 | 3.102 | | |
| 12,000.0 | 6,773.1 | 11,893.6 | 6,766.6 | 120.5 | 119.1 | -89.57 | -4,884.7 | -335.9 | 723.7 | 485.8 | 237.97 | 3.041 | | |
| 12,100.0 | 6,772.4 | 11,993.6 | 6,766.2 | 122.8 | 121.5 | -89.59 | -4,984.7 | -336.0 | 723.8 | 481.1 | 242.61 | 2.983 | | |
| 12,200.0 | 6,771.6 | 12,093.6 | 6,765.7 | 125.1 | 123.8 | -89.61 | -5,084.7 | -336.1 | 723.8 | 476.5 | 247.25 | 2.927 | | |
| 12,300.0 | 6,770.9 | 12,193.6 | 6,765.3 | 127.4 | 126.1 | -89.64 | -5,184.7 | -336.1 | 723.8 | 471.9 | 251.90 | 2.873 | | |
| 12,400.0 | 6,770.2 | 12,293.6 | 6,764.9 | 129.7 | 128.4 | -89.66 | -5,284.7 | -336.2 | 723.8 | 467.3 | 256.54 | 2.821 | | |
| 12,500.0 | 6,769.4 | 12,393.6 | 6,764.4 | 132.0 | 130.7 | -89.68 | -5,384.7 | -336.2 | 723.8 | 462.6 | 261.19 | 2.771 | | |
| 12,600.0 | 6,768.7 | 12,493.6 | 6,764.0 | 134.3 | 133.1 | -89.71 | -5,484.7 | -336.3 | 723.8 | 458.0 | 265.84 | 2.723 | | |
| 12,700.0 | 6,768.0 | 12,593.6 | 6,763.5 | 136.6 | 135.4 | -89.73 | -5,584.7 | -336.4 | 723.8 | 453.3 | 270.49 | 2.676 | | |
| 12,800.0 | 6,767.2 | 12,693.6 | 6,763.1 | 138.9 | 137.7 | -89.75 | -5,684.7 | -336.4 | 723.9 | 448.7 | 275.15 | 2.631 | | |
| 12,900.0 | 6,766.5 | 12,793.6 | 6,762.6 | 141.2 | 140.0 | -89.78 | -5,784.7 | -336.5 | 723.9 | 444.1 | 279.80 | 2.587 | | |
| 13,000.0 | 6,765.7 | 12,893.6 | 6,762.2 | 143.5 | 142.4 | -89.80 | -5,884.7 | -336.5 | 723.9 | 439.4 | 284.46 | 2.545 | | |
| 13,100.0 | 6,765.0 | 12,993.6 | 6,761.8 | 145.8 | 144.7 | -89.82 | -5,984.7 | -336.6 | 723.9 | 434.8 | 289.12 | 2.504 | | |

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

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-303 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 13,200.0 | 6,764.3 | 13,093.6 | 6,761.3 | 148.1 | 147.0 | -89.85 | -6,084.7 | -336.7 | 723.9 | 430.1 | 293.78 | 2.464 | | |
| 13,300.0 | 6,763.5 | 13,193.6 | 6,760.9 | 150.4 | 149.4 | -89.87 | -6,184.7 | -336.7 | 723.9 | 425.5 | 298.44 | 2.426 | | |
| 13,400.0 | 6,762.8 | 13,293.6 | 6,760.4 | 152.7 | 151.7 | -89.89 | -6,284.7 | -336.8 | 723.9 | 420.8 | 303.10 | 2.388 | | |
| 13,500.0 | 6,762.1 | 13,393.6 | 6,760.0 | 155.0 | 154.0 | -89.92 | -6,384.7 | -336.8 | 724.0 | 416.2 | 307.77 | 2.352 | | |
| 13,600.0 | 6,761.3 | 13,493.6 | 6,759.6 | 157.4 | 156.3 | -89.94 | -6,484.7 | -336.9 | 724.0 | 411.5 | 312.43 | 2.317 | | |
| 13,700.0 | 6,760.6 | 13,593.6 | 6,759.1 | 159.7 | 158.7 | -89.96 | -6,584.7 | -336.9 | 724.0 | 406.9 | 317.10 | 2.283 | | |
| 13,800.0 | 6,759.9 | 13,693.6 | 6,758.7 | 162.0 | 161.0 | -89.99 | -6,684.7 | -337.0 | 724.0 | 402.2 | 321.76 | 2.250 | | |
| 13,900.0 | 6,759.1 | 13,793.6 | 6,758.2 | 164.3 | 163.3 | -90.01 | -6,784.7 | -337.1 | 724.0 | 397.6 | 326.43 | 2.218 | | |
| 14,000.0 | 6,758.4 | 13,893.6 | 6,757.8 | 166.6 | 165.7 | -90.03 | -6,884.7 | -337.1 | 724.0 | 392.9 | 331.10 | 2.187 | | |
| 14,100.0 | 6,757.6 | 13,993.6 | 6,757.4 | 168.9 | 168.0 | -90.06 | -6,984.7 | -337.2 | 724.0 | 388.3 | 335.77 | 2.156 | | |
| 14,149.7 | 6,757.3 | 14,043.3 | 6,757.1 | 170.1 | 169.2 | -90.07 | -7,034.4 | -337.2 | 724.1 | 386.0 | 338.09 | 2.142 | | |
| 14,188.1 | 6,757.0 | 14,074.3 | 6,757.0 | 171.0 | 169.9 | -90.07 | -7,065.4 | -337.2 | 724.1 | 384.4 | 339.71 | 2.132 SF | | |

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|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-323 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | 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 | 90.69 | -1.1 | 90.0 | 90.0 | | | | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | 90.69 | -1.1 | 90.0 | 90.0 | 89.7 | 0.27 | 328.514 | | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.4 | 0.4 | 90.69 | -1.1 | 90.0 | 90.0 | 89.2 | 0.82 | 109.323 | | |
| 300.0 | 300.0 | 299.0 | 299.0 | 0.7 | 0.7 | 90.69 | -1.1 | 90.0 | 90.0 | 88.6 | 1.37 | 65.506 | | |
| 400.0 | 400.0 | 399.0 | 399.0 | 1.0 | 1.0 | 90.69 | -1.1 | 90.0 | 90.0 | 88.1 | 1.92 | 46.763 | | |
| 500.0 | 500.0 | 499.0 | 499.0 | 1.2 | 1.2 | 90.69 | -1.1 | 90.0 | 90.0 | 87.5 | 2.48 | 36.360 | | |
| 600.0 | 600.0 | 599.0 | 599.0 | 1.5 | 1.5 | 90.69 | -1.1 | 90.0 | 90.0 | 87.0 | 3.03 | 29.743 | | |
| 700.0 | 700.0 | 699.0 | 699.0 | 1.8 | 1.8 | 90.69 | -1.1 | 90.0 | 90.0 | 86.4 | 3.58 | 25.164 | | |
| 800.0 | 800.0 | 799.0 | 799.0 | 2.1 | 2.1 | 90.69 | -1.1 | 90.0 | 90.0 | 85.9 | 4.13 | 21.806 CC, ES | | |
| 900.0 | 900.0 | 898.0 | 898.0 | 2.3 | 2.3 | 155.44 | 0.1 | 90.5 | 91.7 | 87.1 | 4.66 | 19.666 | | |
| 1,000.0 | 999.9 | 996.8 | 996.7 | 2.6 | 2.6 | 154.33 | 3.5 | 92.2 | 97.0 | 91.8 | 5.20 | 18.665 | | |
| 1,100.0 | 1,099.7 | 1,095.1 | 1,094.8 | 2.9 | 2.9 | 152.71 | 9.2 | 95.0 | 105.8 | 100.1 | 5.73 | 18.448 SF | | |
| 1,200.0 | 1,199.3 | 1,192.9 | 1,192.2 | 3.2 | 3.2 | 150.83 | 17.1 | 98.8 | 118.2 | 111.9 | 6.28 | 18.810 | | |
| 1,300.0 | 1,298.6 | 1,289.9 | 1,288.5 | 3.5 | 3.5 | 148.92 | 27.2 | 103.7 | 134.3 | 127.4 | 6.85 | 19.598 | | |
| 1,400.0 | 1,397.5 | 1,385.9 | 1,383.6 | 3.8 | 3.8 | 147.10 | 39.3 | 109.5 | 154.0 | 146.5 | 7.44 | 20.693 | | |
| 1,500.0 | 1,496.1 | 1,480.7 | 1,477.1 | 4.2 | 4.1 | 145.45 | 53.4 | 116.3 | 177.3 | 169.2 | 8.06 | 21.998 | | |
| 1,600.0 | 1,594.2 | 1,574.7 | 1,569.4 | 4.6 | 4.5 | 143.98 | 69.4 | 124.1 | 204.1 | 195.4 | 8.71 | 23.430 | | |
| 1,700.0 | 1,691.7 | 1,670.3 | 1,663.1 | 5.1 | 4.9 | 142.98 | 86.3 | 132.3 | 233.5 | 224.1 | 9.40 | 24.843 | | |
| 1,800.0 | 1,788.6 | 1,765.2 | 1,756.2 | 5.6 | 5.3 | 142.47 | 103.2 | 140.4 | 264.9 | 254.8 | 10.12 | 26.186 | | |
| 1,834.8 | 1,822.2 | 1,798.1 | 1,788.4 | 5.8 | 5.5 | 142.38 | 109.0 | 143.3 | 276.3 | 265.9 | 10.37 | 26.648 | | |
| 1,900.0 | 1,885.0 | 1,859.6 | 1,848.7 | 6.2 | 5.8 | 142.46 | 120.0 | 148.5 | 297.9 | 287.0 | 10.87 | 27.398 | | |
| 2,000.0 | 1,981.4 | 1,954.0 | 1,941.3 | 6.8 | 6.2 | 142.55 | 136.7 | 156.6 | 330.9 | 319.3 | 11.66 | 28.385 | | |
| 2,100.0 | 2,077.7 | 2,048.4 | 2,033.8 | 7.5 | 6.7 | 142.63 | 153.5 | 164.8 | 364.0 | 351.5 | 12.46 | 29.206 | | |
| 2,200.0 | 2,174.1 | 2,142.7 | 2,126.3 | 8.1 | 7.1 | 142.69 | 170.2 | 172.9 | 397.1 | 383.8 | 13.28 | 29.894 | | |
| 2,300.0 | 2,270.4 | 2,237.1 | 2,218.8 | 8.7 | 7.6 | 142.75 | 187.0 | 181.0 | 430.2 | 416.0 | 14.11 | 30.477 | | |
| 2,400.0 | 2,366.8 | 2,331.5 | 2,311.3 | 9.4 | 8.0 | 142.79 | 203.8 | 189.1 | 463.2 | 448.3 | 14.96 | 30.974 | | |
| 2,500.0 | 2,463.1 | 2,425.9 | 2,403.8 | 10.1 | 8.5 | 142.83 | 220.5 | 197.2 | 496.3 | 480.5 | 15.81 | 31.402 | | |
| 2,600.0 | 2,559.5 | 2,520.2 | 2,496.4 | 10.7 | 9.0 | 142.87 | 237.3 | 205.3 | 529.4 | 512.7 | 16.66 | 31.773 | | |
| 2,700.0 | 2,655.8 | 2,614.6 | 2,588.9 | 11.4 | 9.4 | 142.90 | 254.0 | 213.4 | 562.5 | 544.9 | 17.52 | 32.097 | | |
| 2,800.0 | 2,752.2 | 2,709.0 | 2,681.4 | 12.1 | 9.9 | 142.93 | 270.8 | 221.5 | 595.5 | 577.1 | 18.39 | 32.381 | | |
| 2,900.0 | 2,848.5 | 2,803.3 | 2,773.9 | 12.7 | 10.4 | 142.95 | 287.6 | 229.6 | 628.6 | 609.4 | 19.26 | 32.633 | | |
| 3,000.0 | 2,944.9 | 2,897.7 | 2,866.4 | 13.4 | 10.9 | 142.97 | 304.3 | 237.7 | 661.7 | 641.6 | 20.14 | 32.856 | | |
| 3,100.0 | 3,041.2 | 2,992.1 | 2,958.9 | 14.1 | 11.4 | 142.99 | 321.1 | 245.8 | 694.8 | 673.8 | 21.02 | 33.055 | | |
| 3,200.0 | 3,137.6 | 3,086.5 | 3,051.5 | 14.8 | 11.8 | 143.01 | 337.8 | 253.9 | 727.8 | 705.9 | 21.90 | 33.234 | | |
| 3,300.0 | 3,233.9 | 3,180.8 | 3,144.0 | 15.5 | 12.3 | 143.03 | 354.6 | 262.0 | 760.9 | 738.1 | 22.79 | 33.395 | | |
| 3,400.0 | 3,330.3 | 3,275.2 | 3,236.5 | 16.2 | 12.8 | 143.04 | 371.4 | 270.1 | 794.0 | 770.3 | 23.67 | 33.541 | | |

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|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-423 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | 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 | 90.56 | -0.7 | 74.9 | 75.0 | | | | | | |
| 100.0 | 100.0 | 98.0 | 98.0 | 0.1 | 0.1 | 90.56 | -0.7 | 74.9 | 75.0 | 74.7 | 0.27 | 274.965 | | | |
| 200.0 | 200.0 | 198.0 | 198.0 | 0.4 | 0.4 | 90.56 | -0.7 | 74.9 | 75.0 | 74.1 | 0.82 | 91.349 | | | |
| 300.0 | 300.0 | 298.0 | 298.0 | 0.7 | 0.7 | 90.56 | -0.7 | 74.9 | 75.0 | 73.6 | 1.37 | 54.663 | | | |
| 400.0 | 400.0 | 398.0 | 398.0 | 1.0 | 1.0 | 90.56 | -0.7 | 74.9 | 75.0 | 73.0 | 1.92 | 39.000 | | | |
| 500.0 | 500.0 | 498.0 | 498.0 | 1.2 | 1.2 | 90.56 | -0.7 | 74.9 | 75.0 | 72.5 | 2.47 | 30.314 | | | |
| 600.0 | 600.0 | 598.0 | 598.0 | 1.5 | 1.5 | 90.56 | -0.7 | 74.9 | 75.0 | 71.9 | 3.02 | 24.792 | | | |
| 700.0 | 700.0 | 698.0 | 698.0 | 1.8 | 1.8 | 90.56 | -0.7 | 74.9 | 75.0 | 71.4 | 3.57 | 20.972 | | | |
| 800.0 | 800.0 | 798.0 | 798.0 | 2.1 | 2.1 | 90.56 | -0.7 | 74.9 | 75.0 | 70.8 | 4.12 | 18.172 CC, ES | | | |
| 900.0 | 900.0 | 898.0 | 898.0 | 2.3 | 2.3 | 156.10 | -0.7 | 74.9 | 76.1 | 71.5 | 4.67 | 16.317 | | | |
| 1,000.0 | 999.9 | 997.9 | 997.9 | 2.6 | 2.6 | 157.22 | -0.7 | 74.9 | 79.8 | 74.6 | 5.20 | 15.330 | | | |
| 1,100.0 | 1,099.7 | 1,097.7 | 1,097.7 | 2.9 | 2.9 | 158.88 | -0.7 | 74.9 | 85.8 | 80.1 | 5.74 | 14.949 SF | | | |
| 1,200.0 | 1,199.3 | 1,197.3 | 1,197.3 | 3.2 | 3.2 | 160.84 | -0.7 | 74.9 | 94.4 | 88.1 | 6.28 | 15.034 | | | |
| 1,300.0 | 1,298.6 | 1,296.6 | 1,296.6 | 3.5 | 3.4 | 162.88 | -0.7 | 74.9 | 105.6 | 98.8 | 6.82 | 15.484 | | | |
| 1,400.0 | 1,397.5 | 1,395.5 | 1,395.5 | 3.8 | 3.7 | 164.85 | -0.7 | 74.9 | 119.4 | 112.0 | 7.36 | 16.225 | | | |
| 1,500.0 | 1,496.1 | 1,494.1 | 1,494.1 | 4.2 | 4.0 | 166.66 | -0.7 | 74.9 | 135.8 | 127.9 | 7.90 | 17.203 | | | |
| 1,600.0 | 1,594.2 | 1,592.2 | 1,592.2 | 4.6 | 4.2 | 168.27 | -0.7 | 74.9 | 154.9 | 146.5 | 8.43 | 18.372 | | | |
| 1,700.0 | 1,691.7 | 1,689.7 | 1,689.7 | 5.1 | 4.5 | 169.66 | -0.7 | 74.9 | 176.6 | 167.6 | 8.96 | 19.699 | | | |
| 1,800.0 | 1,788.6 | 1,786.6 | 1,786.6 | 5.6 | 4.8 | 170.86 | -0.7 | 74.9 | 200.8 | 191.4 | 9.49 | 21.155 | | | |
| 1,834.8 | 1,822.2 | 1,820.2 | 1,820.2 | 5.8 | 4.9 | 171.24 | -0.7 | 74.9 | 209.9 | 200.2 | 9.68 | 21.688 | | | |
| 1,900.0 | 1,885.0 | 1,883.0 | 1,883.0 | 6.2 | 5.0 | 171.91 | -0.7 | 74.9 | 227.2 | 217.1 | 10.05 | 22.612 | | | |
| 2,000.0 | 1,981.4 | 1,979.4 | 1,979.4 | 6.8 | 5.3 | 172.76 | -0.7 | 74.9 | 253.7 | 243.1 | 10.62 | 23.897 | | | |
| 2,100.0 | 2,077.7 | 2,075.7 | 2,075.7 | 7.5 | 5.6 | 173.45 | -0.7 | 74.9 | 280.3 | 269.1 | 11.19 | 25.043 | | | |
| 2,200.0 | 2,174.1 | 2,172.1 | 2,172.1 | 8.1 | 5.8 | 174.02 | -0.7 | 74.9 | 306.9 | 295.1 | 11.77 | 26.071 | | | |
| 2,300.0 | 2,270.4 | 2,268.4 | 2,268.4 | 8.7 | 6.1 | 174.50 | -0.7 | 74.9 | 333.5 | 321.2 | 12.36 | 26.995 | | | |
| 2,400.0 | 2,366.8 | 2,364.8 | 2,364.8 | 9.4 | 6.4 | 174.90 | -0.7 | 74.9 | 360.2 | 347.3 | 12.94 | 27.831 | | | |
| 2,500.0 | 2,463.1 | 2,461.1 | 2,461.1 | 10.1 | 6.6 | 175.26 | -0.7 | 74.9 | 386.9 | 373.3 | 13.53 | 28.590 | | | |
| 2,600.0 | 2,559.5 | 2,559.2 | 2,559.2 | 10.7 | 6.9 | 175.50 | -0.3 | 75.0 | 413.4 | 399.3 | 14.13 | 29.264 | | | |
| 2,700.0 | 2,655.8 | 2,658.7 | 2,658.6 | 11.4 | 7.2 | 175.42 | 2.6 | 75.2 | 439.4 | 424.7 | 14.73 | 29.831 | | | |
| 2,800.0 | 2,752.2 | 2,758.5 | 2,758.3 | 12.1 | 7.5 | 175.02 | 8.0 | 75.7 | 464.7 | 449.4 | 15.34 | 30.298 | | | |
| 2,900.0 | 2,848.5 | 2,858.4 | 2,857.8 | 12.7 | 7.7 | 174.36 | 16.0 | 76.5 | 489.4 | 473.4 | 15.95 | 30.674 | | | |
| 3,000.0 | 2,944.9 | 2,958.3 | 2,957.2 | 13.4 | 8.0 | 173.47 | 26.6 | 77.4 | 513.5 | 497.0 | 16.59 | 30.962 | | | |
| 3,100.0 | 3,041.2 | 3,058.0 | 3,056.0 | 14.1 | 8.3 | 172.39 | 39.8 | 78.6 | 537.2 | 520.0 | 17.24 | 31.164 | | | |
| 3,200.0 | 3,137.6 | 3,157.5 | 3,154.3 | 14.8 | 8.6 | 171.14 | 55.5 | 80.0 | 560.6 | 542.7 | 17.92 | 31.289 | | | |
| 3,300.0 | 3,233.9 | 3,254.1 | 3,249.4 | 15.5 | 8.9 | 169.88 | 72.1 | 81.6 | 584.0 | 565.3 | 18.62 | 31.363 | | | |
| 3,400.0 | 3,330.3 | 3,350.6 | 3,344.4 | 16.2 | 9.2 | 168.73 | 88.7 | 83.1 | 607.5 | 588.2 | 19.34 | 31.413 | | | |
| 3,500.0 | 3,426.7 | 3,447.0 | 3,439.5 | 16.8 | 9.6 | 167.66 | 105.3 | 84.6 | 631.4 | 611.3 | 20.08 | 31.440 | | | |
| 3,600.0 | 3,523.0 | 3,543.5 | 3,534.5 | 17.5 | 9.9 | 166.66 | 121.9 | 86.1 | 655.4 | 634.5 | 20.84 | 31.448 | | | |
| 3,700.0 | 3,619.4 | 3,640.0 | 3,629.5 | 18.2 | 10.3 | 165.74 | 138.4 | 87.6 | 679.5 | 657.9 | 21.61 | 31.441 | | | |
| 3,800.0 | 3,715.7 | 3,736.4 | 3,724.5 | 18.9 | 10.6 | 164.87 | 155.0 | 89.1 | 703.9 | 681.5 | 22.40 | 31.422 | | | |
| 3,900.0 | 3,812.1 | 3,832.9 | 3,819.5 | 19.6 | 11.0 | 164.07 | 171.6 | 90.6 | 728.4 | 705.2 | 23.20 | 31.392 | | | |
| 4,000.0 | 3,908.4 | 3,929.3 | 3,914.5 | 20.3 | 11.4 | 163.32 | 188.2 | 92.1 | 753.0 | 729.0 | 24.01 | 31.355 | | | |
| 4,100.0 | 4,004.8 | 4,025.8 | 4,009.5 | 21.0 | 11.7 | 162.61 | 204.8 | 93.6 | 777.7 | 752.9 | 24.84 | 31.312 | | | |

| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29U-243 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | | | Offset Site Error: 0.0 ft | | |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|---------------------------|---------------------------|--|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.59 | -1.1 | 105.0 | 105.1 | | | | | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | 90.59 | -1.1 | 105.0 | 105.0 | 104.8 | 0.27 | 383.429 | | | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.4 | 0.4 | 90.59 | -1.1 | 105.0 | 105.0 | 104.2 | 0.82 | 127.597 | | | |
| 300.0 | 300.0 | 299.0 | 299.0 | 0.7 | 0.7 | 90.59 | -1.1 | 105.0 | 105.0 | 103.7 | 1.37 | 76.456 | | | |
| 400.0 | 400.0 | 399.0 | 399.0 | 1.0 | 1.0 | 90.59 | -1.1 | 105.0 | 105.0 | 103.1 | 1.92 | 54.580 CC, ES | | | |
| 500.0 | 500.0 | 497.2 | 497.2 | 1.2 | 1.2 | 90.09 | -0.2 | 105.9 | 105.9 | 103.4 | 2.47 | 42.928 | | | |
| 600.0 | 600.0 | 595.2 | 595.2 | 1.5 | 1.5 | 88.63 | 2.6 | 108.4 | 108.5 | 105.5 | 3.01 | 36.049 | | | |
| 700.0 | 700.0 | 693.0 | 692.7 | 1.8 | 1.8 | 86.34 | 7.2 | 112.6 | 113.0 | 109.5 | 3.56 | 31.724 | | | |
| 800.0 | 800.0 | 790.4 | 789.8 | 2.1 | 2.1 | 83.44 | 13.6 | 118.5 | 119.6 | 115.5 | 4.13 | 28.957 | | | |
| 900.0 | 900.0 | 887.3 | 886.0 | 2.3 | 2.4 | 145.56 | 21.8 | 126.0 | 129.6 | 124.9 | 4.67 | 27.737 | | | |
| 1,000.0 | 999.9 | 983.3 | 981.0 | 2.6 | 2.7 | 142.96 | 31.7 | 135.1 | 144.0 | 138.8 | 5.23 | 27.508 SF | | | |
| 1,100.0 | 1,099.7 | 1,078.2 | 1,074.7 | 2.9 | 3.1 | 140.87 | 43.2 | 145.6 | 162.7 | 156.9 | 5.81 | 28.010 | | | |
| 1,200.0 | 1,199.3 | 1,171.9 | 1,166.7 | 3.2 | 3.5 | 139.26 | 56.3 | 157.5 | 185.5 | 179.1 | 6.39 | 29.015 | | | |
| 1,300.0 | 1,298.6 | 1,265.6 | 1,258.2 | 3.5 | 4.0 | 138.05 | 70.9 | 170.9 | 212.2 | 205.2 | 7.00 | 30.324 | | | |
| 1,400.0 | 1,397.5 | 1,361.2 | 1,351.6 | 3.8 | 4.5 | 137.37 | 86.1 | 184.9 | 241.2 | 233.6 | 7.62 | 31.668 | | | |
| 1,500.0 | 1,496.1 | 1,456.4 | 1,444.5 | 4.2 | 5.0 | 137.14 | 101.3 | 198.8 | 272.1 | 263.9 | 8.26 | 32.948 | | | |
| 1,600.0 | 1,594.2 | 1,550.8 | 1,536.7 | 4.6 | 5.5 | 137.22 | 116.4 | 212.6 | 304.8 | 295.9 | 8.92 | 34.178 | | | |
| 1,700.0 | 1,691.7 | 1,644.6 | 1,628.3 | 5.1 | 6.0 | 137.51 | 131.4 | 226.3 | 339.4 | 329.8 | 9.60 | 35.340 | | | |
| 1,800.0 | 1,788.6 | 1,737.6 | 1,719.1 | 5.6 | 6.5 | 137.95 | 146.2 | 239.9 | 375.8 | 365.5 | 10.31 | 36.441 | | | |
| 1,834.8 | 1,822.2 | 1,769.8 | 1,750.5 | 5.8 | 6.6 | 138.12 | 151.4 | 244.6 | 388.9 | 378.3 | 10.56 | 36.811 | | | |
| 1,900.0 | 1,885.0 | 1,830.0 | 1,809.2 | 6.2 | 7.0 | 138.69 | 161.0 | 253.4 | 413.7 | 402.6 | 11.07 | 37.384 | | | |
| 2,000.0 | 1,981.4 | 1,922.3 | 1,899.4 | 6.8 | 7.5 | 139.44 | 175.7 | 266.9 | 451.8 | 439.9 | 11.85 | 38.134 | | | |
| 2,100.0 | 2,077.7 | 2,014.6 | 1,989.5 | 7.5 | 8.0 | 140.07 | 190.5 | 280.3 | 489.9 | 477.3 | 12.64 | 38.760 | | | |
| 2,200.0 | 2,174.1 | 2,106.9 | 2,079.6 | 8.1 | 8.5 | 140.61 | 205.2 | 293.8 | 528.1 | 514.7 | 13.44 | 39.288 | | | |
| 2,300.0 | 2,270.4 | 2,199.2 | 2,169.7 | 8.7 | 9.0 | 141.08 | 219.9 | 307.3 | 566.3 | 552.1 | 14.25 | 39.738 | | | |
| 2,400.0 | 2,366.8 | 2,291.6 | 2,259.9 | 9.4 | 9.5 | 141.49 | 234.7 | 320.8 | 604.6 | 589.5 | 15.07 | 40.125 | | | |
| 2,500.0 | 2,463.1 | 2,383.9 | 2,350.0 | 10.1 | 10.0 | 141.85 | 249.4 | 334.3 | 642.8 | 626.9 | 15.89 | 40.461 | | | |
| 2,600.0 | 2,559.5 | 2,476.2 | 2,440.1 | 10.7 | 10.6 | 142.17 | 264.2 | 347.8 | 681.1 | 664.4 | 16.71 | 40.754 | | | |
| 2,700.0 | 2,655.8 | 2,568.5 | 2,530.3 | 11.4 | 11.1 | 142.46 | 278.9 | 361.3 | 719.4 | 701.9 | 17.54 | 41.013 | | | |
| 2,800.0 | 2,752.2 | 2,660.8 | 2,620.4 | 12.1 | 11.6 | 142.72 | 293.6 | 374.8 | 757.7 | 739.4 | 18.37 | 41.242 | | | |
| 2,900.0 | 2,848.5 | 2,753.1 | 2,710.5 | 12.7 | 12.1 | 142.95 | 308.4 | 388.3 | 796.1 | 776.9 | 19.21 | 41.446 | | | |

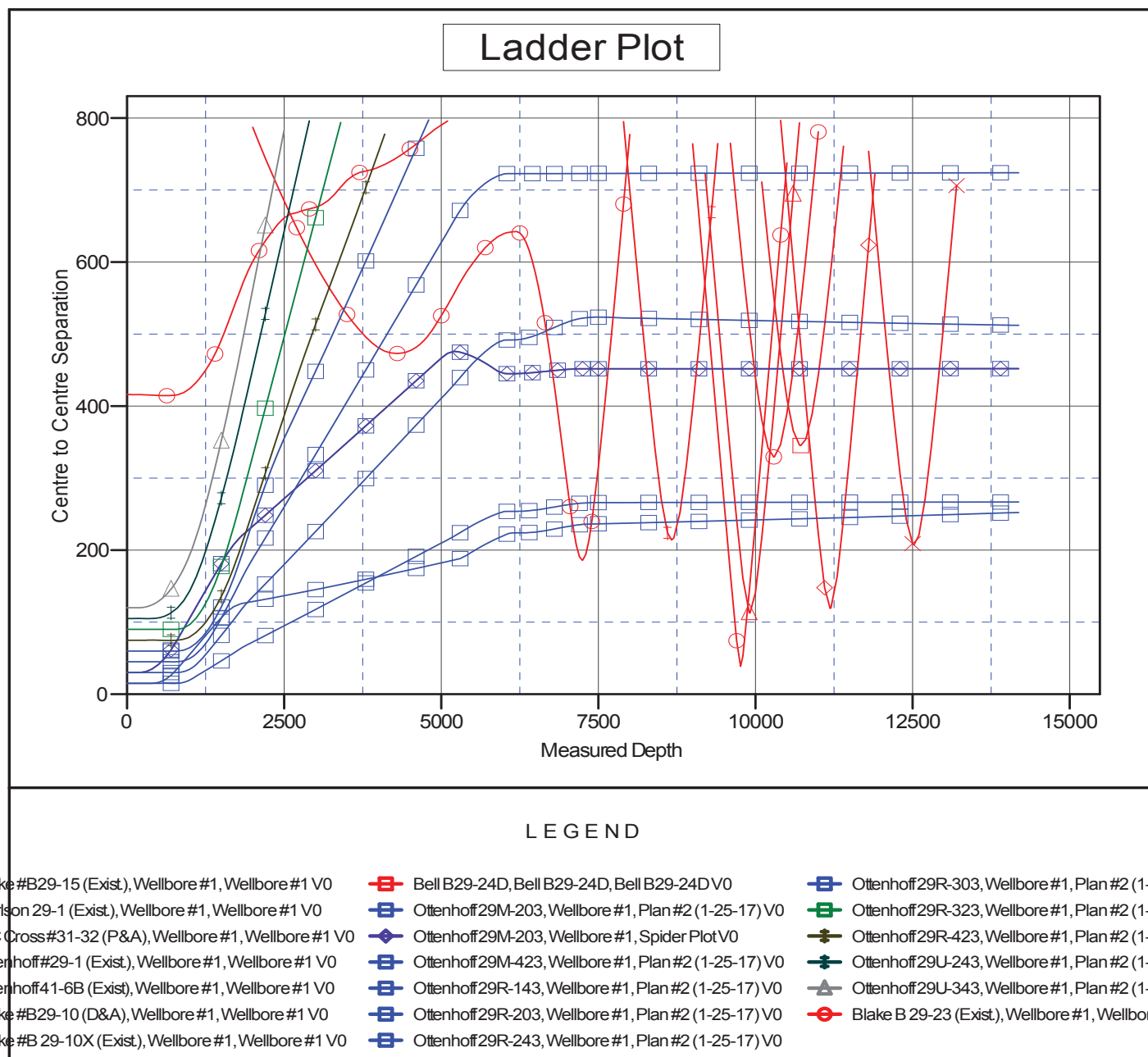
| | | | |
|---------------------------|---|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29U-343 - Wellbore #1 - Plan #2 (1-25-17) | | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|----------------|---|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|---------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.69 | -1.4 | 120.1 | 120.1 | | | | | | |
| 100.0 | 100.0 | 98.0 | 98.0 | 0.1 | 0.1 | 90.69 | -1.4 | 120.1 | 120.1 | 119.8 | 0.27 | 440.568 | | | |
| 200.0 | 200.0 | 198.0 | 198.0 | 0.4 | 0.4 | 90.69 | -1.4 | 120.1 | 120.1 | 119.3 | 0.82 | 146.366 | CC, ES | | |
| 300.0 | 300.0 | 295.6 | 295.6 | 0.7 | 0.7 | 90.34 | -0.7 | 121.0 | 121.1 | 119.7 | 1.36 | 89.013 | | | |
| 400.0 | 400.0 | 393.1 | 393.0 | 1.0 | 0.9 | 89.30 | 1.5 | 124.0 | 124.1 | 122.2 | 1.90 | 65.178 | | | |
| 500.0 | 500.0 | 490.3 | 490.0 | 1.2 | 1.2 | 87.66 | 5.3 | 128.8 | 129.2 | 126.7 | 2.46 | 52.487 | | | |
| 600.0 | 600.0 | 587.1 | 586.4 | 1.5 | 1.5 | 85.58 | 10.5 | 135.6 | 136.5 | 133.5 | 3.04 | 44.917 | | | |
| 700.0 | 700.0 | 683.4 | 682.1 | 1.8 | 1.9 | 83.22 | 17.2 | 144.3 | 146.2 | 142.6 | 3.65 | 40.105 | | | |
| 800.0 | 800.0 | 779.1 | 776.9 | 2.1 | 2.2 | 80.75 | 25.2 | 154.8 | 158.3 | 154.0 | 4.28 | 36.956 | | | |
| 900.0 | 900.0 | 874.0 | 870.5 | 2.3 | 2.6 | 143.54 | 34.7 | 167.1 | 173.9 | 169.2 | 4.72 | 36.826 | | | |
| 1,000.0 | 999.9 | 967.7 | 962.5 | 2.6 | 3.1 | 141.68 | 45.4 | 181.1 | 194.0 | 188.7 | 5.29 | 36.654 | SF | | |
| 1,100.0 | 1,099.7 | 1,060.0 | 1,052.7 | 2.9 | 3.5 | 140.29 | 57.3 | 196.6 | 218.4 | 212.5 | 5.87 | 37.205 | | | |
| 1,200.0 | 1,199.3 | 1,150.7 | 1,140.9 | 3.2 | 4.0 | 139.27 | 70.2 | 213.4 | 246.9 | 240.5 | 6.46 | 38.252 | | | |
| 1,300.0 | 1,298.6 | 1,240.0 | 1,227.2 | 3.5 | 4.6 | 138.53 | 84.2 | 231.7 | 279.4 | 272.4 | 7.05 | 39.610 | | | |
| 1,400.0 | 1,397.5 | 1,333.5 | 1,317.3 | 3.8 | 5.2 | 138.09 | 99.5 | 251.5 | 314.7 | 307.0 | 7.67 | 41.010 | | | |
| 1,500.0 | 1,496.1 | 1,426.4 | 1,406.8 | 4.2 | 5.8 | 137.95 | 114.6 | 271.2 | 351.7 | 343.4 | 8.30 | 42.362 | | | |
| 1,600.0 | 1,594.2 | 1,518.5 | 1,495.5 | 4.6 | 6.4 | 138.01 | 129.6 | 290.8 | 390.6 | 381.7 | 8.95 | 43.633 | | | |
| 1,700.0 | 1,691.7 | 1,609.7 | 1,583.5 | 5.1 | 7.0 | 138.21 | 144.4 | 310.1 | 431.3 | 421.7 | 9.62 | 44.822 | | | |
| 1,800.0 | 1,788.6 | 1,700.1 | 1,670.5 | 5.6 | 7.6 | 138.50 | 159.1 | 329.3 | 473.8 | 463.5 | 10.31 | 45.936 | | | |
| 1,834.8 | 1,822.2 | 1,731.3 | 1,700.6 | 5.8 | 7.8 | 138.62 | 164.2 | 335.9 | 489.1 | 478.5 | 10.56 | 46.304 | | | |
| 1,900.0 | 1,885.0 | 1,789.7 | 1,756.9 | 6.2 | 8.2 | 139.14 | 173.7 | 348.3 | 517.8 | 506.8 | 11.06 | 46.827 | | | |
| 2,000.0 | 1,981.4 | 1,879.2 | 1,843.1 | 6.8 | 8.8 | 139.83 | 188.3 | 367.2 | 562.0 | 550.1 | 11.83 | 47.498 | | | |
| 2,100.0 | 2,077.7 | 1,968.7 | 1,929.4 | 7.5 | 9.4 | 140.42 | 202.9 | 386.2 | 606.2 | 593.6 | 12.62 | 48.047 | | | |
| 2,200.0 | 2,174.1 | 2,058.2 | 2,015.7 | 8.1 | 10.0 | 140.93 | 217.4 | 405.2 | 650.5 | 637.1 | 13.41 | 48.501 | | | |
| 2,300.0 | 2,270.4 | 2,147.8 | 2,101.9 | 8.7 | 10.6 | 141.37 | 232.0 | 424.2 | 694.8 | 680.6 | 14.21 | 48.881 | | | |
| 2,400.0 | 2,366.8 | 2,237.3 | 2,188.2 | 9.4 | 11.2 | 141.76 | 246.6 | 443.2 | 739.1 | 724.1 | 15.02 | 49.202 | | | |
| 2,500.0 | 2,463.1 | 2,326.8 | 2,274.5 | 10.1 | 11.8 | 142.11 | 261.2 | 462.2 | 783.5 | 767.6 | 15.84 | 49.476 | | | |

| | | | |
|---------------------------|--|-------------------------------------|-----------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP DJ Basin | Local Co-ordinate Reference: | Well Ottenhoff 29M-323 |
| Project: | SEC.29-T5N-R64W | TVD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Reference Site: | Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W | MD Reference: | WELL @ 4687.0ft (RKB - 23') |
| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to WELL @ 4687.0ft (RKB - 23')
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000

Coordinates are relative to: Ottenhoff 29M-323
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.60°



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|---------------------------|--|-------------------------------------|-----------------------------|
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| Site Error: | 0.0 ft | North Reference: | True |
| Reference Well: | Ottenhoff 29M-323 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 ft | Output errors are at | 2.45 sigma |
| Reference Wellbore | Wellbore #1 | Database: | US_EDM |
| Reference Design: | Plan #2 (1-25-17) | Offset TVD Reference: | Offset Datum |

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