# PDC ENERGY

**WELD COUNTY, COLORADO**
**NE SW SEC. 21 T4N R67W 6th P.M.**
**SHARON 21N-234**

**ORIGINAL WELLBORE**
**PROPOSAL #1**

# Anticollision Report

**28 March, 2016**

total

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

| | | | |
|---|---|---|---|
| **Reference** | PROPOSAL #1 | | |
| **Filter type:** | NO GLOBAL FILTER: Using user defined selection & filtering criteria | | |
| **Interpolation Method:** | MD + Stations Interval 100.0usft | **Error Model:** | ISCWSA |
| **Depth Range:** | Unlimited | **Scan Method:** | Closest Approach 3D |
| **Results Limited by:** | Maximum center-center distance of 10,000.0 us | **Error Surface:** | Elliptical Conic |
| **Warning Levels Evaluated at:** | 2.00 **Sigma** | **Casing Method:** | Not applied |

**Survey Tool Program** **Date** 28/03/2016

| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description |
|---|---|---|---|---|
| 0.0 | 14,221.4 | PROPOSAL #1 (ORIGINAL WELLBORE) | MWD | MWD - Standard |

**Summary**

| Site Name<br>Offset Well - Wellbore - Design | Reference Measured Depth (usft) | Offset Measured Depth (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|
| NE SW SEC. 21 T4N R67W 6th P.M. | | | | | | |
| ABDN VERT BROWN 20-2 - Wellbore #1 - Wellbore #1 | 13,857.8 | 6,800.0 | 319.4 | 173.0 | 2.181 | CC, ES, SF |
| EXIST DD BROWN 20AD - Wellbore #1 - Wellbore #1 | 13,534.6 | 7,157.0 | 462.9 | 264.1 | 2.328 | CC, ES, SF |
| EXIST DD BROWN 20MD - Wellbore #1 - Wellbore #1 | 12,404.9 | 7,216.2 | 1,725.8 | 1,563.3 | 10.616 | CC |
| EXIST DD BROWN 20MD - Wellbore #1 - Wellbore #1 | 12,500.0 | 7,216.2 | 1,728.4 | 1,563.2 | 10.462 | ES |
| EXIST DD BROWN 20MD - Wellbore #1 - Wellbore #1 | 12,900.0 | 7,216.4 | 1,795.4 | 1,619.1 | 10.182 | SF |
| EXIST DD BROWN 20ND - Wellbore #1 - Wellbore #1 | 12,396.8 | 7,048.8 | 366.2 | 206.5 | 2.294 | CC |
| EXIST DD BROWN 20ND - Wellbore #1 - Wellbore #1 | 12,400.0 | 7,048.8 | 366.2 | 206.4 | 2.292 | ES, SF |
| EXIST DD BROWN 20OD - Wellbore #1 - Wellbore #1 | 12,388.5 | 7,211.0 | 804.2 | 642.8 | 4.984 | CC |
| EXIST DD BROWN 20OD - Wellbore #1 - Wellbore #1 | 12,400.0 | 7,211.2 | 804.3 | 642.6 | 4.974 | ES |
| EXIST DD BROWN 20OD - Wellbore #1 - Wellbore #1 | 12,500.0 | 7,212.7 | 811.9 | 647.4 | 4.936 | SF |
| EXIST DD CENTENNIAL 12-21DU - Wellbore #1 - Wellb | 9,163.2 | 7,175.3 | 332.9 | 259.6 | 4.542 | CC, ES |
| EXIST DD CENTENNIAL 12-21DU - Wellbore #1 - Wellb | 9,200.0 | 7,174.5 | 334.9 | 260.7 | 4.511 | SF |
| EXIST DD CENTENNIAL 21GDU - Wellbore #1 - Wellbo | 9,771.9 | 7,237.6 | 881.0 | 790.9 | 9.783 | CC |
| EXIST DD CENTENNIAL 21GDU - Wellbore #1 - Wellbo | 9,800.0 | 7,237.2 | 881.4 | 790.6 | 9.707 | ES |
| EXIST DD CENTENNIAL 21GDU - Wellbore #1 - Wellbo | 10,000.0 | 7,234.4 | 910.0 | 813.8 | 9.461 | SF |
| EXIST DD CENTENNIAL 21KDU - Wellbore #1 - Wellbor | 8,505.4 | 7,373.3 | 861.6 | 796.1 | 13.144 | CC, ES |
| EXIST DD CENTENNIAL 21KDU - Wellbore #1 - Wellbor | 8,800.0 | 7,372.0 | 910.6 | 837.7 | 12.497 | SF |
| EXIST DD CENTENNIAL 22-21DU - Wellbore #1 - Wellb | 7,870.6 | 7,399.4 | 294.4 | 233.1 | 4.802 | CC, ES |
| EXIST DD CENTENNIAL 22-21DU - Wellbore #1 - Wellb | 7,900.0 | 7,399.7 | 295.9 | 234.0 | 4.786 | SF |
| EXIST DD EEE 21ADU - Wellbore #1 - Wellbore #1 | 8,505.7 | 7,239.6 | 370.1 | 305.1 | 5.695 | CC, ES |
| EXIST DD EEE 21ADU - Wellbore #1 - Wellbore #1 | 8,600.0 | 7,237.6 | 381.9 | 314.6 | 5.673 | SF |
| EXIST DD EEE 21NDU - Wellbore #1 - Wellbore #1 | 7,250.0 | 7,403.0 | 347.3 | 281.2 | 5.259 | SF |
| EXIST DD EEE 21NDU - Wellbore #1 - Wellbore #1 | 7,259.9 | 7,408.4 | 347.2 | 281.2 | 5.260 | CC, ES |
| EXIST DD RYLAND 20CD - Wellbore #1 - Wellbore #1 | 11,127.7 | 7,311.9 | 392.0 | 250.0 | 2.761 | CC, ES, SF |
| EXIST DD RYLAND 20SD - Wellbore #1 - Wellbore #1 | 11,089.8 | 7,490.0 | 981.6 | 839.9 | 6.929 | CC |
| EXIST DD RYLAND 20SD - Wellbore #1 - Wellbore #1 | 11,100.0 | 7,490.3 | 981.6 | 839.7 | 6.916 | ES |
| EXIST DD RYLAND 20SD - Wellbore #1 - Wellbore #1 | 11,300.0 | 7,496.0 | 1,003.8 | 856.3 | 6.806 | SF |
| EXIST DD RYLAND 20VD - Wellbore #1 - Wellbore #1 | 9,948.6 | 7,108.4 | 392.3 | 299.3 | 4.218 | CC, ES |
| EXIST DD RYLAND 20VD - Wellbore #1 - Wellbore #1 | 10,000.0 | 7,108.6 | 395.7 | 301.3 | 4.192 | SF |
| EXIST DD RYLAND 31-20D - Wellbore #1 - Wellbore #1 | 11,690.5 | 7,174.0 | 1,111.1 | 964.0 | 7.553 | CC |
| EXIST DD RYLAND 31-20D - Wellbore #1 - Wellbore #1 | 11,700.0 | 7,173.9 | 1,111.1 | 963.8 | 7.540 | ES |
| EXIST DD RYLAND 31-20D - Wellbore #1 - Wellbore #1 | 11,900.0 | 7,172.9 | 1,130.7 | 977.7 | 7.394 | SF |
| EXIST DD RYLAND 32-20D - Wellbore #1 - Wellbore #1 | 11,709.3 | 7,201.7 | 251.1 | 102.9 | 1.694 | CC, ES, SF |
| EXIST DD RYLAND 42-20D - Wellbore #1 - Wellbore #1 | 10,470.6 | 7,228.1 | 272.9 | 159.4 | 2.404 | CC, ES |
| EXIST DD RYLAND 42-20D - Wellbore #1 - Wellbore #1 | 10,500.0 | 7,228.2 | 274.5 | 160.2 | 2.401 | SF |
| EXIST VERT BROWN 20-1 - Wellbore #1 - Design #1 | 14,067.9 | 7,035.8 | 1,215.6 | 884.7 | 3.673 | CC |
| EXIST VERT BROWN 20-1 - Wellbore #1 - Design #1 | 14,100.0 | 7,035.7 | 1,216.1 | 884.2 | 3.665 | ES |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Summary**

| Site Name<br>Offset Well - Wellbore - Design | Reference Measured Depth (usft) | Offset Measured Depth (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|
| NE SW SEC. 21 T4N R67W 6th P.M. | | | | | | |
| EXIST VERT BROWN 20-1 - Wellbore #1 - Design #1 | 14,200.0 | 7,035.5 | 1,222.8 | 888.2 | 3.654 | SF |
| EXIST VERT BROWN 22-20 - Wellbore #1 - Design #1 | 12,955.9 | 7,026.1 | 273.5 | -26.3 | 0.912 | Level 1, CC, ES, SF |
| EXIST VERT CYPRUS 1 - Wellbore #1 - Design #1 | 12,807.8 | 7,033.4 | 1,098.8 | 803.0 | 3.715 | CC, ES |
| EXIST VERT CYPRUS 1 - Wellbore #1 - Design #1 | 12,900.0 | 7,033.2 | 1,102.6 | 804.3 | 3.696 | SF |
| SHARON 21N-334 - ORIGINAL WELLBORE - PROPOS | 266.3 | 267.3 | 14.9 | 14.0 | 15.819 | CC |
| SHARON 21N-334 - ORIGINAL WELLBORE - PROPOS | 14,221.4 | 14,370.2 | 211.2 | -159.8 | 0.569 | Level 1, ES, SF |
| SHARON 21O-204 - ORIGINAL WELLBORE - PROPOS | 400.0 | 399.0 | 60.1 | 58.6 | 39.014 | CC, ES |
| SHARON 21O-204 - ORIGINAL WELLBORE - PROPOS | 11,900.0 | 11,702.4 | 876.4 | 616.0 | 3.366 | SF |
| SHARON 21O-214 - ORIGINAL WELLBORE - PROPOS | 400.0 | 400.0 | 30.2 | 28.7 | 19.597 | CC, ES |
| SHARON 21O-214 - ORIGINAL WELLBORE - PROPOS | 14,221.4 | 14,154.4 | 440.1 | 47.7 | 1.122 | Level 2, SF |
| SHARON 21O-234 - ORIGINAL WELLBORE - PROPOS | 400.0 | 399.0 | 90.0 | 88.4 | 58.397 | CC, ES |
| SHARON 21O-234 - ORIGINAL WELLBORE - PROPOS | 12,000.0 | 11,692.6 | 1,418.0 | 1,154.4 | 5.380 | SF |
| SHARON 21O-304 - ORIGINAL WELLBORE - PROPOS | 400.0 | 399.0 | 45.2 | 43.6 | 29.320 | CC, ES |
| SHARON 21O-304 - ORIGINAL WELLBORE - PROPOS | 14,221.4 | 14,253.6 | 647.2 | 257.9 | 1.662 | SF |
| SHARON 21O-314 - ORIGINAL WELLBORE - PROPOS | 400.0 | 400.0 | 14.9 | 13.4 | 9.680 | CC |
| SHARON 21O-314 - ORIGINAL WELLBORE - PROPOS | 14,221.4 | 14,295.0 | 221.4 | -138.5 | 0.615 | Level 1, ES, SF |
| SHARON 21O-334 - ORIGINAL WELLBORE - PROPOS | 400.0 | 399.0 | 75.0 | 73.5 | 48.709 | CC, ES |
| SHARON 21O-334 - ORIGINAL WELLBORE - PROPOS | 11,900.0 | 11,797.6 | 1,140.3 | 880.1 | 4.382 | SF |
| SE SW SEC. 21 T4N R67W 6th P.M. | | | | | | |
| EXIST DD RYLAND 33-20D - Wellbore #1 - Wellbore #1 | 11,697.1 | 7,162.8 | 1,550.4 | 1,409.2 | 10.974 | CC |
| EXIST DD RYLAND 33-20D - Wellbore #1 - Wellbore #1 | 11,700.0 | 7,162.8 | 1,550.4 | 1,409.1 | 10.968 | ES |
| EXIST DD RYLAND 33-20D - Wellbore #1 - Wellbore #1 | 12,200.0 | 7,164.2 | 1,629.9 | 1,474.7 | 10.500 | SF |
| EXIST DD RYLAND 43-20D - Wellbore #1 - Wellbore #1 | 10,430.8 | 7,230.5 | 1,548.7 | 1,431.7 | 13.231 | CC |
| EXIST DD RYLAND 43-20D - Wellbore #1 - Wellbore #1 | 10,500.0 | 7,231.5 | 1,550.3 | 1,431.3 | 13.033 | ES |
| EXIST DD RYLAND 43-20D - Wellbore #1 - Wellbore #1 | 11,000.0 | 7,241.0 | 1,650.0 | 1,517.2 | 12.430 | SF |
| EXIST DD WALTERS #21ODU - Wellbore #1 - Wellbore | 4,456.0 | 4,728.3 | 835.2 | 807.5 | 30.111 | CC |
| EXIST DD WALTERS #21ODU - Wellbore #1 - Wellbore | 4,500.0 | 4,763.6 | 835.5 | 807.4 | 29.784 | ES |
| EXIST DD WALTERS #21ODU - Wellbore #1 - Wellbore | 6,551.3 | 6,576.3 | 1,074.7 | 1,020.8 | 19.956 | SF |
| EXIST DD WALTERS 23-21DU - Wellbore #1 - Wellbore | 360.6 | 363.1 | 958.2 | 957.1 | 903.375 | CC |
| EXIST DD WALTERS 23-21DU - Wellbore #1 - Wellbore | 400.0 | 402.5 | 958.2 | 957.0 | 805.101 | ES |
| EXIST DD WALTERS 23-21DU - Wellbore #1 - Wellbore | 9,400.0 | 7,157.5 | 2,258.8 | 2,178.9 | 28.289 | SF |
| EXIST DD WEDCO #13-21DU - Wellbore #1 - Wellbore | 0.0 | 0.0 | 938.6 | | | |
| EXIST DD WEDCO #13-21DU - Wellbore #1 - Wellbore | 200.0 | 199.0 | 939.0 | 938.5 | 1,773.712 | ES |
| EXIST DD WEDCO #13-21DU - Wellbore #1 - Wellbore | 10,100.0 | 7,218.4 | 1,864.9 | 1,759.5 | 17.690 | SF |
| EXIST VERT BUNYAN #1 - Wellbore #1 - Wellbore #1 | 118.8 | 106.4 | 786.4 | 786.2 | 3,744.282 | CC |
| EXIST VERT BUNYAN #1 - Wellbore #1 - Wellbore #1 | 200.0 | 183.1 | 786.7 | 786.2 | 1,690.416 | ES |
| EXIST VERT BUNYAN #1 - Wellbore #1 - Wellbore #1 | 11,100.0 | 7,081.0 | 3,403.5 | 3,292.2 | 30.574 | SF |
| WALTERS 21P-314 - ORIGINAL WELLBORE - PROPOS | 836.1 | 999.2 | 1,224.0 | 1,219.8 | 288.737 | CC, ES |
| WALTERS 21P-314 - ORIGINAL WELLBORE - PROPOS | 12,200.0 | 11,802.2 | 1,939.4 | 1,671.0 | 7.225 | SF |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - ABDN VERT BROWN 20-2 - Wellbore #1 - Wellbore #1

**Survey Program:** 100-MWD

**Offset Site Error:** 0.0 usft

**Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -80.34 | 1,057.3 | -6,209.0 | 6,298.6 | | | | |
| 100.0 | 100.0 | 46.9 | 46.9 | 0.1 | 0.0 | -80.34 | 1,057.2 | -6,209.0 | 6,298.4 | 6,298.3 | 0.10 | N/A | |
| 200.0 | 200.0 | 139.2 | 139.2 | 0.3 | 0.0 | -80.34 | 1,056.9 | -6,209.2 | 6,298.5 | 6,298.1 | 0.37 | N/A | |
| 300.0 | 300.0 | 242.5 | 242.5 | 0.5 | 0.2 | -80.34 | 1,056.5 | -6,209.5 | 6,298.7 | 6,297.9 | 0.75 | 8,402.775 | |
| 400.0 | 400.0 | 385.4 | 385.4 | 0.8 | 0.5 | -80.35 | 1,055.5 | -6,209.3 | 6,298.5 | 6,297.2 | 1.28 | 4,912.155 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - ABDN VERT BROWN 20-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 100-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 464.0 | 464.0 | 458.6 | 458.6 | 0.9 | 0.7 | -108.71 | 1,054.7 | -6,209.0 | 6,298.3 | 6,296.7 | 1.58 | 3,982.645 | |
| 500.0 | 500.0 | 497.5 | 497.5 | 1.0 | 0.7 | -108.72 | 1,054.3 | -6,208.7 | 6,298.4 | 6,296.6 | 1.74 | 3,610.743 | |
| 600.0 | 599.8 | 596.5 | 596.5 | 1.2 | 1.0 | -108.76 | 1,053.6 | -6,208.1 | 6,299.3 | 6,297.1 | 2.17 | 2,900.850 | |
| 700.0 | 699.5 | 708.2 | 708.2 | 1.5 | 1.2 | -108.81 | 1,052.7 | -6,207.3 | 6,301.2 | 6,298.6 | 2.64 | 2,383.021 | |
| 800.0 | 798.7 | 800.0 | 800.0 | 1.7 | 1.4 | -108.86 | 1,051.8 | -6,206.7 | 6,304.4 | 6,301.3 | 3.10 | 2,033.889 | |
| 900.0 | 897.5 | 861.8 | 861.8 | 2.0 | 1.5 | -108.86 | 1,051.1 | -6,206.5 | 6,309.0 | 6,305.5 | 3.52 | 1,791.101 | |
| 1,000.0 | 995.6 | 988.9 | 988.8 | 2.4 | 1.8 | -108.97 | 1,050.0 | -6,206.3 | 6,315.1 | 6,311.0 | 4.12 | 1,531.444 | |
| 1,100.0 | 1,093.1 | 1,058.9 | 1,058.9 | 2.8 | 1.9 | -108.98 | 1,049.2 | -6,206.1 | 6,322.0 | 6,317.4 | 4.66 | 1,357.477 | |
| 1,164.2 | 1,155.2 | 1,100.0 | 1,100.0 | 3.1 | 2.0 | -108.97 | 1,048.9 | -6,206.1 | 6,327.4 | 6,322.4 | 5.02 | 1,260.502 | |
| 1,200.0 | 1,189.7 | 1,160.9 | 1,160.8 | 3.2 | 2.1 | -109.11 | 1,048.5 | -6,206.1 | 6,330.5 | 6,325.2 | 5.31 | 1,192.683 | |
| 1,300.0 | 1,286.2 | 1,266.0 | 1,265.9 | 3.7 | 2.3 | -109.35 | 1,047.5 | -6,205.7 | 6,339.0 | 6,333.0 | 5.99 | 1,058.192 | |
| 1,400.0 | 1,382.6 | 1,356.9 | 1,356.8 | 4.2 | 2.5 | -109.56 | 1,046.6 | -6,205.4 | 6,347.6 | 6,340.9 | 6.66 | 953.614 | |
| 1,500.0 | 1,479.1 | 1,437.6 | 1,437.6 | 4.7 | 2.7 | -109.75 | 1,045.8 | -6,205.3 | 6,356.4 | 6,349.1 | 7.31 | 869.631 | |
| 1,600.0 | 1,575.6 | 1,512.2 | 1,512.2 | 5.3 | 2.9 | -109.92 | 1,045.5 | -6,205.4 | 6,365.7 | 6,357.8 | 7.95 | 800.267 | |
| 1,700.0 | 1,672.0 | 1,623.6 | 1,623.5 | 5.8 | 3.1 | -110.18 | 1,044.6 | -6,205.5 | 6,375.1 | 6,366.4 | 8.68 | 734.564 | |
| 1,800.0 | 1,768.5 | 1,700.0 | 1,699.9 | 6.3 | 3.3 | -110.36 | 1,044.0 | -6,205.7 | 6,384.6 | 6,375.3 | 9.33 | 684.001 | |
| 1,900.0 | 1,864.9 | 1,800.0 | 1,799.9 | 6.8 | 3.5 | -110.59 | 1,043.3 | -6,206.0 | 6,394.4 | 6,384.4 | 10.04 | 637.027 | |
| 2,000.0 | 1,961.4 | 1,886.7 | 1,886.6 | 7.4 | 3.7 | -110.78 | 1,042.7 | -6,206.3 | 6,404.2 | 6,393.5 | 10.72 | 597.630 | |
| 2,100.0 | 2,057.9 | 1,970.0 | 1,969.9 | 7.9 | 3.8 | -110.97 | 1,042.3 | -6,206.7 | 6,414.4 | 6,403.0 | 11.39 | 563.287 | |
| 2,200.0 | 2,154.3 | 2,044.4 | 2,044.3 | 8.4 | 4.0 | -111.14 | 1,042.1 | -6,207.3 | 6,425.0 | 6,412.9 | 12.04 | 533.538 | |
| 2,300.0 | 2,250.8 | 2,122.8 | 2,122.7 | 9.0 | 4.1 | -111.31 | 1,042.1 | -6,208.2 | 6,435.9 | 6,423.2 | 12.71 | 506.544 | |
| 2,400.0 | 2,347.3 | 2,251.9 | 2,251.8 | 9.5 | 4.4 | -111.59 | 1,042.8 | -6,209.4 | 6,446.9 | 6,433.4 | 13.47 | 478.687 | |
| 2,500.0 | 2,443.7 | 2,388.5 | 2,388.4 | 10.0 | 4.7 | -111.88 | 1,043.3 | -6,209.9 | 6,457.4 | 6,443.1 | 14.24 | 453.363 | |
| 2,600.0 | 2,540.2 | 2,482.6 | 2,482.5 | 10.6 | 4.9 | -112.09 | 1,043.7 | -6,209.9 | 6,467.6 | 6,452.7 | 14.94 | 433.022 | |
| 2,700.0 | 2,636.7 | 2,585.9 | 2,585.8 | 11.1 | 5.1 | -112.31 | 1,044.1 | -6,209.9 | 6,477.9 | 6,462.3 | 15.65 | 414.007 | |
| 2,800.0 | 2,733.1 | 2,660.3 | 2,660.2 | 11.6 | 5.3 | -112.47 | 1,044.4 | -6,210.0 | 6,488.4 | 6,472.1 | 16.30 | 398.053 | |
| 2,900.0 | 2,829.6 | 2,743.2 | 2,743.1 | 12.2 | 5.4 | -112.64 | 1,044.9 | -6,210.4 | 6,499.4 | 6,482.4 | 16.97 | 382.982 | |
| 3,000.0 | 2,926.0 | 2,849.3 | 2,849.2 | 12.7 | 5.7 | -112.86 | 1,045.7 | -6,210.9 | 6,510.4 | 6,492.7 | 17.69 | 368.129 | |
| 3,100.0 | 3,022.5 | 2,952.8 | 2,952.6 | 13.2 | 5.9 | -113.08 | 1,046.3 | -6,211.1 | 6,521.3 | 6,503.0 | 18.39 | 354.539 | |
| 3,200.0 | 3,119.0 | 3,047.2 | 3,047.1 | 13.8 | 6.1 | -113.28 | 1,046.8 | -6,211.4 | 6,532.4 | 6,513.3 | 19.08 | 342.280 | |
| 3,300.0 | 3,215.4 | 3,139.0 | 3,138.9 | 14.3 | 6.3 | -113.48 | 1,046.6 | -6,211.7 | 6,543.5 | 6,523.7 | 19.77 | 330.975 | |
| 3,400.0 | 3,311.9 | 3,236.4 | 3,236.3 | 14.9 | 6.5 | -113.69 | 1,046.3 | -6,212.2 | 6,554.8 | 6,534.3 | 20.47 | 320.285 | |
| 3,500.0 | 3,408.4 | 3,341.9 | 3,341.8 | 15.4 | 6.7 | -113.91 | 1,046.2 | -6,212.5 | 6,566.1 | 6,544.9 | 21.17 | 310.092 | |
| 3,600.0 | 3,504.8 | 3,452.2 | 3,452.1 | 15.9 | 6.9 | -114.15 | 1,045.7 | -6,212.7 | 6,577.3 | 6,555.4 | 21.89 | 300.442 | |
| 3,700.0 | 3,601.3 | 3,574.5 | 3,574.4 | 16.5 | 7.2 | -114.41 | 1,045.0 | -6,212.5 | 6,588.3 | 6,565.7 | 22.63 | 291.095 | |
| 3,800.0 | 3,697.7 | 3,664.6 | 3,664.4 | 17.0 | 7.4 | -114.61 | 1,044.2 | -6,212.3 | 6,599.2 | 6,575.9 | 23.31 | 283.098 | |
| 3,900.0 | 3,794.2 | 3,752.4 | 3,752.3 | 17.5 | 7.6 | -114.80 | 1,043.3 | -6,212.2 | 6,610.4 | 6,586.4 | 23.98 | 275.625 | |
| 4,000.0 | 3,890.7 | 3,842.9 | 3,842.8 | 18.1 | 7.7 | -115.00 | 1,042.2 | -6,212.1 | 6,621.7 | 6,597.0 | 24.66 | 268.522 | |
| 4,100.0 | 3,987.1 | 3,932.9 | 3,932.8 | 18.6 | 7.9 | -115.19 | 1,041.0 | -6,212.2 | 6,633.2 | 6,607.9 | 25.34 | 261.818 | |
| 4,200.0 | 4,083.6 | 4,021.6 | 4,021.4 | 19.2 | 8.1 | -115.39 | 1,039.7 | -6,212.3 | 6,644.9 | 6,618.9 | 26.01 | 255.495 | |
| 4,300.0 | 4,180.1 | 4,102.3 | 4,102.1 | 19.7 | 8.3 | -115.57 | 1,038.4 | -6,212.6 | 6,656.9 | 6,630.2 | 26.66 | 249.657 | |
| 4,400.0 | 4,276.5 | 4,200.0 | 4,199.8 | 20.2 | 8.5 | -115.78 | 1,036.8 | -6,213.0 | 6,669.0 | 6,641.6 | 27.35 | 243.862 | |
| 4,500.0 | 4,373.0 | 4,281.2 | 4,281.0 | 20.8 | 8.7 | -115.96 | 1,035.7 | -6,213.4 | 6,681.3 | 6,653.3 | 28.00 | 238.654 | |
| 4,600.0 | 4,469.5 | 4,376.4 | 4,376.2 | 21.3 | 8.9 | -116.16 | 1,034.7 | -6,214.0 | 6,693.9 | 6,665.2 | 28.67 | 233.469 | |
| 4,700.0 | 4,565.9 | 4,536.4 | 4,536.2 | 21.9 | 9.2 | -116.50 | 1,032.7 | -6,214.3 | 6,706.1 | 6,676.6 | 29.47 | 227.566 | |
| 4,800.0 | 4,662.4 | 4,638.5 | 4,638.2 | 22.4 | 9.4 | -116.72 | 1,031.4 | -6,213.9 | 6,717.8 | 6,687.7 | 30.15 | 222.790 | |
| 4,900.0 | 4,758.8 | 4,725.9 | 4,725.7 | 22.9 | 9.6 | -116.90 | 1,030.6 | -6,213.7 | 6,729.7 | 6,698.9 | 30.81 | 218.432 | |
| 5,000.0 | 4,855.3 | 4,820.3 | 4,820.1 | 23.5 | 9.8 | -117.10 | 1,029.8 | -6,213.4 | 6,741.8 | 6,710.3 | 31.48 | 214.167 | |
| 5,100.0 | 4,951.8 | 4,900.0 | 4,899.8 | 24.0 | 10.0 | -117.26 | 1,029.1 | -6,213.4 | 6,754.1 | 6,722.0 | 32.12 | 210.263 | |
| 5,200.0 | 5,048.2 | 5,022.5 | 5,022.3 | 24.6 | 10.2 | -117.52 | 1,027.8 | -6,213.1 | 6,766.3 | 6,733.5 | 32.84 | 206.025 | |
| 5,300.0 | 5,144.7 | 5,100.0 | 5,099.8 | 25.1 | 10.4 | -117.68 | 1,026.7 | -6,213.0 | 6,778.7 | 6,745.2 | 33.48 | 202.474 | |
| 5,400.0 | 5,241.2 | 5,159.9 | 5,159.7 | 25.6 | 10.5 | -117.81 | 1,026.0 | -6,213.1 | 6,791.5 | 6,757.5 | 34.08 | 199.267 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - ABDN VERT BROWN 20-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 100-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,500.0 | 5,337.6 | 5,250.6 | 5,250.4 | 26.2 | 10.7 | -118.00 | 1,024.9 | -6,213.7 | 6,804.8 | 6,770.1 | 34.74 | 195.873 | |
| 5,600.0 | 5,434.1 | 5,369.2 | 5,368.9 | 26.7 | 11.0 | -118.25 | 1,023.1 | -6,214.0 | 6,818.0 | 6,782.5 | 35.45 | 192.341 | |
| 5,700.0 | 5,530.5 | 5,477.7 | 5,477.4 | 27.3 | 11.2 | -118.47 | 1,022.0 | -6,214.2 | 6,831.0 | 6,794.8 | 36.13 | 189.046 | |
| 5,757.1 | 5,585.6 | 5,500.0 | 5,499.7 | 27.6 | 11.2 | -118.51 | 1,021.7 | -6,214.2 | 6,838.4 | 6,802.0 | 36.46 | 187.585 | |
| 5,800.0 | 5,627.1 | 5,541.4 | 5,541.1 | 27.8 | 11.3 | -118.70 | 1,021.1 | -6,214.3 | 6,844.0 | 6,807.3 | 36.71 | 186.444 | |
| 5,900.0 | 5,724.4 | 5,600.0 | 5,599.7 | 28.2 | 11.4 | -119.02 | 1,020.5 | -6,214.8 | 6,856.3 | 6,819.1 | 37.15 | 184.544 | |
| 6,000.0 | 5,822.4 | 5,714.5 | 5,714.2 | 28.5 | 11.7 | -119.38 | 1,019.9 | -6,215.9 | 6,867.1 | 6,829.4 | 37.66 | 182.336 | |
| 6,100.0 | 5,921.0 | 5,800.0 | 5,799.7 | 28.8 | 11.9 | -119.65 | 1,019.1 | -6,216.8 | 6,876.3 | 6,838.2 | 38.08 | 180.553 | |
| 6,200.0 | 6,020.2 | 5,846.1 | 5,845.8 | 29.0 | 12.0 | -119.83 | 1,018.3 | -6,217.4 | 6,884.2 | 6,845.8 | 38.40 | 179.296 | |
| 6,300.0 | 6,119.7 | 6,026.0 | 6,025.7 | 29.3 | 12.3 | -120.08 | 1,015.8 | -6,220.1 | 6,890.7 | 6,851.7 | 38.93 | 176.988 | |
| 6,400.0 | 6,219.5 | 6,100.0 | 6,099.6 | 29.4 | 12.5 | -120.18 | 1,015.7 | -6,220.7 | 6,894.5 | 6,855.3 | 39.22 | 175.772 | |
| 6,500.0 | 6,319.5 | 6,154.1 | 6,153.8 | 29.5 | 12.6 | -120.23 | 1,015.5 | -6,221.5 | 6,897.2 | 6,857.7 | 39.44 | 174.884 | |
| 6,521.3 | 6,340.8 | 6,166.6 | 6,166.2 | 29.6 | 12.6 | -91.90 | 1,015.5 | -6,221.7 | 6,897.6 | 6,864.0 | 33.53 | 205.716 | |
| 6,551.3 | 6,370.8 | 6,200.0 | 6,199.6 | 29.6 | 12.7 | -91.90 | 1,015.5 | -6,222.3 | 6,898.2 | 6,864.5 | 33.64 | 205.066 | |
| 6,600.0 | 6,419.5 | 6,239.4 | 6,239.0 | 29.6 | 12.8 | -1.90 | 1,015.4 | -6,223.1 | 6,897.5 | 6,857.9 | 39.56 | 174.350 | |
| 6,650.0 | 6,469.2 | 6,383.3 | 6,382.9 | 29.6 | 13.1 | -1.91 | 1,015.8 | -6,225.0 | 6,893.1 | 6,853.5 | 39.58 | 174.151 | |
| 6,700.0 | 6,518.4 | 6,440.4 | 6,440.0 | 29.6 | 13.2 | -1.94 | 1,015.9 | -6,225.2 | 6,884.7 | 6,845.4 | 39.25 | 175.409 | |
| 6,750.0 | 6,567.0 | 6,483.2 | 6,482.8 | 29.6 | 13.3 | -1.97 | 1,016.2 | -6,225.4 | 6,872.9 | 6,834.2 | 38.72 | 177.504 | |
| 6,800.0 | 6,614.5 | 6,555.1 | 6,554.7 | 29.6 | 13.4 | -2.02 | 1,016.5 | -6,225.7 | 6,857.7 | 6,819.6 | 38.09 | 180.063 | |
| 6,850.0 | 6,660.9 | 6,616.3 | 6,615.9 | 29.5 | 13.6 | -2.08 | 1,016.6 | -6,225.7 | 6,839.1 | 6,801.8 | 37.27 | 183.500 | |
| 6,900.0 | 6,705.9 | 6,648.2 | 6,647.8 | 29.4 | 13.6 | -2.16 | 1,016.7 | -6,225.7 | 6,817.2 | 6,781.0 | 36.25 | 188.082 | |
| 6,950.0 | 6,749.2 | 6,679.1 | 6,678.7 | 29.3 | 13.7 | -2.25 | 1,016.8 | -6,225.7 | 6,792.4 | 6,757.3 | 35.08 | 193.628 | |
| 7,000.0 | 6,790.7 | 6,711.7 | 6,711.3 | 29.2 | 13.8 | -2.37 | 1,017.0 | -6,225.9 | 6,764.7 | 6,730.9 | 33.79 | 200.211 | |
| 7,050.0 | 6,830.2 | 6,749.7 | 6,749.3 | 29.1 | 13.9 | -2.51 | 1,017.0 | -6,226.0 | 6,734.2 | 6,701.8 | 32.39 | 207.906 | |
| 7,100.0 | 6,867.4 | 6,785.6 | 6,785.2 | 29.0 | 13.9 | -2.68 | 1,016.9 | -6,226.2 | 6,701.0 | 6,670.1 | 30.89 | 216.943 | |
| 7,150.0 | 6,902.2 | 6,800.0 | 6,799.6 | 28.9 | 14.0 | -2.89 | 1,016.9 | -6,226.3 | 6,665.3 | 6,636.1 | 29.27 | 227.751 | |
| 7,200.0 | 6,934.4 | 6,800.0 | 6,799.6 | 28.7 | 14.0 | -3.13 | 1,016.9 | -6,226.3 | 6,627.5 | 6,599.9 | 27.56 | 240.472 | |
| 7,250.0 | 6,963.8 | 6,800.0 | 6,799.6 | 28.6 | 14.0 | -3.43 | 1,016.9 | -6,226.3 | 6,587.5 | 6,561.7 | 25.82 | 255.091 | |
| 7,300.0 | 6,990.4 | 6,800.0 | 6,799.6 | 28.5 | 14.0 | -3.82 | 1,016.9 | -6,226.3 | 6,545.7 | 6,521.7 | 24.09 | 271.721 | |
| 7,350.0 | 7,013.9 | 6,800.0 | 6,799.6 | 28.4 | 14.0 | -4.32 | 1,016.9 | -6,226.3 | 6,502.2 | 6,479.8 | 22.40 | 290.321 | |
| 7,400.0 | 7,034.4 | 6,800.0 | 6,799.6 | 28.2 | 14.0 | -4.99 | 1,016.9 | -6,226.3 | 6,457.2 | 6,436.4 | 20.79 | 310.535 | |
| 7,450.0 | 7,051.5 | 6,800.0 | 6,799.6 | 28.1 | 14.0 | -5.94 | 1,016.9 | -6,226.3 | 6,410.8 | 6,391.5 | 19.34 | 331.419 | |
| 7,500.0 | 7,065.4 | 6,800.0 | 6,799.6 | 28.0 | 14.0 | -7.36 | 1,016.9 | -6,226.3 | 6,363.3 | 6,345.2 | 18.13 | 351.000 | |
| 7,550.0 | 7,075.9 | 6,800.0 | 6,799.6 | 27.9 | 14.0 | -9.70 | 1,016.9 | -6,226.3 | 6,314.8 | 6,297.6 | 17.28 | 365.436 | |
| 7,600.0 | 7,082.9 | 6,800.0 | 6,799.6 | 27.8 | 14.0 | -14.20 | 1,016.9 | -6,226.3 | 6,265.7 | 6,248.5 | 17.14 | 365.643 | |
| 7,650.0 | 7,086.5 | 6,800.0 | 6,799.6 | 27.7 | 14.0 | -26.06 | 1,016.9 | -6,226.3 | 6,216.0 | 6,196.4 | 19.66 | 316.134 | |
| 7,677.7 | 7,087.0 | 6,800.0 | 6,799.6 | 27.6 | 14.0 | -45.26 | 1,016.9 | -6,226.3 | 6,188.4 | 6,161.9 | 26.49 | 233.637 | |
| 7,700.0 | 7,087.0 | 6,800.0 | 6,799.6 | 27.6 | 14.0 | -45.26 | 1,016.9 | -6,226.3 | 6,166.1 | 6,139.4 | 26.71 | 230.835 | |
| 7,800.0 | 7,086.8 | 6,800.0 | 6,799.6 | 27.5 | 14.0 | -45.26 | 1,016.9 | -6,226.3 | 6,066.2 | 6,038.4 | 27.84 | 217.899 | |
| 7,900.0 | 7,086.6 | 6,800.0 | 6,799.6 | 27.9 | 14.0 | -45.26 | 1,016.9 | -6,226.3 | 5,966.4 | 5,937.3 | 29.13 | 204.796 | |
| 8,000.0 | 7,086.4 | 6,800.0 | 6,799.6 | 29.5 | 14.0 | -45.26 | 1,016.9 | -6,226.3 | 5,866.5 | 5,836.0 | 30.56 | 191.969 | |
| 8,100.0 | 7,086.2 | 6,800.0 | 6,799.6 | 31.5 | 14.0 | -45.27 | 1,016.9 | -6,226.3 | 5,766.7 | 5,734.6 | 32.09 | 179.693 | |
| 8,200.0 | 7,086.0 | 6,800.0 | 6,799.6 | 33.7 | 14.0 | -45.27 | 1,016.9 | -6,226.3 | 5,666.8 | 5,633.1 | 33.71 | 168.115 | |
| 8,300.0 | 7,085.8 | 6,800.0 | 6,799.6 | 36.0 | 14.0 | -45.27 | 1,016.9 | -6,226.3 | 5,567.0 | 5,531.6 | 35.39 | 157.298 | |
| 8,400.0 | 7,085.6 | 6,800.0 | 6,799.6 | 38.3 | 14.0 | -45.27 | 1,016.9 | -6,226.3 | 5,467.2 | 5,430.0 | 37.13 | 147.248 | |
| 8,500.0 | 7,085.4 | 6,800.0 | 6,799.6 | 40.7 | 14.0 | -45.27 | 1,016.9 | -6,226.3 | 5,367.3 | 5,328.4 | 38.91 | 137.940 | |
| 8,600.0 | 7,085.2 | 6,800.0 | 6,799.6 | 43.1 | 14.0 | -45.27 | 1,016.9 | -6,226.3 | 5,267.5 | 5,226.8 | 40.73 | 129.334 | |
| 8,700.0 | 7,085.0 | 6,800.0 | 6,799.6 | 45.6 | 14.0 | -45.27 | 1,016.9 | -6,226.3 | 5,167.7 | 5,125.1 | 42.58 | 121.378 | |
| 8,800.0 | 7,084.8 | 6,800.0 | 6,799.6 | 48.1 | 14.0 | -45.27 | 1,016.9 | -6,226.3 | 5,067.9 | 5,023.5 | 44.45 | 114.020 | |
| 8,900.0 | 7,084.6 | 6,800.0 | 6,799.6 | 50.7 | 14.0 | -45.28 | 1,016.9 | -6,226.3 | 4,968.1 | 4,921.8 | 46.34 | 107.208 | |
| 9,000.0 | 7,084.4 | 6,800.0 | 6,799.6 | 53.2 | 14.0 | -45.28 | 1,016.9 | -6,226.3 | 4,868.3 | 4,820.1 | 48.25 | 100.895 | |
| 9,100.0 | 7,084.2 | 6,800.0 | 6,799.6 | 55.8 | 14.0 | -45.28 | 1,016.9 | -6,226.3 | 4,768.5 | 4,718.4 | 50.18 | 95.034 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - ABDN VERT BROWN 20-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 100-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9,200.0 | 7,084.0 | 6,800.0 | 6,799.6 | 58.4 | 14.0 | -45.28 | 1,016.9 | -6,226.3 | 4,668.8 | 4,616.7 | 52.12 | 89.584 | |
| 9,300.0 | 7,083.8 | 6,800.0 | 6,799.6 | 61.1 | 14.0 | -45.28 | 1,016.9 | -6,226.3 | 4,569.0 | 4,514.9 | 54.07 | 84.508 | |
| 9,400.0 | 7,083.7 | 6,800.0 | 6,799.6 | 63.7 | 14.0 | -45.28 | 1,016.9 | -6,226.3 | 4,469.3 | 4,413.2 | 56.03 | 79.772 | |
| 9,500.0 | 7,083.5 | 6,800.0 | 6,799.6 | 66.3 | 14.0 | -45.28 | 1,016.9 | -6,226.3 | 4,369.5 | 4,311.5 | 57.99 | 75.345 | |
| 9,600.0 | 7,083.3 | 6,800.0 | 6,799.6 | 69.0 | 14.0 | -45.28 | 1,016.9 | -6,226.3 | 4,269.8 | 4,209.8 | 59.97 | 71.200 | |
| 9,700.0 | 7,083.1 | 6,800.0 | 6,799.6 | 71.7 | 14.0 | -45.28 | 1,016.9 | -6,226.3 | 4,170.1 | 4,108.1 | 61.95 | 67.312 | |
| 9,800.0 | 7,082.9 | 6,800.0 | 6,799.6 | 74.4 | 14.0 | -45.29 | 1,016.9 | -6,226.3 | 4,070.4 | 4,006.4 | 63.94 | 63.660 | |
| 9,900.0 | 7,082.7 | 6,800.0 | 6,799.6 | 77.1 | 14.0 | -45.29 | 1,016.9 | -6,226.3 | 3,970.7 | 3,904.8 | 65.93 | 60.223 | |
| 10,000.0 | 7,082.5 | 6,800.0 | 6,799.6 | 79.7 | 14.0 | -45.29 | 1,016.9 | -6,226.3 | 3,871.0 | 3,803.1 | 67.93 | 56.985 | |
| 10,100.0 | 7,082.3 | 6,800.0 | 6,799.6 | 82.5 | 14.0 | -45.29 | 1,016.9 | -6,226.3 | 3,771.4 | 3,701.5 | 69.93 | 53.928 | |
| 10,200.0 | 7,082.1 | 6,800.0 | 6,799.6 | 85.2 | 14.0 | -45.29 | 1,016.9 | -6,226.3 | 3,671.8 | 3,599.8 | 71.94 | 51.039 | |
| 10,300.0 | 7,081.9 | 6,800.0 | 6,799.6 | 87.9 | 14.0 | -45.29 | 1,016.9 | -6,226.3 | 3,572.1 | 3,498.2 | 73.95 | 48.305 | |
| 10,400.0 | 7,081.7 | 6,800.0 | 6,799.6 | 90.6 | 14.0 | -45.29 | 1,016.9 | -6,226.3 | 3,472.6 | 3,396.6 | 75.96 | 45.714 | |
| 10,500.0 | 7,081.5 | 6,800.0 | 6,799.6 | 93.3 | 14.0 | -45.29 | 1,016.9 | -6,226.3 | 3,373.0 | 3,295.0 | 77.98 | 43.256 | |
| 10,600.0 | 7,081.3 | 6,800.0 | 6,799.6 | 96.1 | 14.0 | -45.29 | 1,016.9 | -6,226.3 | 3,273.5 | 3,193.5 | 80.00 | 40.921 | |
| 10,700.0 | 7,081.1 | 6,800.0 | 6,799.6 | 98.8 | 14.0 | -45.29 | 1,016.9 | -6,226.3 | 3,173.9 | 3,091.9 | 82.02 | 38.699 | |
| 10,800.0 | 7,080.9 | 6,800.0 | 6,799.6 | 101.5 | 14.0 | -45.29 | 1,016.9 | -6,226.3 | 3,074.5 | 2,990.4 | 84.04 | 36.584 | |
| 10,900.0 | 7,080.7 | 6,800.0 | 6,799.6 | 104.3 | 14.0 | -45.29 | 1,016.9 | -6,226.3 | 2,975.0 | 2,889.0 | 86.06 | 34.568 | |
| 11,000.0 | 7,080.5 | 6,800.0 | 6,799.6 | 107.0 | 14.0 | -45.29 | 1,016.9 | -6,226.3 | 2,875.6 | 2,787.5 | 88.09 | 32.644 | |
| 11,100.0 | 7,080.3 | 6,800.0 | 6,799.6 | 109.8 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 2,776.3 | 2,686.2 | 90.12 | 30.807 | |
| 11,200.0 | 7,080.1 | 6,800.0 | 6,799.6 | 112.5 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 2,677.0 | 2,584.8 | 92.15 | 29.051 | |
| 11,300.0 | 7,079.9 | 6,800.0 | 6,799.6 | 115.3 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 2,577.7 | 2,483.5 | 94.18 | 27.370 | |
| 11,400.0 | 7,079.7 | 6,800.0 | 6,799.6 | 118.0 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 2,478.5 | 2,382.3 | 96.21 | 25.761 | |
| 11,500.0 | 7,079.5 | 6,800.0 | 6,799.6 | 120.8 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 2,379.4 | 2,281.1 | 98.24 | 24.219 | |
| 11,600.0 | 7,079.3 | 6,800.0 | 6,799.6 | 123.6 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 2,280.3 | 2,180.0 | 100.28 | 22.740 | |
| 11,700.0 | 7,079.1 | 6,800.0 | 6,799.6 | 126.3 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 2,181.4 | 2,079.0 | 102.32 | 21.320 | |
| 11,800.0 | 7,078.9 | 6,800.0 | 6,799.6 | 129.1 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 2,082.5 | 1,978.1 | 104.35 | 19.956 | |
| 11,900.0 | 7,078.7 | 6,800.0 | 6,799.6 | 131.9 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 1,983.7 | 1,877.3 | 106.39 | 18.646 | |
| 12,000.0 | 7,078.5 | 6,800.0 | 6,799.6 | 134.6 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 1,885.1 | 1,776.7 | 108.43 | 17.386 | |
| 12,100.0 | 7,078.3 | 6,800.0 | 6,799.6 | 137.4 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 1,786.6 | 1,676.2 | 110.47 | 16.173 | |
| 12,200.0 | 7,078.1 | 6,800.0 | 6,799.6 | 140.2 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 1,688.3 | 1,575.8 | 112.51 | 15.006 | |
| 12,300.0 | 7,077.9 | 6,800.0 | 6,799.6 | 142.9 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 1,590.2 | 1,475.7 | 114.55 | 13.883 | |
| 12,400.0 | 7,077.7 | 6,800.0 | 6,799.6 | 145.7 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 1,492.4 | 1,375.8 | 116.59 | 12.800 | |
| 12,500.0 | 7,077.5 | 6,800.0 | 6,799.6 | 148.5 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 1,394.9 | 1,276.3 | 118.63 | 11.758 | |
| 12,600.0 | 7,077.3 | 6,800.0 | 6,799.6 | 151.3 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 1,297.8 | 1,177.1 | 120.68 | 10.754 | |
| 12,700.0 | 7,077.1 | 6,800.0 | 6,799.6 | 154.0 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 1,201.1 | 1,078.4 | 122.72 | 9.787 | |
| 12,800.0 | 7,076.9 | 6,800.0 | 6,799.6 | 156.8 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 1,105.0 | 980.2 | 124.76 | 8.857 | |
| 12,900.0 | 7,076.7 | 6,800.0 | 6,799.6 | 159.6 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 1,009.7 | 882.9 | 126.81 | 7.962 | |
| 13,000.0 | 7,076.5 | 6,800.0 | 6,799.6 | 162.4 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 915.4 | 786.5 | 128.85 | 7.104 | |
| 13,100.0 | 7,076.3 | 6,800.0 | 6,799.6 | 165.2 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 822.4 | 691.5 | 130.90 | 6.283 | |
| 13,200.0 | 7,076.1 | 6,800.0 | 6,799.6 | 168.0 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 731.3 | 598.3 | 132.95 | 5.501 | |
| 13,300.0 | 7,075.9 | 6,800.0 | 6,799.6 | 170.7 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 642.8 | 507.8 | 134.99 | 4.762 | |
| 13,400.0 | 7,075.7 | 6,800.0 | 6,799.6 | 173.5 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 558.2 | 421.2 | 137.04 | 4.074 | |
| 13,500.0 | 7,075.5 | 6,800.0 | 6,799.6 | 176.3 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 479.7 | 340.6 | 139.09 | 3.449 | |
| 13,600.0 | 7,075.3 | 6,800.0 | 6,799.6 | 179.1 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 410.5 | 269.4 | 141.13 | 2.908 | |
| 13,700.0 | 7,075.1 | 6,800.0 | 6,799.6 | 181.9 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 356.3 | 213.1 | 143.18 | 2.488 | |
| 13,800.0 | 7,074.9 | 6,800.0 | 6,799.6 | 184.7 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 324.6 | 179.4 | 145.23 | 2.235 | |
| 13,857.8 | 7,074.7 | 6,800.0 | 6,799.6 | 186.3 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 319.4 | 173.0 | 146.41 | 2.181 | CC, ES, SF |
| 13,900.0 | 7,074.7 | 6,800.0 | 6,799.6 | 187.5 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 322.2 | 174.9 | 147.28 | 2.187 | |
| 14,000.0 | 7,074.5 | 6,800.0 | 6,799.6 | 190.2 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 349.6 | 200.3 | 149.32 | 2.341 | |
| 14,100.0 | 7,074.2 | 6,800.0 | 6,799.6 | 193.0 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 400.8 | 249.4 | 151.37 | 2.648 | |
| 14,200.0 | 7,074.0 | 6,800.0 | 6,799.6 | 195.8 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 468.1 | 314.6 | 153.42 | 3.051 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - ABDN VERT BROWN 20-2 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 100-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,221.4 | 7,074.0 | 6,800.0 | 6,799.6 | 196.4 | 14.0 | -45.30 | 1,016.9 | -6,226.3 | 483.9 | 330.1 | 153.86 | 3.145 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20AD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 545-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -72.80 | 1,547.3 | -4,999.7 | 5,233.8 | | | | |
| 100.0 | 100.0 | 60.9 | 60.9 | 0.1 | 0.1 | -72.80 | 1,547.3 | -4,999.8 | 5,233.7 | 5,233.6 | 0.15 | N/A | |
| 200.0 | 200.0 | 158.4 | 158.4 | 0.3 | 0.1 | -72.81 | 1,547.2 | -4,999.9 | 5,233.8 | 5,233.3 | 0.46 | N/A | |
| 300.0 | 300.0 | 255.8 | 255.8 | 0.5 | 0.2 | -72.81 | 1,546.9 | -5,000.0 | 5,233.9 | 5,233.1 | 0.77 | 6,753.869 | |
| 400.0 | 400.0 | 353.3 | 353.3 | 0.8 | 0.3 | -72.81 | 1,546.5 | -5,000.3 | 5,234.0 | 5,232.9 | 1.09 | 4,816.694 | |
| 500.0 | 500.0 | 450.7 | 450.7 | 1.0 | 0.4 | -101.17 | 1,546.0 | -5,000.7 | 5,234.6 | 5,233.2 | 1.40 | 3,746.480 | |
| 600.0 | 599.8 | 548.4 | 548.4 | 1.2 | 0.5 | -101.21 | 1,545.4 | -5,001.1 | 5,235.8 | 5,234.1 | 1.71 | 3,053.542 | |
| 700.0 | 699.5 | 653.4 | 653.4 | 1.5 | 0.7 | -101.28 | 1,544.9 | -5,001.5 | 5,237.7 | 5,235.6 | 2.16 | 2,419.621 | |
| 800.0 | 798.7 | 732.0 | 732.0 | 1.7 | 0.9 | -101.33 | 1,544.4 | -5,001.9 | 5,240.4 | 5,237.9 | 2.59 | 2,022.886 | |
| 900.0 | 897.5 | 805.1 | 805.1 | 2.0 | 1.0 | -101.38 | 1,544.1 | -5,002.5 | 5,244.3 | 5,241.3 | 3.05 | 1,720.938 | |
| 1,000.0 | 995.6 | 902.0 | 901.9 | 2.4 | 1.2 | -101.49 | 1,544.1 | -5,003.7 | 5,249.3 | 5,245.7 | 3.60 | 1,459.421 | |
| 1,100.0 | 1,093.1 | 957.0 | 957.0 | 2.8 | 1.3 | -101.50 | 1,544.0 | -5,004.5 | 5,255.4 | 5,251.3 | 4.11 | 1,277.624 | |
| 1,164.2 | 1,155.2 | 986.2 | 986.2 | 3.1 | 1.4 | -101.49 | 1,544.0 | -5,005.2 | 5,260.2 | 5,255.7 | 4.46 | 1,178.822 | |
| 1,200.0 | 1,189.7 | 1,012.0 | 1,012.0 | 3.2 | 1.5 | -101.57 | 1,544.0 | -5,005.9 | 5,263.1 | 5,258.4 | 4.68 | 1,123.425 | |
| 1,300.0 | 1,286.2 | 1,043.6 | 1,043.5 | 3.7 | 1.5 | -101.66 | 1,544.1 | -5,007.0 | 5,272.1 | 5,266.8 | 5.23 | 1,007.433 | |
| 1,400.0 | 1,382.6 | 1,106.0 | 1,105.9 | 4.2 | 1.7 | -101.84 | 1,544.5 | -5,010.0 | 5,282.3 | 5,276.4 | 5.86 | 901.033 | |
| 1,500.0 | 1,479.1 | 1,106.0 | 1,105.9 | 4.7 | 1.7 | -101.84 | 1,544.5 | -5,010.0 | 5,293.5 | 5,287.1 | 6.36 | 831.938 | |
| 1,600.0 | 1,575.6 | 1,153.6 | 1,153.4 | 5.3 | 1.8 | -101.97 | 1,545.0 | -5,013.0 | 5,305.9 | 5,299.0 | 6.98 | 760.526 | |
| 1,700.0 | 1,672.0 | 1,199.0 | 1,198.6 | 5.8 | 1.9 | -102.10 | 1,545.6 | -5,016.6 | 5,319.7 | 5,312.2 | 7.59 | 700.890 | |
| 1,800.0 | 1,768.5 | 1,199.0 | 1,198.6 | 6.3 | 1.9 | -102.10 | 1,545.6 | -5,016.6 | 5,334.8 | 5,326.7 | 8.10 | 658.254 | |
| 1,900.0 | 1,864.9 | 1,264.4 | 1,263.7 | 6.8 | 2.0 | -102.29 | 1,546.7 | -5,022.9 | 5,350.8 | 5,342.0 | 8.77 | 610.054 | |
| 2,000.0 | 1,961.4 | 1,293.0 | 1,292.1 | 7.4 | 2.1 | -102.38 | 1,547.2 | -5,026.0 | 5,368.0 | 5,358.7 | 9.36 | 573.801 | |
| 2,100.0 | 2,057.9 | 1,341.5 | 1,340.3 | 7.9 | 2.3 | -102.52 | 1,548.0 | -5,031.7 | 5,386.3 | 5,376.4 | 9.99 | 539.336 | |
| 2,200.0 | 2,154.3 | 1,386.0 | 1,384.4 | 8.4 | 2.4 | -102.65 | 1,548.9 | -5,037.6 | 5,405.8 | 5,395.2 | 10.61 | 509.469 | |
| 2,300.0 | 2,250.8 | 1,386.0 | 1,384.4 | 9.0 | 2.4 | -102.65 | 1,548.9 | -5,037.6 | 5,426.6 | 5,415.5 | 11.13 | 487.414 | |
| 2,400.0 | 2,347.3 | 1,438.7 | 1,436.5 | 9.5 | 2.5 | -102.80 | 1,550.3 | -5,045.3 | 5,448.4 | 5,436.6 | 11.78 | 462.564 | |
| 2,500.0 | 2,443.7 | 1,480.0 | 1,477.2 | 10.0 | 2.7 | -102.92 | 1,551.9 | -5,052.1 | 5,471.5 | 5,459.1 | 12.40 | 441.275 | |
| 2,600.0 | 2,540.2 | 1,480.0 | 1,477.2 | 10.6 | 2.7 | -102.92 | 1,551.9 | -5,052.1 | 5,495.9 | 5,483.0 | 12.92 | 425.244 | |
| 2,700.0 | 2,636.7 | 1,537.8 | 1,533.9 | 11.1 | 2.9 | -103.08 | 1,554.5 | -5,062.5 | 5,521.3 | 5,507.7 | 13.59 | 406.388 | |
| 2,800.0 | 2,733.1 | 1,573.0 | 1,568.5 | 11.6 | 3.0 | -103.17 | 1,556.2 | -5,069.3 | 5,547.8 | 5,533.6 | 14.19 | 390.881 | |
| 2,900.0 | 2,829.6 | 1,573.0 | 1,568.5 | 12.2 | 3.0 | -103.17 | 1,556.2 | -5,069.3 | 5,575.6 | 5,560.9 | 14.72 | 378.809 | |
| 3,000.0 | 2,926.0 | 1,632.4 | 1,626.5 | 12.7 | 3.2 | -103.33 | 1,559.2 | -5,081.6 | 5,604.2 | 5,588.8 | 15.39 | 364.202 | |
| 3,100.0 | 3,022.5 | 1,667.0 | 1,660.2 | 13.2 | 3.3 | -103.43 | 1,561.1 | -5,089.4 | 5,634.1 | 5,618.1 | 16.00 | 352.225 | |
| 3,200.0 | 3,119.0 | 1,718.4 | 1,710.1 | 13.8 | 3.6 | -103.57 | 1,563.8 | -5,101.5 | 5,665.0 | 5,648.4 | 16.64 | 340.354 | |
| 3,300.0 | 3,215.4 | 1,780.8 | 1,770.6 | 14.3 | 3.8 | -103.74 | 1,566.9 | -5,116.4 | 5,696.5 | 5,679.2 | 17.32 | 328.939 | |
| 3,400.0 | 3,311.9 | 1,854.0 | 1,841.4 | 14.9 | 4.2 | -103.94 | 1,570.5 | -5,134.4 | 5,728.6 | 5,710.6 | 18.02 | 317.987 | |
| 3,500.0 | 3,408.4 | 1,854.0 | 1,841.4 | 15.4 | 4.2 | -103.94 | 1,570.5 | -5,134.4 | 5,761.5 | 5,743.0 | 18.54 | 310.736 | |
| 3,600.0 | 3,504.8 | 1,903.5 | 1,889.2 | 15.9 | 4.4 | -104.07 | 1,572.9 | -5,147.2 | 5,795.3 | 5,776.1 | 19.19 | 302.011 | |
| 3,700.0 | 3,601.3 | 1,948.0 | 1,931.9 | 16.5 | 4.7 | -104.20 | 1,575.3 | -5,159.5 | 5,830.4 | 5,810.6 | 19.83 | 294.079 | |
| 3,800.0 | 3,697.7 | 2,068.4 | 2,047.5 | 17.0 | 5.3 | -104.53 | 1,581.0 | -5,192.7 | 5,865.8 | 5,845.2 | 20.63 | 284.395 | |
| 3,900.0 | 3,794.2 | 2,144.3 | 2,120.4 | 17.5 | 5.6 | -104.74 | 1,584.3 | -5,213.4 | 5,900.9 | 5,879.6 | 21.32 | 276.757 | |
| 4,000.0 | 3,890.7 | 2,228.0 | 2,200.9 | 18.1 | 6.1 | -104.96 | 1,588.3 | -5,236.2 | 5,936.2 | 5,914.2 | 22.04 | 269.310 | |
| 4,100.0 | 3,987.1 | 2,282.9 | 2,253.5 | 18.6 | 6.4 | -105.10 | 1,591.1 | -5,251.4 | 5,971.9 | 5,949.2 | 22.70 | 263.106 | |
| 4,200.0 | 4,083.6 | 2,344.2 | 2,312.2 | 19.2 | 6.7 | -105.27 | 1,594.0 | -5,268.7 | 6,008.4 | 5,985.0 | 23.37 | 257.128 | |
| 4,300.0 | 4,180.1 | 2,415.0 | 2,380.1 | 19.7 | 7.1 | -105.45 | 1,597.3 | -5,288.9 | 6,045.0 | 6,020.9 | 24.06 | 251.276 | |
| 4,400.0 | 4,276.5 | 2,469.4 | 2,432.1 | 20.2 | 7.4 | -105.59 | 1,600.2 | -5,304.5 | 6,082.2 | 6,057.5 | 24.71 | 246.155 | |
| 4,500.0 | 4,373.0 | 2,509.0 | 2,469.8 | 20.8 | 7.6 | -105.69 | 1,602.8 | -5,316.2 | 6,120.2 | 6,094.9 | 25.33 | 241.660 | |
| 4,600.0 | 4,469.5 | 2,573.3 | 2,531.1 | 21.3 | 8.0 | -105.84 | 1,607.3 | -5,335.5 | 6,158.8 | 6,132.8 | 26.01 | 236.767 | |
| 4,700.0 | 4,565.9 | 2,761.6 | 2,710.3 | 21.9 | 9.1 | -106.29 | 1,620.2 | -5,391.4 | 6,197.4 | 6,170.5 | 26.98 | 229.707 | |
| 4,800.0 | 4,662.4 | 2,852.7 | 2,797.4 | 22.4 | 9.6 | -106.51 | 1,625.2 | -5,417.5 | 6,234.8 | 6,207.1 | 27.72 | 224.956 | |
| 4,900.0 | 4,758.8 | 3,042.6 | 2,979.4 | 22.9 | 10.6 | -106.96 | 1,635.9 | -5,470.9 | 6,271.7 | 6,243.1 | 28.68 | 218.668 | |
| 5,000.0 | 4,855.3 | 3,122.9 | 3,056.5 | 23.5 | 11.0 | -107.15 | 1,639.9 | -5,492.8 | 6,308.0 | 6,278.6 | 29.39 | 214.611 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20AD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 545-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 3,211.3 | 3,141.4 | 24.0 | 11.5 | -107.35 | 1,644.9 | -5,517.2 | 6,344.6 | 6,314.5 | 30.12 | 210.609 | |
| 5,200.0 | 5,048.2 | 3,352.0 | 3,276.6 | 24.6 | 12.3 | -107.68 | 1,652.3 | -5,555.4 | 6,380.8 | 6,349.8 | 30.97 | 206.004 | |
| 5,300.0 | 5,144.7 | 3,431.9 | 3,353.5 | 25.1 | 12.7 | -107.87 | 1,655.6 | -5,576.9 | 6,416.8 | 6,385.1 | 31.68 | 202.518 | |
| 5,400.0 | 5,241.2 | 3,534.3 | 3,452.0 | 25.6 | 13.3 | -108.11 | 1,659.7 | -5,604.5 | 6,452.9 | 6,420.5 | 32.45 | 198.864 | |
| 5,500.0 | 5,337.6 | 3,625.3 | 3,539.5 | 26.2 | 13.8 | -108.31 | 1,664.1 | -5,628.9 | 6,489.0 | 6,455.8 | 33.19 | 195.539 | |
| 5,600.0 | 5,434.1 | 5,409.0 | 5,294.8 | 26.7 | 19.5 | -112.16 | 1,711.2 | -5,871.8 | 6,502.9 | 6,465.8 | 37.17 | 174.954 | |
| 5,700.0 | 5,530.5 | 5,476.2 | 5,362.0 | 27.3 | 19.6 | -112.31 | 1,710.5 | -5,873.1 | 6,515.0 | 6,477.2 | 37.79 | 172.416 | |
| 5,757.1 | 5,585.6 | 5,523.0 | 5,408.8 | 27.6 | 19.7 | -112.41 | 1,710.0 | -5,874.1 | 6,522.2 | 6,484.0 | 38.15 | 170.951 | |
| 5,800.0 | 5,627.1 | 5,577.6 | 5,463.3 | 27.8 | 19.7 | -112.63 | 1,709.5 | -5,875.3 | 6,527.4 | 6,489.0 | 38.44 | 169.812 | |
| 5,900.0 | 5,724.4 | 5,690.0 | 5,575.7 | 28.2 | 19.9 | -113.06 | 1,708.8 | -5,877.2 | 6,538.3 | 6,499.3 | 39.01 | 167.626 | |
| 6,000.0 | 5,822.4 | 5,763.4 | 5,649.1 | 28.5 | 20.0 | -113.36 | 1,708.9 | -5,878.5 | 6,548.1 | 6,508.6 | 39.48 | 165.878 | |
| 6,100.0 | 5,921.0 | 5,860.4 | 5,746.1 | 28.8 | 20.1 | -113.64 | 1,709.4 | -5,880.6 | 6,556.9 | 6,516.9 | 39.95 | 164.129 | |
| 6,200.0 | 6,020.2 | 5,944.4 | 5,830.1 | 29.0 | 20.3 | -113.86 | 1,709.8 | -5,882.4 | 6,564.3 | 6,523.9 | 40.36 | 162.630 | |
| 6,300.0 | 6,119.7 | 6,031.7 | 5,917.3 | 29.3 | 20.4 | -114.04 | 1,710.0 | -5,884.5 | 6,570.6 | 6,529.8 | 40.74 | 161.263 | |
| 6,400.0 | 6,219.5 | 6,251.0 | 6,136.6 | 29.4 | 20.7 | -114.23 | 1,708.9 | -5,887.1 | 6,573.7 | 6,532.4 | 41.32 | 159.098 | |
| 6,500.0 | 6,319.5 | 6,335.7 | 6,221.3 | 29.5 | 20.8 | -114.29 | 1,708.8 | -5,887.9 | 6,575.6 | 6,534.0 | 41.61 | 158.018 | |
| 6,521.3 | 6,340.8 | 6,345.0 | 6,230.6 | 29.6 | 20.8 | -85.95 | 1,708.8 | -5,888.0 | 6,575.8 | 6,535.4 | 40.44 | 162.623 | |
| 6,551.3 | 6,370.8 | 6,373.7 | 6,259.4 | 29.6 | 20.9 | -85.94 | 1,708.9 | -5,888.2 | 6,576.1 | 6,535.6 | 40.52 | 162.302 | |
| 6,600.0 | 6,419.5 | 6,407.9 | 6,293.5 | 29.6 | 20.9 | 4.06 | 1,709.1 | -5,888.7 | 6,575.1 | 6,533.2 | 41.85 | 157.128 | |
| 6,650.0 | 6,469.2 | 6,439.0 | 6,324.6 | 29.6 | 21.0 | 4.09 | 1,709.2 | -5,889.1 | 6,570.7 | 6,528.9 | 41.77 | 157.314 | |
| 6,700.0 | 6,518.4 | 6,487.9 | 6,373.5 | 29.6 | 21.0 | 4.14 | 1,709.3 | -5,889.9 | 6,562.9 | 6,521.4 | 41.55 | 157.964 | |
| 6,750.0 | 6,567.0 | 6,532.0 | 6,417.6 | 29.6 | 21.1 | 4.22 | 1,709.3 | -5,890.6 | 6,551.7 | 6,510.6 | 41.14 | 159.252 | |
| 6,800.0 | 6,614.5 | 6,569.3 | 6,454.9 | 29.6 | 21.2 | 4.31 | 1,709.3 | -5,891.3 | 6,537.3 | 6,496.7 | 40.55 | 161.213 | |
| 6,850.0 | 6,660.9 | 6,606.4 | 6,492.0 | 29.5 | 21.2 | 4.44 | 1,709.3 | -5,892.0 | 6,519.6 | 6,479.8 | 39.80 | 163.827 | |
| 6,900.0 | 6,705.9 | 6,647.6 | 6,533.2 | 29.4 | 21.3 | 4.60 | 1,709.4 | -5,892.9 | 6,498.7 | 6,459.9 | 38.89 | 167.098 | |
| 6,950.0 | 6,749.2 | 6,693.2 | 6,578.8 | 29.3 | 21.4 | 4.79 | 1,709.4 | -5,893.8 | 6,474.8 | 6,436.9 | 37.85 | 171.066 | |
| 7,000.0 | 6,790.7 | 6,743.5 | 6,629.1 | 29.2 | 21.4 | 5.03 | 1,709.2 | -5,894.8 | 6,447.8 | 6,411.1 | 36.68 | 175.774 | |
| 7,050.0 | 6,830.2 | 6,800.3 | 6,685.8 | 29.1 | 21.5 | 5.34 | 1,708.9 | -5,895.9 | 6,417.9 | 6,382.5 | 35.41 | 181.250 | |
| 7,100.0 | 6,867.4 | 6,837.2 | 6,722.8 | 29.0 | 21.6 | 5.69 | 1,708.7 | -5,896.5 | 6,385.2 | 6,351.2 | 34.00 | 187.789 | |
| 7,150.0 | 6,902.2 | 6,867.1 | 6,752.6 | 28.9 | 21.6 | 6.13 | 1,708.6 | -5,897.0 | 6,350.0 | 6,317.5 | 32.51 | 195.329 | |
| 7,200.0 | 6,934.4 | 6,894.8 | 6,780.3 | 28.7 | 21.7 | 6.67 | 1,708.5 | -5,897.5 | 6,312.5 | 6,281.5 | 30.97 | 203.811 | |
| 7,250.0 | 6,963.8 | 6,921.4 | 6,806.9 | 28.6 | 21.7 | 7.34 | 1,708.4 | -5,898.0 | 6,272.8 | 6,243.3 | 29.43 | 213.108 | |
| 7,300.0 | 6,990.4 | 6,946.4 | 6,832.0 | 28.5 | 21.7 | 8.21 | 1,708.4 | -5,898.5 | 6,231.1 | 6,203.1 | 27.95 | 222.914 | |
| 7,350.0 | 7,013.9 | 6,968.8 | 6,854.3 | 28.4 | 21.8 | 9.34 | 1,708.3 | -5,899.0 | 6,187.6 | 6,161.0 | 26.60 | 232.573 | |
| 7,400.0 | 7,034.4 | 6,988.3 | 6,873.8 | 28.2 | 21.8 | 10.87 | 1,708.2 | -5,899.4 | 6,142.5 | 6,117.0 | 25.51 | 240.779 | |
| 7,450.0 | 7,051.5 | 7,000.0 | 6,885.5 | 28.1 | 21.8 | 13.00 | 1,708.2 | -5,899.6 | 6,096.0 | 6,071.2 | 24.84 | 245.379 | |
| 7,500.0 | 7,065.4 | 7,015.9 | 6,901.4 | 28.0 | 21.9 | 16.26 | 1,708.1 | -5,899.9 | 6,048.4 | 6,023.5 | 24.97 | 242.260 | |
| 7,550.0 | 7,075.9 | 7,024.9 | 6,910.4 | 27.9 | 21.9 | 21.55 | 1,708.1 | -5,900.1 | 5,999.9 | 5,973.5 | 26.47 | 226.704 | |
| 7,600.0 | 7,082.9 | 7,031.3 | 6,916.8 | 27.8 | 21.9 | 31.46 | 1,708.0 | -5,900.3 | 5,950.8 | 5,920.1 | 30.70 | 193.837 | |
| 7,650.0 | 7,086.5 | 7,035.0 | 6,920.5 | 27.7 | 21.9 | 53.42 | 1,708.0 | -5,900.4 | 5,901.1 | 5,861.3 | 39.81 | 148.241 | |
| 7,677.7 | 7,087.0 | 7,035.9 | 6,921.4 | 27.6 | 21.9 | 75.87 | 1,708.0 | -5,900.4 | 5,873.6 | 5,828.7 | 44.90 | 130.828 | |
| 7,700.0 | 7,087.0 | 7,036.2 | 6,921.8 | 27.6 | 21.9 | 75.91 | 1,708.0 | -5,900.4 | 5,851.3 | 5,806.1 | 45.20 | 129.444 | |
| 7,800.0 | 7,086.8 | 7,037.9 | 6,923.4 | 27.5 | 21.9 | 76.10 | 1,708.0 | -5,900.4 | 5,751.7 | 5,704.9 | 46.72 | 123.104 | |
| 7,900.0 | 7,086.6 | 7,039.5 | 6,925.0 | 27.9 | 21.9 | 76.29 | 1,708.0 | -5,900.5 | 5,652.0 | 5,603.6 | 48.44 | 116.692 | |
| 8,000.0 | 7,086.4 | 7,041.2 | 6,926.7 | 29.5 | 21.9 | 76.49 | 1,708.0 | -5,900.5 | 5,552.4 | 5,502.1 | 50.31 | 110.362 | |
| 8,100.0 | 7,086.2 | 7,042.8 | 6,928.3 | 31.5 | 21.9 | 76.68 | 1,707.9 | -5,900.5 | 5,452.8 | 5,400.4 | 52.32 | 104.221 | |
| 8,200.0 | 7,086.0 | 7,044.5 | 6,930.0 | 33.7 | 21.9 | 76.88 | 1,707.9 | -5,900.6 | 5,353.1 | 5,298.7 | 54.44 | 98.333 | |
| 8,300.0 | 7,085.8 | 7,046.2 | 6,931.7 | 36.0 | 21.9 | 77.08 | 1,707.9 | -5,900.6 | 5,253.6 | 5,196.9 | 56.65 | 92.736 | |
| 8,400.0 | 7,085.6 | 7,047.9 | 6,933.4 | 38.3 | 21.9 | 77.28 | 1,707.9 | -5,900.6 | 5,154.0 | 5,095.0 | 58.94 | 87.447 | |
| 8,500.0 | 7,085.4 | 7,049.7 | 6,935.2 | 40.7 | 21.9 | 77.49 | 1,707.9 | -5,900.7 | 5,054.4 | 4,993.1 | 61.29 | 82.466 | |
| 8,600.0 | 7,085.2 | 7,051.4 | 6,936.9 | 43.1 | 21.9 | 77.69 | 1,707.9 | -5,900.7 | 4,954.9 | 4,891.2 | 63.70 | 77.788 | |
| 8,700.0 | 7,085.0 | 7,053.2 | 6,938.7 | 45.6 | 21.9 | 77.90 | 1,707.9 | -5,900.8 | 4,855.3 | 4,789.2 | 66.15 | 73.399 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20AD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 545-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.0 | 7,084.8 | 7,054.9 | 6,940.4 | 48.1 | 21.9 | 78.11 | 1,707.8 | -5,900.8 | 4,755.8 | 4,687.2 | 68.64 | 69.284 | |
| 8,900.0 | 7,084.6 | 7,056.7 | 6,942.2 | 50.7 | 21.9 | 78.32 | 1,707.8 | -5,900.9 | 4,656.3 | 4,585.2 | 71.17 | 65.426 | |
| 9,000.0 | 7,084.4 | 7,058.5 | 6,944.0 | 53.2 | 21.9 | 78.54 | 1,707.8 | -5,900.9 | 4,556.9 | 4,483.1 | 73.73 | 61.809 | |
| 9,100.0 | 7,084.2 | 7,060.3 | 6,945.8 | 55.8 | 21.9 | 78.75 | 1,707.8 | -5,900.9 | 4,457.4 | 4,381.1 | 76.31 | 58.413 | |
| 9,200.0 | 7,084.0 | 7,062.2 | 6,947.7 | 58.4 | 21.9 | 78.97 | 1,707.8 | -5,901.0 | 4,358.0 | 4,279.1 | 78.91 | 55.225 | |
| 9,300.0 | 7,083.8 | 7,064.0 | 6,949.5 | 61.1 | 21.9 | 79.19 | 1,707.8 | -5,901.0 | 4,258.6 | 4,177.0 | 81.54 | 52.227 | |
| 9,400.0 | 7,083.7 | 7,065.9 | 6,951.4 | 63.7 | 21.9 | 79.41 | 1,707.7 | -5,901.1 | 4,159.2 | 4,075.0 | 84.18 | 49.406 | |
| 9,500.0 | 7,083.5 | 7,067.8 | 6,953.3 | 66.3 | 21.9 | 79.64 | 1,707.7 | -5,901.1 | 4,059.9 | 3,973.0 | 86.85 | 46.748 | |
| 9,600.0 | 7,083.3 | 7,069.7 | 6,955.1 | 69.0 | 21.9 | 79.87 | 1,707.7 | -5,901.2 | 3,960.6 | 3,871.0 | 89.52 | 44.242 | |
| 9,700.0 | 7,083.1 | 7,071.6 | 6,957.1 | 71.7 | 21.9 | 80.10 | 1,707.7 | -5,901.2 | 3,861.3 | 3,769.1 | 92.21 | 41.875 | |
| 9,800.0 | 7,082.9 | 7,073.5 | 6,959.0 | 74.4 | 21.9 | 80.33 | 1,707.7 | -5,901.3 | 3,762.1 | 3,667.2 | 94.91 | 39.638 | |
| 9,900.0 | 7,082.7 | 7,075.4 | 6,960.9 | 77.1 | 21.9 | 80.56 | 1,707.7 | -5,901.3 | 3,662.9 | 3,565.2 | 97.62 | 37.521 | |
| 10,000.0 | 7,082.5 | 7,077.4 | 6,962.9 | 79.7 | 22.0 | 80.80 | 1,707.6 | -5,901.4 | 3,563.7 | 3,463.4 | 100.35 | 35.515 | |
| 10,100.0 | 7,082.3 | 7,079.4 | 6,964.9 | 82.5 | 22.0 | 81.04 | 1,707.6 | -5,901.4 | 3,464.6 | 3,361.5 | 103.08 | 33.612 | |
| 10,200.0 | 7,082.1 | 7,081.4 | 6,966.9 | 85.2 | 22.0 | 81.28 | 1,707.6 | -5,901.4 | 3,365.6 | 3,259.7 | 105.82 | 31.806 | |
| 10,300.0 | 7,081.9 | 7,083.4 | 6,968.9 | 87.9 | 22.0 | 81.52 | 1,707.6 | -5,901.5 | 3,266.6 | 3,158.0 | 108.56 | 30.089 | |
| 10,400.0 | 7,081.7 | 7,085.5 | 6,970.9 | 90.6 | 22.0 | 81.77 | 1,707.5 | -5,901.6 | 3,167.6 | 3,056.3 | 111.32 | 28.456 | |
| 10,500.0 | 7,081.5 | 7,087.5 | 6,973.0 | 93.3 | 22.0 | 82.02 | 1,707.5 | -5,901.6 | 3,068.8 | 2,954.7 | 114.08 | 26.900 | |
| 10,600.0 | 7,081.3 | 7,093.0 | 6,978.5 | 96.1 | 22.0 | 82.69 | 1,707.5 | -5,901.7 | 2,970.0 | 2,853.1 | 116.93 | 25.400 | |
| 10,700.0 | 7,081.1 | 7,093.0 | 6,978.5 | 98.8 | 22.0 | 82.69 | 1,707.5 | -5,901.7 | 2,871.3 | 2,751.6 | 119.65 | 23.997 | |
| 10,800.0 | 7,080.9 | 7,093.0 | 6,978.5 | 101.5 | 22.0 | 82.69 | 1,707.5 | -5,901.7 | 2,772.7 | 2,650.3 | 122.38 | 22.656 | |
| 10,900.0 | 7,080.7 | 7,093.0 | 6,978.5 | 104.3 | 22.0 | 82.69 | 1,707.5 | -5,901.7 | 2,674.1 | 2,549.0 | 125.11 | 21.374 | |
| 11,000.0 | 7,080.5 | 7,093.0 | 6,978.5 | 107.0 | 22.0 | 82.69 | 1,707.5 | -5,901.7 | 2,575.7 | 2,447.9 | 127.84 | 20.148 | |
| 11,100.0 | 7,080.3 | 7,100.0 | 6,985.4 | 109.8 | 22.0 | 83.54 | 1,707.4 | -5,901.9 | 2,477.5 | 2,346.7 | 130.75 | 18.948 | |
| 11,200.0 | 7,080.1 | 7,102.1 | 6,987.6 | 112.5 | 22.0 | 83.79 | 1,707.4 | -5,902.0 | 2,379.3 | 2,245.8 | 133.54 | 17.817 | |
| 11,300.0 | 7,079.9 | 7,104.2 | 6,989.7 | 115.3 | 22.0 | 84.05 | 1,707.3 | -5,902.0 | 2,281.3 | 2,145.0 | 136.34 | 16.733 | |
| 11,400.0 | 7,079.7 | 7,106.3 | 6,991.8 | 118.0 | 22.0 | 84.31 | 1,707.3 | -5,902.1 | 2,183.5 | 2,044.4 | 139.13 | 15.694 | |
| 11,500.0 | 7,079.5 | 7,108.5 | 6,994.0 | 120.8 | 22.0 | 84.58 | 1,707.3 | -5,902.1 | 2,085.9 | 1,944.0 | 141.93 | 14.697 | |
| 11,600.0 | 7,079.3 | 7,110.7 | 6,996.1 | 123.6 | 22.0 | 84.85 | 1,707.3 | -5,902.2 | 1,988.6 | 1,843.9 | 144.73 | 13.740 | |
| 11,700.0 | 7,079.1 | 7,112.9 | 6,998.3 | 126.3 | 22.0 | 85.12 | 1,707.2 | -5,902.3 | 1,891.5 | 1,744.0 | 147.54 | 12.821 | |
| 11,800.0 | 7,078.9 | 7,115.1 | 7,000.6 | 129.1 | 22.0 | 85.39 | 1,707.2 | -5,902.3 | 1,794.7 | 1,644.4 | 150.34 | 11.938 | |
| 11,900.0 | 7,078.7 | 7,117.3 | 7,002.8 | 131.9 | 22.0 | 85.66 | 1,707.2 | -5,902.4 | 1,698.4 | 1,545.2 | 153.15 | 11.090 | |
| 12,000.0 | 7,078.5 | 7,119.6 | 7,005.1 | 134.6 | 22.0 | 85.94 | 1,707.2 | -5,902.4 | 1,602.4 | 1,446.4 | 155.95 | 10.275 | |
| 12,100.0 | 7,078.3 | 7,121.9 | 7,007.3 | 137.4 | 22.0 | 86.22 | 1,707.1 | -5,902.5 | 1,507.0 | 1,348.2 | 158.76 | 9.492 | |
| 12,200.0 | 7,078.1 | 7,124.2 | 7,009.6 | 140.2 | 22.0 | 86.51 | 1,707.1 | -5,902.6 | 1,412.2 | 1,250.6 | 161.56 | 8.741 | |
| 12,300.0 | 7,077.9 | 7,126.5 | 7,012.0 | 142.9 | 22.0 | 86.79 | 1,707.1 | -5,902.6 | 1,318.1 | 1,153.8 | 164.37 | 8.019 | |
| 12,400.0 | 7,077.7 | 7,128.8 | 7,014.3 | 145.7 | 22.0 | 87.08 | 1,707.1 | -5,902.7 | 1,225.0 | 1,057.9 | 167.17 | 7.328 | |
| 12,500.0 | 7,077.5 | 7,131.2 | 7,016.7 | 148.5 | 22.0 | 87.37 | 1,707.0 | -5,902.7 | 1,133.1 | 963.1 | 169.98 | 6.666 | |
| 12,600.0 | 7,077.3 | 7,133.6 | 7,019.0 | 151.3 | 22.0 | 87.67 | 1,707.0 | -5,902.8 | 1,042.7 | 869.9 | 172.78 | 6.035 | |
| 12,700.0 | 7,077.1 | 7,136.0 | 7,021.4 | 154.0 | 22.0 | 87.96 | 1,707.0 | -5,902.9 | 954.1 | 778.5 | 175.58 | 5.434 | |
| 12,800.0 | 7,076.9 | 7,138.4 | 7,023.9 | 156.8 | 22.1 | 88.26 | 1,707.0 | -5,902.9 | 868.1 | 689.7 | 178.37 | 4.867 | |
| 12,900.0 | 7,076.7 | 7,140.9 | 7,026.3 | 159.6 | 22.1 | 88.57 | 1,706.9 | -5,903.0 | 785.3 | 604.1 | 181.17 | 4.335 | |
| 13,000.0 | 7,076.5 | 7,143.3 | 7,028.8 | 162.4 | 22.1 | 88.87 | 1,706.9 | -5,903.1 | 707.0 | 523.0 | 183.96 | 3.843 | |
| 13,100.0 | 7,076.3 | 7,145.8 | 7,031.3 | 165.2 | 22.1 | 89.18 | 1,706.9 | -5,903.2 | 634.8 | 448.1 | 186.75 | 3.399 | |
| 13,200.0 | 7,076.1 | 7,148.4 | 7,033.8 | 168.0 | 22.1 | 89.50 | 1,706.9 | -5,903.2 | 571.1 | 381.6 | 189.53 | 3.013 | |
| 13,300.0 | 7,075.9 | 7,150.9 | 7,036.4 | 170.7 | 22.1 | 89.81 | 1,706.8 | -5,903.3 | 518.9 | 326.6 | 192.31 | 2.698 | |
| 13,400.0 | 7,075.7 | 7,153.5 | 7,039.0 | 173.5 | 22.1 | 90.13 | 1,706.8 | -5,903.4 | 482.1 | 287.0 | 195.09 | 2.471 | |
| 13,500.0 | 7,075.5 | 7,156.1 | 7,041.6 | 176.3 | 22.1 | 90.45 | 1,706.8 | -5,903.4 | 464.2 | 266.3 | 197.86 | 2.346 | |
| 13,534.6 | 7,075.4 | 7,157.0 | 7,042.5 | 177.3 | 22.1 | 90.56 | 1,706.8 | -5,903.5 | 462.9 | 264.1 | 198.81 | 2.328 | CC, ES, SF |
| 13,600.0 | 7,075.3 | 7,158.7 | 7,044.2 | 179.1 | 22.1 | 90.78 | 1,706.8 | -5,903.5 | 467.5 | 266.9 | 200.62 | 2.330 | |
| 13,700.0 | 7,075.1 | 7,161.4 | 7,046.8 | 181.9 | 22.1 | 91.11 | 1,706.7 | -5,903.6 | 491.6 | 288.2 | 203.38 | 2.417 | |
| 13,800.0 | 7,074.9 | 7,164.1 | 7,049.5 | 184.7 | 22.1 | 91.44 | 1,706.7 | -5,903.7 | 533.6 | 327.4 | 206.13 | 2.588 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20AD - Wellbore #1 - Wellbore #1

**Offset Site Error:** 0.0 usft

**Survey Program:** 545-MWD

**Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.0 | 7,074.7 | 7,166.8 | 7,052.2 | 187.5 | 22.1 | 91.77 | 1,706.7 | -5,903.7 | 589.7 | 380.8 | 208.88 | 2.823 | |
| 14,000.0 | 7,074.5 | 7,169.5 | 7,054.9 | 190.2 | 22.1 | 92.11 | 1,706.7 | -5,903.8 | 656.3 | 444.7 | 211.61 | 3.101 | |
| 14,100.0 | 7,074.2 | 7,172.3 | 7,057.7 | 193.0 | 22.1 | 92.45 | 1,706.6 | -5,903.9 | 730.6 | 516.2 | 214.34 | 3.408 | |
| 14,200.0 | 7,074.0 | 7,175.0 | 7,060.5 | 195.8 | 22.1 | 92.79 | 1,706.6 | -5,904.0 | 810.4 | 593.3 | 217.06 | 3.733 | |
| 14,221.4 | 7,074.0 | 7,175.6 | 7,061.1 | 196.4 | 22.1 | 92.87 | 1,706.6 | -5,904.0 | 828.0 | 610.4 | 217.64 | 3.805 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20MD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 545-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -72.37 | 1,571.4 | -4,943.4 | 5,187.3 | | | | |
| 100.0 | 100.0 | 59.6 | 59.6 | 0.1 | 0.1 | -72.37 | 1,571.4 | -4,943.4 | 5,187.2 | 5,187.0 | 0.15 | N/A | |
| 200.0 | 200.0 | 154.9 | 154.9 | 0.3 | 0.1 | -72.37 | 1,571.4 | -4,943.5 | 5,187.3 | 5,186.8 | 0.46 | N/A | |
| 300.0 | 300.0 | 250.2 | 250.2 | 0.5 | 0.2 | -72.37 | 1,571.5 | -4,943.7 | 5,187.4 | 5,186.7 | 0.77 | 6,745.501 | |
| 400.0 | 400.0 | 345.5 | 345.5 | 0.8 | 0.3 | -72.36 | 1,571.6 | -4,943.9 | 5,187.7 | 5,186.7 | 1.08 | 4,810.283 | |
| 500.0 | 500.0 | 440.8 | 440.8 | 1.0 | 0.4 | -100.71 | 1,571.8 | -4,944.2 | 5,188.4 | 5,187.0 | 1.39 | 3,742.058 | |
| 600.0 | 599.8 | 545.0 | 545.0 | 1.2 | 0.5 | -100.74 | 1,572.0 | -4,944.7 | 5,189.9 | 5,188.2 | 1.71 | 3,042.325 | |
| 700.0 | 699.5 | 618.0 | 618.0 | 1.5 | 0.6 | -100.77 | 1,572.3 | -4,945.1 | 5,192.2 | 5,190.1 | 2.11 | 2,461.829 | |
| 800.0 | 798.7 | 709.3 | 709.3 | 1.7 | 0.8 | -100.82 | 1,572.9 | -4,945.8 | 5,195.4 | 5,192.9 | 2.57 | 2,021.525 | |
| 900.0 | 897.5 | 799.5 | 799.5 | 2.0 | 1.0 | -100.89 | 1,573.9 | -4,946.5 | 5,199.5 | 5,196.4 | 3.06 | 1,699.817 | |
| 1,000.0 | 995.6 | 876.2 | 876.2 | 2.4 | 1.2 | -100.92 | 1,576.2 | -4,946.9 | 5,204.5 | 5,201.0 | 3.57 | 1,458.722 | |
| 1,100.0 | 1,093.1 | 948.9 | 948.7 | 2.8 | 1.4 | -100.93 | 1,580.5 | -4,947.0 | 5,210.8 | 5,206.6 | 4.13 | 1,262.483 | |
| 1,164.2 | 1,155.2 | 996.3 | 996.0 | 3.1 | 1.5 | -100.93 | 1,584.6 | -4,946.8 | 5,215.4 | 5,210.9 | 4.52 | 1,153.275 | |
| 1,200.0 | 1,189.7 | 1,024.9 | 1,024.4 | 3.2 | 1.5 | -100.98 | 1,587.5 | -4,946.7 | 5,218.1 | 5,213.4 | 4.76 | 1,096.781 | |
| 1,300.0 | 1,286.2 | 1,106.0 | 1,104.9 | 3.7 | 1.7 | -101.10 | 1,597.5 | -4,945.8 | 5,226.0 | 5,220.5 | 5.44 | 960.276 | |
| 1,400.0 | 1,382.6 | 1,175.2 | 1,173.3 | 4.2 | 1.9 | -101.19 | 1,607.5 | -4,944.9 | 5,234.3 | 5,228.2 | 6.13 | 853.657 | |
| 1,500.0 | 1,479.1 | 1,234.0 | 1,231.4 | 4.7 | 2.1 | -101.26 | 1,616.9 | -4,944.4 | 5,243.4 | 5,236.6 | 6.81 | 769.749 | |
| 1,600.0 | 1,575.6 | 1,293.0 | 1,289.4 | 5.3 | 2.3 | -101.32 | 1,627.3 | -4,944.1 | 5,253.3 | 5,245.7 | 7.51 | 699.803 | |
| 1,700.0 | 1,672.0 | 1,501.6 | 1,492.9 | 5.8 | 3.1 | -101.42 | 1,673.0 | -4,938.8 | 5,262.4 | 5,253.6 | 8.82 | 596.631 | |
| 1,800.0 | 1,768.5 | 1,574.0 | 1,562.8 | 6.3 | 3.5 | -101.42 | 1,691.5 | -4,935.5 | 5,270.7 | 5,261.0 | 9.66 | 545.668 | |
| 1,900.0 | 1,864.9 | 1,632.1 | 1,618.5 | 6.8 | 3.8 | -101.40 | 1,707.8 | -4,932.8 | 5,279.7 | 5,269.2 | 10.47 | 504.165 | |
| 2,000.0 | 1,961.4 | 1,702.9 | 1,685.9 | 7.4 | 4.1 | -101.37 | 1,729.1 | -4,929.8 | 5,289.6 | 5,278.2 | 11.37 | 465.399 | |
| 2,100.0 | 2,057.9 | 1,817.0 | 1,794.1 | 7.9 | 4.8 | -101.29 | 1,765.1 | -4,924.5 | 5,299.4 | 5,286.9 | 12.53 | 422.777 | |
| 2,200.0 | 2,154.3 | 1,882.2 | 1,855.3 | 8.4 | 5.2 | -101.23 | 1,787.0 | -4,921.0 | 5,309.4 | 5,295.9 | 13.45 | 394.683 | |
| 2,300.0 | 2,250.8 | 1,948.0 | 1,916.8 | 9.0 | 5.6 | -101.16 | 1,810.4 | -4,918.0 | 5,320.4 | 5,306.0 | 14.39 | 369.688 | |
| 2,400.0 | 2,347.3 | 2,011.7 | 1,976.0 | 9.5 | 6.0 | -101.09 | 1,833.7 | -4,915.4 | 5,332.1 | 5,316.8 | 15.31 | 348.276 | |
| 2,500.0 | 2,443.7 | 2,093.9 | 2,052.5 | 10.0 | 6.5 | -100.99 | 1,863.6 | -4,911.8 | 5,343.9 | 5,327.5 | 16.33 | 327.152 | |
| 2,600.0 | 2,540.2 | 2,309.3 | 2,252.7 | 10.6 | 7.9 | -100.73 | 1,942.5 | -4,901.3 | 5,355.5 | 5,337.2 | 18.21 | 294.015 | |
| 2,700.0 | 2,636.7 | 2,417.0 | 2,352.0 | 11.1 | 8.6 | -100.58 | 1,983.3 | -4,893.6 | 5,365.0 | 5,345.5 | 19.48 | 275.435 | |
| 2,800.0 | 2,733.1 | 2,479.8 | 2,409.2 | 11.6 | 9.1 | -100.47 | 2,008.8 | -4,888.7 | 5,374.9 | 5,354.4 | 20.48 | 262.459 | |
| 2,900.0 | 2,829.6 | 2,531.1 | 2,455.7 | 12.2 | 9.5 | -100.38 | 2,030.2 | -4,885.2 | 5,385.8 | 5,364.4 | 21.40 | 251.728 | |
| 3,000.0 | 2,926.0 | 2,604.0 | 2,521.6 | 12.7 | 10.1 | -100.24 | 2,061.0 | -4,880.6 | 5,397.6 | 5,375.2 | 22.48 | 240.151 | |
| 3,100.0 | 3,022.5 | 2,667.2 | 2,578.9 | 13.2 | 10.5 | -100.14 | 2,087.3 | -4,877.2 | 5,410.0 | 5,386.6 | 23.44 | 230.760 | |
| 3,200.0 | 3,119.0 | 2,764.0 | 2,667.8 | 13.8 | 11.2 | -99.99 | 2,125.5 | -4,872.8 | 5,422.6 | 5,398.0 | 24.63 | 220.192 | |
| 3,300.0 | 3,215.4 | 2,881.8 | 2,775.9 | 14.3 | 12.0 | -99.82 | 2,172.2 | -4,867.1 | 5,435.1 | 5,409.1 | 25.99 | 209.122 | |
| 3,400.0 | 3,311.9 | 3,166.0 | 3,037.7 | 14.9 | 14.0 | -99.42 | 2,280.9 | -4,849.0 | 5,445.7 | 5,417.3 | 28.46 | 191.380 | |
| 3,500.0 | 3,408.4 | 3,228.4 | 3,095.6 | 15.4 | 14.4 | -99.35 | 2,303.7 | -4,844.5 | 5,455.0 | 5,425.6 | 29.40 | 185.541 | |
| 3,600.0 | 3,504.8 | 3,304.2 | 3,166.0 | 15.9 | 14.9 | -99.26 | 2,331.3 | -4,839.6 | 5,464.9 | 5,434.5 | 30.42 | 179.649 | |
| 3,700.0 | 3,601.3 | 3,378.6 | 3,235.3 | 16.5 | 15.3 | -99.18 | 2,358.1 | -4,835.0 | 5,475.1 | 5,443.7 | 31.42 | 174.260 | |
| 3,800.0 | 3,697.7 | 3,447.0 | 3,299.2 | 17.0 | 15.8 | -99.11 | 2,382.4 | -4,831.6 | 5,486.2 | 5,453.8 | 32.38 | 169.448 | |
| 3,900.0 | 3,794.2 | 3,507.7 | 3,355.9 | 17.5 | 16.2 | -99.05 | 2,403.8 | -4,829.1 | 5,497.9 | 5,464.6 | 33.29 | 165.160 | |
| 4,000.0 | 3,890.7 | 3,598.2 | 3,440.6 | 18.1 | 16.7 | -98.96 | 2,435.6 | -4,825.4 | 5,509.8 | 5,475.4 | 34.38 | 160.252 | |
| 4,100.0 | 3,987.1 | 3,727.0 | 3,560.7 | 18.6 | 17.6 | -98.83 | 2,481.7 | -4,819.4 | 5,521.3 | 5,485.6 | 35.74 | 154.468 | |
| 4,200.0 | 4,083.6 | 3,796.4 | 3,624.4 | 19.2 | 18.1 | -98.73 | 2,508.7 | -4,815.3 | 5,532.8 | 5,496.1 | 36.78 | 150.427 | |
| 4,300.0 | 4,180.1 | 3,849.6 | 3,673.0 | 19.7 | 18.5 | -98.65 | 2,530.5 | -4,812.3 | 5,545.3 | 5,507.6 | 37.71 | 147.054 | |
| 4,400.0 | 4,276.5 | 3,915.0 | 3,732.3 | 20.2 | 19.0 | -98.54 | 2,557.8 | -4,809.0 | 5,558.5 | 5,519.8 | 38.74 | 143.499 | |
| 4,500.0 | 4,373.0 | 3,962.9 | 3,775.6 | 20.8 | 19.4 | -98.46 | 2,577.9 | -4,806.9 | 5,572.5 | 5,532.9 | 39.63 | 140.627 | |
| 4,600.0 | 4,469.5 | 4,211.2 | 4,004.5 | 21.3 | 21.1 | -98.14 | 2,673.6 | -4,797.3 | 5,586.3 | 5,544.5 | 41.83 | 133.562 | |
| 4,700.0 | 4,565.9 | 4,289.0 | 4,077.1 | 21.9 | 21.6 | -98.07 | 2,701.2 | -4,794.0 | 5,598.3 | 5,555.5 | 42.86 | 130.627 | |
| 4,800.0 | 4,662.4 | 4,349.2 | 4,133.4 | 22.4 | 22.0 | -98.02 | 2,722.5 | -4,791.8 | 5,610.8 | 5,567.1 | 43.77 | 128.188 | |
| 4,900.0 | 4,758.8 | 4,573.8 | 4,346.1 | 22.9 | 23.3 | -97.90 | 2,794.1 | -4,785.8 | 5,623.6 | 5,578.0 | 45.58 | 123.374 | |
| 5,000.0 | 4,855.3 | 4,785.3 | 4,549.9 | 23.5 | 24.4 | -97.90 | 2,850.4 | -4,778.3 | 5,633.1 | 5,586.0 | 47.16 | 119.438 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20MD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 545-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 4,851.0 | 4,613.6 | 24.0 | 24.7 | -97.91 | 2,866.4 | -4,776.3 | 5,642.3 | 5,594.3 | 48.01 | 117.531 | |
| 5,200.0 | 5,048.2 | 4,990.9 | 4,750.1 | 24.6 | 25.3 | -97.98 | 2,897.0 | -4,773.1 | 5,651.5 | 5,602.4 | 49.13 | 115.041 | |
| 5,300.0 | 5,144.7 | 5,216.2 | 4,972.7 | 25.1 | 26.0 | -98.25 | 2,930.4 | -4,769.1 | 5,658.5 | 5,608.2 | 50.38 | 112.324 | |
| 5,400.0 | 5,241.2 | 5,291.0 | 5,047.2 | 25.6 | 26.2 | -98.37 | 2,938.0 | -4,768.4 | 5,665.1 | 5,614.0 | 51.09 | 110.881 | |
| 5,500.0 | 5,337.6 | 5,539.7 | 5,295.5 | 26.2 | 26.5 | -98.94 | 2,947.9 | -4,769.7 | 5,671.6 | 5,619.6 | 51.99 | 109.089 | |
| 5,600.0 | 5,434.1 | 5,632.5 | 5,388.3 | 26.7 | 26.6 | -99.19 | 2,947.4 | -4,769.9 | 5,675.9 | 5,623.3 | 52.60 | 107.915 | |
| 5,700.0 | 5,530.5 | 5,717.1 | 5,472.9 | 27.3 | 26.7 | -99.41 | 2,947.3 | -4,770.2 | 5,680.6 | 5,627.4 | 53.20 | 106.777 | |
| 5,757.1 | 5,585.6 | 5,770.5 | 5,526.3 | 27.6 | 26.7 | -99.56 | 2,947.1 | -4,770.4 | 5,683.4 | 5,629.9 | 53.55 | 106.134 | |
| 5,800.0 | 5,627.1 | 5,812.1 | 5,567.9 | 27.8 | 26.8 | -99.71 | 2,946.9 | -4,770.7 | 5,685.5 | 5,631.7 | 53.79 | 105.698 | |
| 5,900.0 | 5,724.4 | 5,906.5 | 5,662.3 | 28.2 | 26.8 | -100.02 | 2,946.9 | -4,771.1 | 5,690.0 | 5,635.7 | 54.26 | 104.859 | |
| 6,000.0 | 5,822.4 | 5,993.0 | 5,748.8 | 28.5 | 26.9 | -100.26 | 2,947.2 | -4,771.5 | 5,694.1 | 5,639.4 | 54.69 | 104.110 | |
| 6,100.0 | 5,921.0 | 6,102.6 | 5,858.4 | 28.8 | 27.0 | -100.51 | 2,947.7 | -4,772.0 | 5,697.7 | 5,642.6 | 55.10 | 103.401 | |
| 6,200.0 | 6,020.2 | 6,215.9 | 5,971.6 | 29.0 | 27.1 | -100.70 | 2,948.2 | -4,772.1 | 5,700.3 | 5,644.8 | 55.47 | 102.756 | |
| 6,300.0 | 6,119.7 | 6,313.3 | 6,069.1 | 29.3 | 27.2 | -100.82 | 2,949.0 | -4,772.1 | 5,702.3 | 5,646.5 | 55.79 | 102.208 | |
| 6,400.0 | 6,219.5 | 6,411.0 | 6,166.7 | 29.4 | 27.3 | -100.90 | 2,950.1 | -4,772.0 | 5,703.7 | 5,647.6 | 56.07 | 101.729 | |
| 6,500.0 | 6,319.5 | 6,490.4 | 6,246.2 | 29.5 | 27.4 | -100.93 | 2,950.9 | -4,772.0 | 5,704.5 | 5,648.3 | 56.28 | 101.360 | |
| 6,521.3 | 6,340.8 | 6,505.8 | 6,261.5 | 29.6 | 27.4 | -72.59 | 2,951.1 | -4,772.1 | 5,704.7 | 5,671.2 | 33.48 | 170.366 | |
| 6,551.3 | 6,370.8 | 6,534.0 | 6,289.8 | 29.6 | 27.5 | -72.58 | 2,951.5 | -4,772.2 | 5,704.9 | 5,671.4 | 33.58 | 169.901 | |
| 6,600.0 | 6,419.5 | 6,588.1 | 6,343.9 | 29.6 | 27.5 | 17.46 | 2,952.4 | -4,772.4 | 5,703.8 | 5,647.4 | 56.38 | 101.170 | |
| 6,650.0 | 6,469.2 | 6,647.4 | 6,403.2 | 29.6 | 27.6 | 17.60 | 2,953.4 | -4,772.4 | 5,699.1 | 5,643.0 | 56.14 | 101.510 | |
| 6,700.0 | 6,518.4 | 6,693.8 | 6,449.6 | 29.6 | 27.7 | 17.83 | 2,954.3 | -4,772.4 | 5,691.2 | 5,635.5 | 55.66 | 102.252 | |
| 6,750.0 | 6,567.0 | 6,738.7 | 6,494.5 | 29.6 | 27.7 | 18.16 | 2,955.1 | -4,772.4 | 5,680.0 | 5,625.1 | 54.94 | 103.377 | |
| 6,800.0 | 6,614.5 | 6,781.5 | 6,537.3 | 29.6 | 27.8 | 18.58 | 2,956.0 | -4,772.4 | 5,665.7 | 5,611.7 | 54.01 | 104.897 | |
| 6,850.0 | 6,660.9 | 6,826.3 | 6,582.0 | 29.5 | 27.8 | 19.13 | 2,957.0 | -4,772.4 | 5,648.3 | 5,595.4 | 52.88 | 106.815 | |
| 6,900.0 | 6,705.9 | 6,881.4 | 6,637.1 | 29.4 | 27.9 | 19.84 | 2,958.2 | -4,772.4 | 5,627.8 | 5,576.2 | 51.57 | 109.118 | |
| 6,950.0 | 6,749.2 | 6,924.9 | 6,680.6 | 29.3 | 28.0 | 20.67 | 2,959.1 | -4,772.4 | 5,604.3 | 5,554.2 | 50.09 | 111.879 | |
| 7,000.0 | 6,790.7 | 6,957.4 | 6,713.1 | 29.2 | 28.0 | 21.65 | 2,959.9 | -4,772.4 | 5,578.0 | 5,529.5 | 48.46 | 115.107 | |
| 7,050.0 | 6,830.2 | 6,988.4 | 6,744.1 | 29.1 | 28.1 | 22.82 | 2,960.6 | -4,772.4 | 5,549.1 | 5,502.4 | 46.72 | 118.768 | |
| 7,100.0 | 6,867.4 | 7,002.0 | 6,757.7 | 29.0 | 28.1 | 24.16 | 2,961.0 | -4,772.4 | 5,517.7 | 5,472.8 | 44.90 | 122.889 | |
| 7,150.0 | 6,902.2 | 7,036.0 | 6,791.6 | 28.9 | 28.1 | 25.85 | 2,961.9 | -4,772.5 | 5,484.0 | 5,440.9 | 43.11 | 127.206 | |
| 7,200.0 | 6,934.4 | 7,056.1 | 6,811.8 | 28.7 | 28.2 | 27.82 | 2,962.5 | -4,772.6 | 5,448.2 | 5,406.9 | 41.37 | 131.708 | |
| 7,250.0 | 6,963.8 | 7,074.6 | 6,830.3 | 28.6 | 28.2 | 30.19 | 2,963.1 | -4,772.7 | 5,410.4 | 5,370.6 | 39.77 | 136.037 | |
| 7,300.0 | 6,990.4 | 7,095.0 | 6,850.6 | 28.5 | 28.2 | 33.08 | 2,963.8 | -4,772.9 | 5,370.8 | 5,332.3 | 38.44 | 139.701 | |
| 7,350.0 | 7,013.9 | 7,117.6 | 6,873.2 | 28.4 | 28.3 | 36.66 | 2,964.6 | -4,773.1 | 5,329.5 | 5,292.0 | 37.51 | 142.067 | |
| 7,400.0 | 7,034.4 | 7,143.2 | 6,898.8 | 28.2 | 28.3 | 41.13 | 2,965.6 | -4,773.3 | 5,286.7 | 5,249.6 | 37.11 | 142.462 | |
| 7,450.0 | 7,051.5 | 7,164.8 | 6,920.3 | 28.1 | 28.3 | 46.62 | 2,966.4 | -4,773.4 | 5,242.7 | 5,205.4 | 37.29 | 140.588 | |
| 7,500.0 | 7,065.4 | 7,182.1 | 6,937.7 | 28.0 | 28.4 | 53.34 | 2,967.0 | -4,773.5 | 5,197.6 | 5,159.6 | 38.03 | 136.658 | |
| 7,550.0 | 7,075.9 | 7,196.1 | 6,951.7 | 27.9 | 28.4 | 61.47 | 2,967.6 | -4,773.6 | 5,151.7 | 5,112.6 | 39.14 | 131.623 | |
| 7,600.0 | 7,082.9 | 7,206.2 | 6,961.7 | 27.8 | 28.4 | 70.98 | 2,968.0 | -4,773.6 | 5,105.2 | 5,065.0 | 40.19 | 127.025 | |
| 7,650.0 | 7,086.5 | 7,211.4 | 6,966.9 | 27.7 | 28.4 | 81.53 | 2,968.2 | -4,773.6 | 5,058.4 | 5,017.7 | 40.65 | 124.427 | |
| 7,677.7 | 7,087.0 | 7,212.1 | 6,967.7 | 27.6 | 28.4 | 87.58 | 2,968.2 | -4,773.6 | 5,032.4 | 4,991.9 | 40.51 | 124.228 | |
| 7,700.0 | 7,087.0 | 7,212.2 | 6,967.7 | 27.6 | 28.4 | 87.59 | 2,968.2 | -4,773.6 | 5,011.4 | 4,970.6 | 40.82 | 122.771 | |
| 7,800.0 | 7,086.8 | 7,212.3 | 6,967.8 | 27.5 | 28.4 | 87.59 | 2,968.2 | -4,773.6 | 4,917.7 | 4,875.3 | 42.35 | 116.114 | |
| 7,900.0 | 7,086.6 | 7,212.4 | 6,968.0 | 27.9 | 28.4 | 87.60 | 2,968.2 | -4,773.6 | 4,824.1 | 4,780.1 | 44.09 | 109.415 | |
| 8,000.0 | 7,086.4 | 7,212.6 | 6,968.1 | 29.5 | 28.4 | 87.60 | 2,968.2 | -4,773.6 | 4,730.9 | 4,684.9 | 46.00 | 102.853 | |
| 8,100.0 | 7,086.2 | 7,212.7 | 6,968.2 | 31.5 | 28.4 | 87.60 | 2,968.2 | -4,773.6 | 4,637.9 | 4,589.9 | 48.04 | 96.542 | |
| 8,200.0 | 7,086.0 | 7,212.8 | 6,968.3 | 33.7 | 28.4 | 87.61 | 2,968.2 | -4,773.6 | 4,545.3 | 4,495.1 | 50.20 | 90.550 | |
| 8,300.0 | 7,085.8 | 7,212.9 | 6,968.5 | 36.0 | 28.4 | 87.61 | 2,968.2 | -4,773.6 | 4,452.9 | 4,400.5 | 52.44 | 84.909 | |
| 8,400.0 | 7,085.6 | 7,213.0 | 6,968.6 | 38.3 | 28.4 | 87.62 | 2,968.2 | -4,773.6 | 4,360.9 | 4,306.1 | 54.77 | 79.628 | |
| 8,500.0 | 7,085.4 | 7,213.1 | 6,968.7 | 40.7 | 28.4 | 87.62 | 2,968.2 | -4,773.6 | 4,269.3 | 4,212.1 | 57.15 | 74.703 | |
| 8,600.0 | 7,085.2 | 7,213.3 | 6,968.8 | 43.1 | 28.4 | 87.62 | 2,968.2 | -4,773.6 | 4,178.0 | 4,118.4 | 59.59 | 70.117 | |
| 8,700.0 | 7,085.0 | 7,213.4 | 6,968.9 | 45.6 | 28.4 | 87.63 | 2,968.2 | -4,773.6 | 4,087.1 | 4,025.1 | 62.06 | 65.852 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20MD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 545-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.0 | 7,084.8 | 7,213.5 | 6,969.0 | 48.1 | 28.4 | 87.63 | 2,968.2 | -4,773.6 | 3,996.7 | 3,932.1 | 64.58 | 61.887 | |
| 8,900.0 | 7,084.6 | 7,213.6 | 6,969.1 | 50.7 | 28.4 | 87.64 | 2,968.2 | -4,773.6 | 3,906.7 | 3,839.6 | 67.13 | 58.199 | |
| 9,000.0 | 7,084.4 | 7,213.7 | 6,969.2 | 53.2 | 28.4 | 87.64 | 2,968.3 | -4,773.6 | 3,817.3 | 3,747.6 | 69.70 | 54.768 | |
| 9,100.0 | 7,084.2 | 7,213.8 | 6,969.3 | 55.8 | 28.4 | 87.64 | 2,968.3 | -4,773.6 | 3,728.4 | 3,656.1 | 72.30 | 51.571 | |
| 9,200.0 | 7,084.0 | 7,213.9 | 6,969.4 | 58.4 | 28.4 | 87.65 | 2,968.3 | -4,773.6 | 3,640.0 | 3,565.1 | 74.91 | 48.591 | |
| 9,300.0 | 7,083.8 | 7,214.0 | 6,969.5 | 61.1 | 28.4 | 87.65 | 2,968.3 | -4,773.6 | 3,552.3 | 3,474.7 | 77.54 | 45.810 | |
| 9,400.0 | 7,083.7 | 7,214.1 | 6,969.6 | 63.7 | 28.4 | 87.65 | 2,968.3 | -4,773.6 | 3,465.2 | 3,385.0 | 80.19 | 43.212 | |
| 9,500.0 | 7,083.5 | 7,214.2 | 6,969.7 | 66.3 | 28.4 | 87.66 | 2,968.3 | -4,773.6 | 3,378.9 | 3,296.0 | 82.85 | 40.782 | |
| 9,600.0 | 7,083.3 | 7,214.3 | 6,969.8 | 69.0 | 28.4 | 87.66 | 2,968.3 | -4,773.6 | 3,293.3 | 3,207.8 | 85.52 | 38.507 | |
| 9,700.0 | 7,083.1 | 7,214.3 | 6,969.9 | 71.7 | 28.4 | 87.66 | 2,968.3 | -4,773.6 | 3,208.6 | 3,120.4 | 88.21 | 36.375 | |
| 9,800.0 | 7,082.9 | 7,214.4 | 6,970.0 | 74.4 | 28.4 | 87.67 | 2,968.3 | -4,773.6 | 3,124.7 | 3,033.8 | 90.90 | 34.376 | |
| 9,900.0 | 7,082.7 | 7,214.5 | 6,970.0 | 77.1 | 28.4 | 87.67 | 2,968.3 | -4,773.6 | 3,041.9 | 2,948.3 | 93.60 | 32.499 | |
| 10,000.0 | 7,082.5 | 7,214.6 | 6,970.1 | 79.7 | 28.4 | 87.67 | 2,968.3 | -4,773.6 | 2,960.1 | 2,863.7 | 96.31 | 30.736 | |
| 10,100.0 | 7,082.3 | 7,214.7 | 6,970.2 | 82.5 | 28.4 | 87.67 | 2,968.3 | -4,773.6 | 2,879.4 | 2,780.4 | 99.02 | 29.079 | |
| 10,200.0 | 7,082.1 | 7,214.8 | 6,970.3 | 85.2 | 28.4 | 87.68 | 2,968.3 | -4,773.6 | 2,800.0 | 2,698.3 | 101.74 | 27.521 | |
| 10,300.0 | 7,081.9 | 7,214.8 | 6,970.4 | 87.9 | 28.4 | 87.68 | 2,968.3 | -4,773.6 | 2,721.9 | 2,617.5 | 104.47 | 26.055 | |
| 10,400.0 | 7,081.7 | 7,214.9 | 6,970.4 | 90.6 | 28.4 | 87.68 | 2,968.3 | -4,773.6 | 2,645.4 | 2,538.2 | 107.20 | 24.677 | |
| 10,500.0 | 7,081.5 | 7,215.0 | 6,970.5 | 93.3 | 28.4 | 87.69 | 2,968.3 | -4,773.6 | 2,570.4 | 2,460.5 | 109.93 | 23.381 | |
| 10,600.0 | 7,081.3 | 7,215.1 | 6,970.6 | 96.1 | 28.4 | 87.69 | 2,968.3 | -4,773.6 | 2,497.2 | 2,384.5 | 112.67 | 22.163 | |
| 10,700.0 | 7,081.1 | 7,215.1 | 6,970.7 | 98.8 | 28.4 | 87.69 | 2,968.3 | -4,773.6 | 2,425.9 | 2,310.5 | 115.42 | 21.019 | |
| 10,800.0 | 7,080.9 | 7,215.2 | 6,970.7 | 101.5 | 28.4 | 87.69 | 2,968.3 | -4,773.6 | 2,356.7 | 2,238.5 | 118.16 | 19.945 | |
| 10,900.0 | 7,080.7 | 7,215.3 | 6,970.8 | 104.3 | 28.4 | 87.70 | 2,968.3 | -4,773.6 | 2,289.8 | 2,168.9 | 120.91 | 18.937 | |
| 11,000.0 | 7,080.5 | 7,215.3 | 6,970.9 | 107.0 | 28.4 | 87.70 | 2,968.3 | -4,773.6 | 2,225.3 | 2,101.7 | 123.67 | 17.995 | |
| 11,100.0 | 7,080.3 | 7,215.4 | 6,970.9 | 109.8 | 28.4 | 87.70 | 2,968.3 | -4,773.6 | 2,163.6 | 2,037.2 | 126.42 | 17.114 | |
| 11,200.0 | 7,080.1 | 7,215.5 | 6,971.0 | 112.5 | 28.4 | 87.70 | 2,968.3 | -4,773.6 | 2,104.8 | 1,975.6 | 129.18 | 16.294 | |
| 11,300.0 | 7,079.9 | 7,215.5 | 6,971.1 | 115.3 | 28.4 | 87.70 | 2,968.3 | -4,773.6 | 2,049.2 | 1,917.3 | 131.94 | 15.531 | |
| 11,400.0 | 7,079.7 | 7,215.6 | 6,971.1 | 118.0 | 28.4 | 87.71 | 2,968.3 | -4,773.6 | 1,997.1 | 1,862.4 | 134.70 | 14.826 | |
| 11,500.0 | 7,079.5 | 7,215.7 | 6,971.2 | 120.8 | 28.4 | 87.71 | 2,968.3 | -4,773.6 | 1,948.7 | 1,811.2 | 137.47 | 14.175 | |
| 11,600.0 | 7,079.3 | 7,215.7 | 6,971.3 | 123.6 | 28.4 | 87.71 | 2,968.3 | -4,773.6 | 1,904.3 | 1,764.0 | 140.24 | 13.579 | |
| 11,700.0 | 7,079.1 | 7,215.8 | 6,971.3 | 126.3 | 28.4 | 87.71 | 2,968.3 | -4,773.6 | 1,864.2 | 1,721.2 | 143.00 | 13.036 | |
| 11,800.0 | 7,078.9 | 7,215.9 | 6,971.4 | 129.1 | 28.4 | 87.72 | 2,968.3 | -4,773.6 | 1,828.7 | 1,683.0 | 145.77 | 12.545 | |
| 11,900.0 | 7,078.7 | 7,215.9 | 6,971.4 | 131.9 | 28.4 | 87.72 | 2,968.3 | -4,773.6 | 1,798.2 | 1,649.6 | 148.55 | 12.105 | |
| 12,000.0 | 7,078.5 | 7,216.0 | 6,971.5 | 134.6 | 28.4 | 87.72 | 2,968.3 | -4,773.6 | 1,772.7 | 1,621.4 | 151.32 | 11.715 | |
| 12,100.0 | 7,078.3 | 7,216.0 | 6,971.6 | 137.4 | 28.4 | 87.72 | 2,968.3 | -4,773.6 | 1,752.5 | 1,598.4 | 154.09 | 11.373 | |
| 12,200.0 | 7,078.1 | 7,216.1 | 6,971.6 | 140.2 | 28.4 | 87.72 | 2,968.3 | -4,773.6 | 1,737.9 | 1,581.1 | 156.87 | 11.079 | |
| 12,300.0 | 7,077.9 | 7,216.1 | 6,971.7 | 142.9 | 28.4 | 87.72 | 2,968.4 | -4,773.6 | 1,729.0 | 1,569.4 | 159.65 | 10.830 | |
| 12,400.0 | 7,077.7 | 7,216.2 | 6,971.7 | 145.7 | 28.4 | 87.73 | 2,968.4 | -4,773.6 | 1,725.8 | 1,563.4 | 162.42 | 10.625 | |
| 12,404.9 | 7,077.7 | 7,216.2 | 6,971.7 | 145.9 | 28.4 | 87.73 | 2,968.4 | -4,773.6 | 1,725.8 | 1,563.3 | 162.56 | 10.616 | CC |
| 12,500.0 | 7,077.5 | 7,216.2 | 6,971.8 | 148.5 | 28.4 | 87.73 | 2,968.4 | -4,773.6 | 1,728.4 | 1,563.2 | 165.20 | 10.462 | ES |
| 12,600.0 | 7,077.3 | 7,216.3 | 6,971.8 | 151.3 | 28.4 | 87.73 | 2,968.4 | -4,773.6 | 1,736.8 | 1,568.8 | 167.98 | 10.339 | |
| 12,700.0 | 7,077.1 | 7,216.3 | 6,971.9 | 154.0 | 28.4 | 87.73 | 2,968.4 | -4,773.6 | 1,750.9 | 1,580.1 | 170.77 | 10.253 | |
| 12,800.0 | 7,076.9 | 7,216.4 | 6,971.9 | 156.8 | 28.4 | 87.73 | 2,968.4 | -4,773.6 | 1,770.5 | 1,596.9 | 173.55 | 10.202 | |
| 12,900.0 | 7,076.7 | 7,216.4 | 6,972.0 | 159.6 | 28.4 | 87.73 | 2,968.4 | -4,773.6 | 1,795.4 | 1,619.1 | 176.33 | 10.182 | SF |
| 13,000.0 | 7,076.5 | 7,216.5 | 6,972.0 | 162.4 | 28.4 | 87.74 | 2,968.4 | -4,773.6 | 1,825.5 | 1,646.4 | 179.12 | 10.192 | |
| 13,100.0 | 7,076.3 | 7,216.5 | 6,972.1 | 165.2 | 28.4 | 87.74 | 2,968.4 | -4,773.6 | 1,860.5 | 1,678.6 | 181.90 | 10.228 | |
| 13,200.0 | 7,076.1 | 7,216.6 | 6,972.1 | 168.0 | 28.4 | 87.74 | 2,968.4 | -4,773.6 | 1,900.2 | 1,715.5 | 184.69 | 10.289 | |
| 13,300.0 | 7,075.9 | 7,216.6 | 6,972.2 | 170.7 | 28.4 | 87.74 | 2,968.4 | -4,773.6 | 1,944.1 | 1,756.7 | 187.47 | 10.370 | |
| 13,400.0 | 7,075.7 | 7,216.7 | 6,972.2 | 173.5 | 28.4 | 87.74 | 2,968.4 | -4,773.6 | 1,992.2 | 1,801.9 | 190.26 | 10.471 | |
| 13,500.0 | 7,075.5 | 7,216.7 | 6,972.3 | 176.3 | 28.4 | 87.74 | 2,968.4 | -4,773.6 | 2,043.9 | 1,850.9 | 193.05 | 10.588 | |
| 13,600.0 | 7,075.3 | 7,216.8 | 6,972.3 | 179.1 | 28.4 | 87.75 | 2,968.4 | -4,773.6 | 2,099.2 | 1,903.4 | 195.83 | 10.719 | |
| 13,700.0 | 7,075.1 | 7,216.8 | 6,972.3 | 181.9 | 28.4 | 87.75 | 2,968.4 | -4,773.6 | 2,157.7 | 1,959.1 | 198.62 | 10.863 | |
| 13,800.0 | 7,074.9 | 7,216.8 | 6,972.4 | 184.7 | 28.4 | 87.75 | 2,968.4 | -4,773.6 | 2,219.2 | 2,017.8 | 201.41 | 11.018 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20MD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 545-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.0 | 7,074.7 | 7,216.9 | 6,972.4 | 187.5 | 28.4 | 87.75 | 2,968.4 | -4,773.6 | 2,283.4 | 2,079.2 | 204.20 | 11.182 | |
| 14,000.0 | 7,074.5 | 7,216.9 | 6,972.5 | 190.2 | 28.4 | 87.75 | 2,968.4 | -4,773.6 | 2,350.1 | 2,143.1 | 206.99 | 11.353 | |
| 14,100.0 | 7,074.2 | 7,217.0 | 6,972.5 | 193.0 | 28.4 | 87.75 | 2,968.4 | -4,773.6 | 2,419.1 | 2,209.3 | 209.78 | 11.531 | |
| 14,200.0 | 7,074.0 | 7,217.0 | 6,972.5 | 195.8 | 28.4 | 87.75 | 2,968.4 | -4,773.6 | 2,490.2 | 2,277.6 | 212.57 | 11.714 | |
| 14,221.4 | 7,074.0 | 7,217.0 | 6,972.6 | 196.4 | 28.4 | 87.75 | 2,968.4 | -4,773.6 | 2,505.6 | 2,292.4 | 213.17 | 11.754 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20ND - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 545-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -72.22 | 1,579.0 | -4,924.1 | 5,171.3 | | | | |
| 100.0 | 100.0 | 59.0 | 59.0 | 0.1 | 0.1 | -72.22 | 1,579.0 | -4,924.2 | 5,171.1 | 5,171.0 | 0.15 | N/A | |
| 200.0 | 200.0 | 153.3 | 153.3 | 0.3 | 0.1 | -72.22 | 1,579.0 | -4,924.3 | 5,171.3 | 5,170.8 | 0.46 | N/A | |
| 300.0 | 300.0 | 247.6 | 247.6 | 0.5 | 0.2 | -72.22 | 1,579.0 | -4,924.5 | 5,171.5 | 5,170.7 | 0.77 | 6,743.062 | |
| 400.0 | 400.0 | 341.9 | 341.9 | 0.8 | 0.3 | -72.22 | 1,578.9 | -4,924.9 | 5,171.8 | 5,170.8 | 1.08 | 4,808.402 | |
| 500.0 | 500.0 | 436.2 | 436.2 | 1.0 | 0.4 | -100.57 | 1,578.9 | -4,925.4 | 5,172.6 | 5,171.2 | 1.38 | 3,739.751 | |
| 600.0 | 599.8 | 545.0 | 545.0 | 1.2 | 0.5 | -100.61 | 1,578.8 | -4,926.0 | 5,174.2 | 5,172.5 | 1.71 | 3,031.496 | |
| 700.0 | 699.5 | 612.6 | 612.6 | 1.5 | 0.6 | -100.63 | 1,578.7 | -4,926.6 | 5,176.5 | 5,174.4 | 2.10 | 2,465.330 | |
| 800.0 | 798.7 | 707.0 | 707.0 | 1.7 | 0.8 | -100.70 | 1,578.5 | -4,927.7 | 5,179.9 | 5,177.3 | 2.57 | 2,016.446 | |
| 900.0 | 897.5 | 802.7 | 802.6 | 2.0 | 1.0 | -100.79 | 1,578.2 | -4,928.9 | 5,183.9 | 5,180.8 | 3.07 | 1,686.417 | |
| 1,000.0 | 995.6 | 901.6 | 901.5 | 2.4 | 1.3 | -100.91 | 1,577.7 | -4,930.2 | 5,188.7 | 5,185.0 | 3.63 | 1,428.589 | |
| 1,100.0 | 1,093.1 | 1,002.5 | 1,002.4 | 2.8 | 1.5 | -101.06 | 1,577.2 | -4,931.5 | 5,194.2 | 5,189.9 | 4.23 | 1,228.006 | |
| 1,164.2 | 1,155.2 | 1,057.0 | 1,056.9 | 3.1 | 1.6 | -101.13 | 1,577.1 | -4,932.1 | 5,198.1 | 5,193.5 | 4.62 | 1,124.743 | |
| 1,200.0 | 1,189.7 | 1,086.2 | 1,086.2 | 3.2 | 1.6 | -101.22 | 1,577.0 | -4,932.5 | 5,200.4 | 5,195.6 | 4.85 | 1,073.203 | |
| 1,300.0 | 1,286.2 | 1,307.7 | 1,307.6 | 3.7 | 2.1 | -101.87 | 1,575.6 | -4,933.6 | 5,206.5 | 5,200.7 | 5.77 | 902.201 | |
| 1,400.0 | 1,382.6 | 1,435.8 | 1,435.6 | 4.2 | 2.3 | -102.20 | 1,577.4 | -4,930.8 | 5,210.3 | 5,203.8 | 6.51 | 799.821 | |
| 1,500.0 | 1,479.1 | 1,507.2 | 1,507.0 | 4.7 | 2.5 | -102.39 | 1,578.6 | -4,929.4 | 5,214.6 | 5,207.4 | 7.16 | 728.090 | |
| 1,600.0 | 1,575.6 | 1,574.0 | 1,573.8 | 5.3 | 2.6 | -102.56 | 1,579.8 | -4,928.3 | 5,219.4 | 5,211.6 | 7.81 | 668.314 | |
| 1,700.0 | 1,672.0 | 1,667.0 | 1,666.8 | 5.8 | 2.8 | -102.81 | 1,581.4 | -4,927.2 | 5,224.7 | 5,216.2 | 8.52 | 613.316 | |
| 1,800.0 | 1,768.5 | 1,745.2 | 1,745.0 | 6.3 | 3.0 | -103.01 | 1,582.9 | -4,926.5 | 5,230.4 | 5,221.2 | 9.20 | 568.730 | |
| 1,900.0 | 1,864.9 | 2,603.0 | 2,598.3 | 6.8 | 4.9 | -105.04 | 1,601.3 | -4,855.3 | 5,229.6 | 5,218.0 | 11.51 | 454.319 | |
| 2,000.0 | 1,961.4 | 2,697.0 | 2,691.0 | 7.4 | 5.2 | -105.23 | 1,604.4 | -4,840.2 | 5,221.4 | 5,209.2 | 12.24 | 426.642 | |
| 2,100.0 | 2,057.9 | 2,812.5 | 2,805.0 | 7.9 | 5.5 | -105.47 | 1,607.9 | -4,822.0 | 5,213.7 | 5,200.7 | 13.02 | 400.499 | |
| 2,200.0 | 2,154.3 | 2,901.9 | 2,893.2 | 8.4 | 5.8 | -105.65 | 1,610.9 | -4,807.4 | 5,205.4 | 5,191.7 | 13.74 | 378.785 | |
| 2,300.0 | 2,250.8 | 2,977.0 | 2,967.3 | 9.0 | 6.0 | -105.81 | 1,613.2 | -4,795.5 | 5,197.6 | 5,183.2 | 14.43 | 360.091 | |
| 2,400.0 | 2,347.3 | 3,022.1 | 3,011.8 | 9.5 | 6.2 | -105.91 | 1,614.3 | -4,788.8 | 5,190.6 | 5,175.5 | 15.05 | 344.791 | |
| 2,500.0 | 2,443.7 | 3,071.0 | 3,060.3 | 10.0 | 6.3 | -106.02 | 1,615.1 | -4,782.0 | 5,184.5 | 5,168.8 | 15.68 | 330.571 | |
| 2,600.0 | 2,540.2 | 3,130.3 | 3,119.1 | 10.6 | 6.5 | -106.16 | 1,615.8 | -4,774.4 | 5,179.4 | 5,163.0 | 16.33 | 317.093 | |
| 2,700.0 | 2,636.7 | 3,165.0 | 3,153.5 | 11.1 | 6.6 | -106.25 | 1,616.1 | -4,770.1 | 5,175.1 | 5,158.2 | 16.93 | 305.679 | |
| 2,800.0 | 2,733.1 | 3,232.1 | 3,220.2 | 11.6 | 6.8 | -106.41 | 1,617.0 | -4,762.5 | 5,171.8 | 5,154.2 | 17.60 | 293.902 | |
| 2,900.0 | 2,829.6 | 3,258.0 | 3,245.9 | 12.2 | 6.8 | -106.47 | 1,617.4 | -4,759.8 | 5,169.6 | 5,151.4 | 18.17 | 284.453 | |
| 3,000.0 | 2,926.0 | 3,309.2 | 3,296.9 | 12.7 | 7.0 | -106.59 | 1,618.4 | -4,754.9 | 5,168.5 | 5,149.7 | 18.80 | 274.847 | |
| 3,030.4 | 2,955.4 | 3,319.9 | 3,307.5 | 12.9 | 7.0 | -106.62 | 1,618.6 | -4,754.1 | 5,168.4 | 5,149.4 | 18.99 | 272.222 | |
| 3,100.0 | 3,022.5 | 3,352.0 | 3,339.5 | 13.2 | 7.1 | -106.69 | 1,619.2 | -4,751.6 | 5,168.7 | 5,149.3 | 19.42 | 266.189 | |
| 3,200.0 | 3,119.0 | 3,382.9 | 3,370.3 | 13.8 | 7.1 | -106.77 | 1,619.9 | -4,749.6 | 5,170.2 | 5,150.2 | 20.00 | 258.471 | |
| 3,300.0 | 3,215.4 | 3,446.0 | 3,433.4 | 14.3 | 7.3 | -106.93 | 1,621.0 | -4,746.3 | 5,173.0 | 5,152.4 | 20.66 | 250.438 | |
| 3,400.0 | 3,311.9 | 3,446.0 | 3,433.4 | 14.9 | 7.3 | -106.93 | 1,621.0 | -4,746.3 | 5,176.8 | 5,155.7 | 21.18 | 244.459 | |
| 3,500.0 | 3,408.4 | 3,490.0 | 3,477.4 | 15.4 | 7.4 | -107.04 | 1,621.5 | -4,744.9 | 5,182.0 | 5,160.2 | 21.78 | 237.876 | |
| 3,600.0 | 3,504.8 | 3,540.0 | 3,527.3 | 15.9 | 7.5 | -107.18 | 1,621.4 | -4,744.4 | 5,188.6 | 5,166.2 | 22.40 | 231.604 | |
| 3,700.0 | 3,601.3 | 3,571.8 | 3,559.1 | 16.5 | 7.5 | -107.27 | 1,621.2 | -4,744.4 | 5,196.3 | 5,173.3 | 22.98 | 226.093 | |
| 3,800.0 | 3,697.7 | 3,656.5 | 3,643.8 | 17.0 | 7.7 | -107.51 | 1,620.7 | -4,744.7 | 5,204.7 | 5,181.0 | 23.66 | 219.973 | |
| 3,900.0 | 3,794.2 | 3,748.1 | 3,735.4 | 17.5 | 7.9 | -107.77 | 1,620.5 | -4,745.1 | 5,213.3 | 5,188.9 | 24.35 | 214.119 | |
| 4,000.0 | 3,890.7 | 3,832.7 | 3,820.0 | 18.1 | 8.0 | -108.01 | 1,620.0 | -4,745.7 | 5,222.2 | 5,197.2 | 25.02 | 208.725 | |
| 4,100.0 | 3,987.1 | 3,942.1 | 3,929.4 | 18.6 | 8.2 | -108.32 | 1,619.4 | -4,746.2 | 5,231.1 | 5,205.4 | 25.73 | 203.282 | |
| 4,200.0 | 4,083.6 | 4,028.9 | 4,016.2 | 19.2 | 8.4 | -108.57 | 1,618.6 | -4,746.8 | 5,240.3 | 5,213.9 | 26.41 | 198.453 | |
| 4,300.0 | 4,180.1 | 4,133.0 | 4,120.3 | 19.7 | 8.6 | -108.87 | 1,616.8 | -4,747.4 | 5,249.4 | 5,222.3 | 27.11 | 193.652 | |
| 4,400.0 | 4,276.5 | 4,194.0 | 4,181.3 | 20.2 | 8.7 | -109.05 | 1,615.8 | -4,748.1 | 5,259.0 | 5,231.3 | 27.73 | 189.634 | |
| 4,500.0 | 4,373.0 | 4,268.0 | 4,255.3 | 20.8 | 8.9 | -109.27 | 1,614.5 | -4,749.2 | 5,269.2 | 5,240.9 | 28.38 | 185.653 | |
| 4,600.0 | 4,469.5 | 4,418.3 | 4,405.6 | 21.3 | 9.1 | -109.71 | 1,611.7 | -4,751.2 | 5,279.4 | 5,250.2 | 29.16 | 181.065 | |
| 4,700.0 | 4,565.9 | 4,511.9 | 4,499.1 | 21.9 | 9.3 | -109.97 | 1,610.5 | -4,751.7 | 5,289.1 | 5,259.3 | 29.83 | 177.285 | |
| 4,800.0 | 4,662.4 | 4,605.5 | 4,592.7 | 22.4 | 9.5 | -110.23 | 1,610.2 | -4,752.5 | 5,299.2 | 5,268.6 | 30.51 | 173.663 | |
| 4,900.0 | 4,758.8 | 4,701.3 | 4,688.5 | 22.9 | 9.7 | -110.49 | 1,610.4 | -4,752.8 | 5,309.1 | 5,277.9 | 31.20 | 170.165 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20ND - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 545-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,000.0 | 4,855.3 | 4,771.8 | 4,759.0 | 23.5 | 9.8 | -110.67 | 1,610.8 | -4,753.5 | 5,319.6 | 5,287.7 | 31.84 | 167.069 | |
| 5,100.0 | 4,951.8 | 4,869.8 | 4,857.0 | 24.0 | 10.0 | -110.93 | 1,611.2 | -4,754.5 | 5,330.3 | 5,297.8 | 32.53 | 163.859 | |
| 5,200.0 | 5,048.2 | 4,958.4 | 4,945.6 | 24.6 | 10.2 | -111.16 | 1,611.4 | -4,755.5 | 5,341.3 | 5,308.1 | 33.20 | 160.876 | |
| 5,300.0 | 5,144.7 | 5,055.4 | 5,042.6 | 25.1 | 10.4 | -111.42 | 1,611.7 | -4,756.6 | 5,352.4 | 5,318.5 | 33.89 | 157.955 | |
| 5,400.0 | 5,241.2 | 5,149.7 | 5,136.9 | 25.6 | 10.5 | -111.67 | 1,611.7 | -4,757.8 | 5,363.6 | 5,329.1 | 34.56 | 155.187 | |
| 5,500.0 | 5,337.6 | 5,238.4 | 5,225.6 | 26.2 | 10.7 | -111.90 | 1,611.7 | -4,759.0 | 5,375.1 | 5,339.9 | 35.23 | 152.573 | |
| 5,600.0 | 5,434.1 | 5,336.7 | 5,323.9 | 26.7 | 10.9 | -112.16 | 1,611.6 | -4,760.3 | 5,386.7 | 5,350.8 | 35.91 | 149.998 | |
| 5,700.0 | 5,530.5 | 5,427.1 | 5,414.2 | 27.3 | 11.1 | -112.40 | 1,611.5 | -4,761.6 | 5,398.4 | 5,361.8 | 36.58 | 147.588 | |
| 5,757.1 | 5,585.6 | 5,472.1 | 5,459.2 | 27.6 | 11.2 | -112.52 | 1,611.4 | -4,762.3 | 5,405.2 | 5,368.3 | 36.95 | 146.299 | |
| 5,800.0 | 5,627.1 | 5,504.0 | 5,491.1 | 27.8 | 11.2 | -112.70 | 1,611.3 | -4,762.8 | 5,410.3 | 5,373.2 | 37.18 | 145.502 | |
| 5,900.0 | 5,724.4 | 5,598.0 | 5,585.1 | 28.2 | 11.4 | -113.13 | 1,610.7 | -4,764.6 | 5,421.5 | 5,383.8 | 37.69 | 143.827 | |
| 6,000.0 | 5,822.4 | 5,836.6 | 5,823.7 | 28.5 | 11.9 | -113.77 | 1,608.7 | -4,765.2 | 5,429.1 | 5,390.7 | 38.42 | 141.293 | |
| 6,100.0 | 5,921.0 | 5,918.5 | 5,905.6 | 28.8 | 12.1 | -114.01 | 1,608.8 | -4,764.7 | 5,435.3 | 5,396.4 | 38.85 | 139.907 | |
| 6,200.0 | 6,020.2 | 6,009.4 | 5,996.5 | 29.0 | 12.3 | -114.21 | 1,608.4 | -4,764.5 | 5,440.2 | 5,401.0 | 39.25 | 138.591 | |
| 6,300.0 | 6,119.7 | 6,101.7 | 6,088.8 | 29.3 | 12.4 | -114.37 | 1,607.7 | -4,764.4 | 5,444.0 | 5,404.4 | 39.62 | 137.392 | |
| 6,400.0 | 6,219.5 | 6,195.1 | 6,182.1 | 29.4 | 12.6 | -114.48 | 1,606.8 | -4,764.3 | 5,446.4 | 5,406.4 | 39.96 | 136.303 | |
| 6,500.0 | 6,319.5 | 6,288.8 | 6,275.9 | 29.5 | 12.8 | -114.53 | 1,606.3 | -4,764.5 | 5,447.5 | 5,407.2 | 40.25 | 135.327 | |
| 6,521.3 | 6,340.8 | 6,313.9 | 6,301.0 | 29.6 | 12.9 | -86.19 | 1,606.2 | -4,764.5 | 5,447.6 | 5,415.0 | 32.58 | 167.200 | |
| 6,551.3 | 6,370.8 | 6,346.0 | 6,333.1 | 29.6 | 12.9 | -86.19 | 1,606.2 | -4,764.5 | 5,447.6 | 5,414.9 | 32.69 | 166.657 | |
| 6,555.3 | 6,374.8 | 6,352.0 | 6,339.1 | 29.6 | 13.0 | 3.81 | 1,606.1 | -4,764.5 | 5,447.5 | 5,407.1 | 40.43 | 134.745 | |
| 6,600.0 | 6,419.5 | 6,391.7 | 6,378.8 | 29.6 | 13.0 | 3.82 | 1,606.1 | -4,764.5 | 5,445.9 | 5,405.5 | 40.41 | 134.778 | |
| 6,650.0 | 6,469.2 | 6,440.0 | 6,427.1 | 29.6 | 13.1 | 3.85 | 1,606.1 | -4,764.6 | 5,440.8 | 5,400.6 | 40.23 | 135.253 | |
| 6,700.0 | 6,518.4 | 6,477.6 | 6,464.7 | 29.6 | 13.2 | 3.90 | 1,606.0 | -4,764.6 | 5,432.4 | 5,392.5 | 39.86 | 136.286 | |
| 6,750.0 | 6,567.0 | 6,518.3 | 6,505.4 | 29.6 | 13.3 | 3.98 | 1,606.0 | -4,764.8 | 5,420.6 | 5,381.2 | 39.34 | 137.799 | |
| 6,800.0 | 6,614.5 | 6,570.9 | 6,558.0 | 29.6 | 13.4 | 4.08 | 1,605.9 | -4,765.0 | 5,405.5 | 5,366.8 | 38.68 | 139.753 | |
| 6,850.0 | 6,660.9 | 6,629.8 | 6,616.9 | 29.5 | 13.5 | 4.21 | 1,605.9 | -4,765.2 | 5,387.0 | 5,349.1 | 37.88 | 142.202 | |
| 6,900.0 | 6,705.9 | 6,702.9 | 6,690.0 | 29.4 | 13.7 | 4.39 | 1,606.0 | -4,765.1 | 5,365.1 | 5,328.2 | 36.97 | 145.109 | |
| 6,950.0 | 6,749.2 | 6,746.6 | 6,733.7 | 29.3 | 13.8 | 4.59 | 1,606.3 | -4,764.8 | 5,340.1 | 5,304.2 | 35.88 | 148.851 | |
| 7,000.0 | 6,790.7 | 6,780.3 | 6,767.4 | 29.2 | 13.8 | 4.84 | 1,606.7 | -4,764.7 | 5,312.1 | 5,277.5 | 34.64 | 153.343 | |
| 7,050.0 | 6,830.2 | 6,814.0 | 6,801.1 | 29.1 | 13.9 | 5.14 | 1,607.1 | -4,764.6 | 5,281.4 | 5,248.1 | 33.31 | 158.554 | |
| 7,100.0 | 6,867.4 | 6,838.5 | 6,825.5 | 29.0 | 13.9 | 5.50 | 1,607.4 | -4,764.6 | 5,248.1 | 5,216.2 | 31.88 | 164.617 | |
| 7,150.0 | 6,902.2 | 6,862.7 | 6,849.8 | 28.9 | 14.0 | 5.94 | 1,607.7 | -4,764.6 | 5,212.3 | 5,181.9 | 30.40 | 171.473 | |
| 7,200.0 | 6,934.4 | 6,885.2 | 6,872.3 | 28.7 | 14.0 | 6.48 | 1,608.0 | -4,764.7 | 5,174.3 | 5,145.4 | 28.89 | 179.111 | |
| 7,250.0 | 6,963.8 | 6,908.0 | 6,895.1 | 28.6 | 14.1 | 7.17 | 1,608.3 | -4,764.8 | 5,134.2 | 5,106.8 | 27.40 | 187.381 | |
| 7,300.0 | 6,990.4 | 6,929.7 | 6,916.8 | 28.5 | 14.1 | 8.05 | 1,608.6 | -4,764.9 | 5,092.1 | 5,066.2 | 25.98 | 195.993 | |
| 7,350.0 | 7,013.9 | 6,951.5 | 6,938.6 | 28.4 | 14.2 | 9.22 | 1,608.9 | -4,765.1 | 5,048.3 | 5,023.6 | 24.71 | 204.308 | |
| 7,400.0 | 7,034.4 | 6,970.5 | 6,957.6 | 28.2 | 14.2 | 10.80 | 1,609.1 | -4,765.2 | 5,003.0 | 4,979.3 | 23.68 | 211.244 | |
| 7,450.0 | 7,051.5 | 6,986.5 | 6,973.6 | 28.1 | 14.3 | 13.07 | 1,609.3 | -4,765.3 | 4,956.3 | 4,933.2 | 23.06 | 214.898 | |
| 7,500.0 | 7,065.4 | 7,001.0 | 6,988.1 | 28.0 | 14.3 | 16.53 | 1,609.5 | -4,765.4 | 4,908.5 | 4,885.4 | 23.13 | 212.248 | |
| 7,550.0 | 7,075.9 | 7,013.1 | 7,000.2 | 27.9 | 14.3 | 22.39 | 1,609.6 | -4,765.5 | 4,859.9 | 4,835.5 | 24.40 | 199.180 | |
| 7,600.0 | 7,082.9 | 7,022.7 | 7,009.7 | 27.8 | 14.3 | 33.84 | 1,609.7 | -4,765.6 | 4,810.6 | 4,782.5 | 28.07 | 171.408 | |
| 7,650.0 | 7,086.5 | 7,027.7 | 7,014.8 | 27.7 | 14.3 | 60.32 | 1,609.8 | -4,765.6 | 4,760.9 | 4,725.4 | 35.50 | 134.095 | |
| 7,677.7 | 7,087.0 | 7,028.6 | 7,015.6 | 27.6 | 14.3 | 86.13 | 1,609.8 | -4,765.6 | 4,733.3 | 4,695.5 | 37.83 | 125.126 | |
| 7,700.0 | 7,087.0 | 7,028.7 | 7,015.8 | 27.6 | 14.3 | 86.15 | 1,609.8 | -4,765.6 | 4,711.1 | 4,672.9 | 38.14 | 123.528 | |
| 7,800.0 | 7,086.8 | 7,029.2 | 7,016.3 | 27.5 | 14.3 | 86.23 | 1,609.8 | -4,765.6 | 4,611.4 | 4,571.7 | 39.67 | 116.251 | |
| 7,900.0 | 7,086.6 | 7,029.8 | 7,016.9 | 27.9 | 14.3 | 86.32 | 1,609.8 | -4,765.6 | 4,511.7 | 4,470.3 | 41.40 | 108.974 | |
| 8,000.0 | 7,086.4 | 7,030.3 | 7,017.4 | 29.5 | 14.3 | 86.41 | 1,609.8 | -4,765.6 | 4,412.0 | 4,368.7 | 43.30 | 101.885 | |
| 8,100.0 | 7,086.2 | 7,030.9 | 7,017.9 | 31.5 | 14.3 | 86.49 | 1,609.8 | -4,765.6 | 4,312.4 | 4,267.0 | 45.34 | 95.105 | |
| 8,200.0 | 7,086.0 | 7,031.4 | 7,018.5 | 33.7 | 14.3 | 86.58 | 1,609.8 | -4,765.6 | 4,212.8 | 4,165.3 | 47.49 | 88.699 | |
| 8,300.0 | 7,085.8 | 7,031.9 | 7,019.0 | 36.0 | 14.4 | 86.66 | 1,609.8 | -4,765.6 | 4,113.1 | 4,063.4 | 49.74 | 82.696 | |
| 8,400.0 | 7,085.6 | 7,032.4 | 7,019.5 | 38.3 | 14.4 | 86.74 | 1,609.8 | -4,765.6 | 4,013.5 | 3,961.5 | 52.06 | 77.100 | |
| 8,500.0 | 7,085.4 | 7,032.9 | 7,020.0 | 40.7 | 14.4 | 86.82 | 1,609.8 | -4,765.6 | 3,914.0 | 3,859.5 | 54.44 | 71.898 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20ND - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 545-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,600.0 | 7,085.2 | 7,033.4 | 7,020.5 | 43.1 | 14.4 | 86.90 | 1,609.9 | -4,765.6 | 3,814.4 | 3,757.6 | 56.87 | 67.072 | |
| 8,700.0 | 7,085.0 | 7,033.9 | 7,021.0 | 45.6 | 14.4 | 86.98 | 1,609.9 | -4,765.6 | 3,714.9 | 3,655.6 | 59.35 | 62.596 | |
| 8,800.0 | 7,084.8 | 7,034.4 | 7,021.5 | 48.1 | 14.4 | 87.06 | 1,609.9 | -4,765.6 | 3,615.4 | 3,553.5 | 61.86 | 58.444 | |
| 8,900.0 | 7,084.6 | 7,034.9 | 7,022.0 | 50.7 | 14.4 | 87.13 | 1,609.9 | -4,765.6 | 3,515.9 | 3,451.5 | 64.41 | 54.590 | |
| 9,000.0 | 7,084.4 | 7,035.4 | 7,022.5 | 53.2 | 14.4 | 87.21 | 1,609.9 | -4,765.6 | 3,416.5 | 3,349.5 | 66.98 | 51.010 | |
| 9,100.0 | 7,084.2 | 7,035.9 | 7,022.9 | 55.8 | 14.4 | 87.28 | 1,609.9 | -4,765.6 | 3,317.1 | 3,247.5 | 69.57 | 47.678 | |
| 9,200.0 | 7,084.0 | 7,036.3 | 7,023.4 | 58.4 | 14.4 | 87.36 | 1,609.9 | -4,765.6 | 3,217.7 | 3,145.5 | 72.19 | 44.575 | |
| 9,300.0 | 7,083.8 | 7,036.8 | 7,023.9 | 61.1 | 14.4 | 87.43 | 1,609.9 | -4,765.6 | 3,118.4 | 3,043.6 | 74.82 | 41.679 | |
| 9,400.0 | 7,083.7 | 7,037.3 | 7,024.3 | 63.7 | 14.4 | 87.50 | 1,609.9 | -4,765.6 | 3,019.1 | 2,941.6 | 77.47 | 38.973 | |
| 9,500.0 | 7,083.5 | 7,037.7 | 7,024.8 | 66.3 | 14.4 | 87.57 | 1,609.9 | -4,765.6 | 2,919.9 | 2,839.7 | 80.13 | 36.440 | |
| 9,600.0 | 7,083.3 | 7,038.2 | 7,025.2 | 69.0 | 14.4 | 87.64 | 1,609.9 | -4,765.7 | 2,820.7 | 2,737.9 | 82.80 | 34.066 | |
| 9,700.0 | 7,083.1 | 7,038.6 | 7,025.7 | 71.7 | 14.4 | 87.71 | 1,609.9 | -4,765.7 | 2,721.6 | 2,636.1 | 85.48 | 31.837 | |
| 9,800.0 | 7,082.9 | 7,039.0 | 7,026.1 | 74.4 | 14.4 | 87.78 | 1,609.9 | -4,765.7 | 2,622.5 | 2,534.3 | 88.18 | 29.742 | |
| 9,900.0 | 7,082.7 | 7,039.5 | 7,026.5 | 77.1 | 14.4 | 87.85 | 1,609.9 | -4,765.7 | 2,523.5 | 2,432.7 | 90.88 | 27.769 | |
| 10,000.0 | 7,082.5 | 7,039.9 | 7,027.0 | 79.7 | 14.4 | 87.92 | 1,609.9 | -4,765.7 | 2,424.6 | 2,331.0 | 93.59 | 25.908 | |
| 10,100.0 | 7,082.3 | 7,040.3 | 7,027.4 | 82.5 | 14.4 | 87.98 | 1,609.9 | -4,765.7 | 2,325.8 | 2,229.5 | 96.30 | 24.152 | |
| 10,200.0 | 7,082.1 | 7,040.7 | 7,027.8 | 85.2 | 14.4 | 88.05 | 1,609.9 | -4,765.7 | 2,227.1 | 2,128.1 | 99.02 | 22.491 | |
| 10,300.0 | 7,081.9 | 7,041.1 | 7,028.2 | 87.9 | 14.4 | 88.12 | 1,609.9 | -4,765.7 | 2,128.6 | 2,026.8 | 101.75 | 20.920 | |
| 10,400.0 | 7,081.7 | 7,041.5 | 7,028.6 | 90.6 | 14.4 | 88.18 | 1,609.9 | -4,765.7 | 2,030.1 | 1,925.6 | 104.48 | 19.430 | |
| 10,500.0 | 7,081.5 | 7,041.9 | 7,029.0 | 93.3 | 14.4 | 88.24 | 1,610.0 | -4,765.7 | 1,931.8 | 1,824.6 | 107.22 | 18.018 | |
| 10,600.0 | 7,081.3 | 7,042.3 | 7,029.4 | 96.1 | 14.4 | 88.31 | 1,610.0 | -4,765.7 | 1,833.8 | 1,723.8 | 109.96 | 16.677 | |
| 10,700.0 | 7,081.1 | 7,042.7 | 7,029.8 | 98.8 | 14.4 | 88.37 | 1,610.0 | -4,765.7 | 1,735.9 | 1,623.2 | 112.70 | 15.402 | |
| 10,800.0 | 7,080.9 | 7,043.1 | 7,030.2 | 101.5 | 14.4 | 88.43 | 1,610.0 | -4,765.7 | 1,638.3 | 1,522.8 | 115.45 | 14.190 | |
| 10,900.0 | 7,080.7 | 7,043.5 | 7,030.6 | 104.3 | 14.4 | 88.49 | 1,610.0 | -4,765.7 | 1,541.0 | 1,422.8 | 118.20 | 13.037 | |
| 11,000.0 | 7,080.5 | 7,043.9 | 7,031.0 | 107.0 | 14.4 | 88.55 | 1,610.0 | -4,765.7 | 1,444.0 | 1,323.1 | 120.96 | 11.938 | |
| 11,100.0 | 7,080.3 | 7,044.3 | 7,031.3 | 109.8 | 14.4 | 88.61 | 1,610.0 | -4,765.7 | 1,347.5 | 1,223.8 | 123.72 | 10.892 | |
| 11,200.0 | 7,080.1 | 7,044.6 | 7,031.7 | 112.5 | 14.4 | 88.67 | 1,610.0 | -4,765.7 | 1,251.6 | 1,125.1 | 126.48 | 9.896 | |
| 11,300.0 | 7,079.9 | 7,045.0 | 7,032.1 | 115.3 | 14.4 | 88.73 | 1,610.0 | -4,765.7 | 1,156.3 | 1,027.1 | 129.24 | 8.947 | |
| 11,400.0 | 7,079.7 | 7,045.4 | 7,032.4 | 118.0 | 14.4 | 88.79 | 1,610.0 | -4,765.7 | 1,062.0 | 930.0 | 132.00 | 8.045 | |
| 11,500.0 | 7,079.5 | 7,045.7 | 7,032.8 | 120.8 | 14.4 | 88.84 | 1,610.0 | -4,765.7 | 968.7 | 833.9 | 134.77 | 7.188 | |
| 11,600.0 | 7,079.3 | 7,046.1 | 7,033.2 | 123.6 | 14.4 | 88.90 | 1,610.0 | -4,765.7 | 876.9 | 739.4 | 137.54 | 6.376 | |
| 11,700.0 | 7,079.1 | 7,046.5 | 7,033.5 | 126.3 | 14.4 | 88.95 | 1,610.0 | -4,765.7 | 787.2 | 646.9 | 140.31 | 5.610 | |
| 11,800.0 | 7,078.9 | 7,046.8 | 7,033.9 | 129.1 | 14.4 | 89.01 | 1,610.0 | -4,765.7 | 700.2 | 557.1 | 143.08 | 4.894 | |
| 11,900.0 | 7,078.7 | 7,047.2 | 7,034.2 | 131.9 | 14.4 | 89.06 | 1,610.0 | -4,765.7 | 617.2 | 471.3 | 145.85 | 4.232 | |
| 12,000.0 | 7,078.5 | 7,047.5 | 7,034.6 | 134.6 | 14.4 | 89.12 | 1,610.0 | -4,765.7 | 540.0 | 391.3 | 148.63 | 3.633 | |
| 12,100.0 | 7,078.3 | 7,047.8 | 7,034.9 | 137.4 | 14.4 | 89.17 | 1,610.0 | -4,765.7 | 471.4 | 320.0 | 151.40 | 3.113 | |
| 12,200.0 | 7,078.1 | 7,048.2 | 7,035.2 | 140.2 | 14.4 | 89.22 | 1,610.0 | -4,765.7 | 415.7 | 261.5 | 154.18 | 2.696 | |
| 12,300.0 | 7,077.9 | 7,048.5 | 7,035.6 | 142.9 | 14.4 | 89.28 | 1,610.0 | -4,765.7 | 378.8 | 221.8 | 156.96 | 2.413 | |
| 12,396.8 | 7,077.7 | 7,048.8 | 7,035.9 | 145.6 | 14.4 | 89.33 | 1,610.0 | -4,765.7 | 366.2 | 206.5 | 159.65 | 2.294 | CC |
| 12,400.0 | 7,077.7 | 7,048.8 | 7,035.9 | 145.7 | 14.4 | 89.33 | 1,610.0 | -4,765.7 | 366.2 | 206.4 | 159.74 | 2.292 | ES, SF |
| 12,500.0 | 7,077.5 | 7,049.2 | 7,036.2 | 148.5 | 14.4 | 89.38 | 1,610.0 | -4,765.7 | 380.4 | 217.9 | 162.52 | 2.341 | |
| 12,600.0 | 7,077.3 | 7,049.5 | 7,036.6 | 151.3 | 14.4 | 89.43 | 1,610.0 | -4,765.7 | 418.7 | 253.4 | 165.30 | 2.533 | |
| 12,700.0 | 7,077.1 | 7,049.8 | 7,036.9 | 154.0 | 14.4 | 89.48 | 1,610.0 | -4,765.7 | 475.4 | 307.3 | 168.08 | 2.828 | |
| 12,800.0 | 7,076.9 | 7,050.1 | 7,037.2 | 156.8 | 14.4 | 89.53 | 1,610.0 | -4,765.7 | 544.6 | 373.8 | 170.86 | 3.187 | |
| 12,900.0 | 7,076.7 | 7,050.4 | 7,037.5 | 159.6 | 14.4 | 89.58 | 1,610.1 | -4,765.7 | 622.3 | 448.6 | 173.65 | 3.584 | |
| 13,000.0 | 7,076.5 | 7,050.8 | 7,037.8 | 162.4 | 14.4 | 89.63 | 1,610.1 | -4,765.7 | 705.6 | 529.2 | 176.43 | 3.999 | |
| 13,100.0 | 7,076.3 | 7,051.1 | 7,038.1 | 165.2 | 14.4 | 89.67 | 1,610.1 | -4,765.7 | 792.8 | 613.6 | 179.22 | 4.424 | |
| 13,200.0 | 7,076.1 | 7,051.4 | 7,038.4 | 168.0 | 14.4 | 89.72 | 1,610.1 | -4,765.7 | 882.7 | 700.7 | 182.01 | 4.850 | |
| 13,300.0 | 7,075.9 | 7,051.7 | 7,038.7 | 170.7 | 14.4 | 89.77 | 1,610.1 | -4,765.7 | 974.6 | 789.8 | 184.79 | 5.274 | |
| 13,400.0 | 7,075.7 | 7,052.0 | 7,039.0 | 173.5 | 14.4 | 89.81 | 1,610.1 | -4,765.7 | 1,067.9 | 880.3 | 187.58 | 5.693 | |
| 13,500.0 | 7,075.5 | 7,052.3 | 7,039.3 | 176.3 | 14.4 | 89.86 | 1,610.1 | -4,765.7 | 1,162.3 | 972.0 | 190.37 | 6.106 | |
| 13,600.0 | 7,075.3 | 7,052.6 | 7,039.6 | 179.1 | 14.4 | 89.91 | 1,610.1 | -4,765.7 | 1,257.6 | 1,064.5 | 193.16 | 6.511 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20ND - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 545-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,700.0 | 7,075.1 | 7,052.8 | 7,039.9 | 181.9 | 14.4 | 89.95 | 1,610.1 | -4,765.7 | 1,353.6 | 1,157.7 | 195.94 | 6.908 | |
| 13,800.0 | 7,074.9 | 7,053.1 | 7,040.2 | 184.7 | 14.4 | 90.00 | 1,610.1 | -4,765.7 | 1,450.1 | 1,251.4 | 198.73 | 7.297 | |
| 13,900.0 | 7,074.7 | 7,053.4 | 7,040.5 | 187.5 | 14.4 | 90.04 | 1,610.1 | -4,765.7 | 1,547.1 | 1,345.6 | 201.52 | 7.677 | |
| 14,000.0 | 7,074.5 | 7,053.7 | 7,040.8 | 190.2 | 14.4 | 90.08 | 1,610.1 | -4,765.7 | 1,644.4 | 1,440.1 | 204.31 | 8.049 | |
| 14,100.0 | 7,074.2 | 7,054.0 | 7,041.0 | 193.0 | 14.4 | 90.13 | 1,610.1 | -4,765.7 | 1,742.1 | 1,535.0 | 207.10 | 8.412 | |
| 14,200.0 | 7,074.0 | 7,054.3 | 7,041.3 | 195.8 | 14.4 | 90.17 | 1,610.1 | -4,765.7 | 1,840.0 | 1,630.1 | 209.90 | 8.766 | |
| 14,221.4 | 7,074.0 | 7,054.3 | 7,041.4 | 196.4 | 14.4 | 90.18 | 1,610.1 | -4,765.7 | 1,860.9 | 1,650.4 | 210.49 | 8.841 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20OD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 575-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -72.67 | 1,554.3 | -4,981.6 | 5,218.6 | | | | |
| 100.0 | 100.0 | 63.7 | 63.7 | 0.1 | 0.1 | -72.67 | 1,554.2 | -4,981.6 | 5,218.4 | 5,218.3 | 0.15 | N/A | |
| 200.0 | 200.0 | 165.5 | 165.5 | 0.3 | 0.1 | -72.67 | 1,554.1 | -4,981.6 | 5,218.4 | 5,217.9 | 0.47 | N/A | |
| 300.0 | 300.0 | 267.3 | 267.3 | 0.5 | 0.2 | -72.68 | 1,553.7 | -4,981.7 | 5,218.3 | 5,217.5 | 0.79 | 6,615.331 | |
| 400.0 | 400.0 | 369.2 | 369.2 | 0.8 | 0.3 | -72.68 | 1,553.2 | -4,981.7 | 5,218.2 | 5,217.1 | 1.11 | 4,718.915 | |
| 420.2 | 420.2 | 389.8 | 389.8 | 0.8 | 0.4 | -101.03 | 1,553.1 | -4,981.7 | 5,218.2 | 5,217.0 | 1.17 | 4,461.409 | |
| 500.0 | 500.0 | 471.0 | 471.0 | 1.0 | 0.4 | -101.05 | 1,552.6 | -4,981.7 | 5,218.4 | 5,217.0 | 1.42 | 3,672.689 | |
| 600.0 | 599.8 | 572.6 | 572.6 | 1.2 | 0.5 | -101.10 | 1,551.8 | -4,981.8 | 5,219.2 | 5,217.5 | 1.74 | 3,001.226 | |
| 700.0 | 699.5 | 653.9 | 653.9 | 1.5 | 0.7 | -101.15 | 1,551.2 | -4,982.0 | 5,220.9 | 5,218.7 | 2.14 | 2,436.101 | |
| 800.0 | 798.7 | 799.5 | 799.4 | 1.7 | 1.0 | -101.32 | 1,548.9 | -4,982.0 | 5,222.8 | 5,220.1 | 2.71 | 1,925.808 | |
| 900.0 | 897.5 | 959.7 | 959.6 | 2.0 | 1.3 | -101.60 | 1,544.7 | -4,981.7 | 5,225.2 | 5,221.8 | 3.36 | 1,555.886 | |
| 1,000.0 | 995.6 | 1,344.2 | 1,342.4 | 2.4 | 2.3 | -102.72 | 1,511.4 | -4,974.0 | 5,225.5 | 5,220.8 | 4.67 | 1,118.457 | |
| 1,100.0 | 1,093.1 | 1,455.9 | 1,452.8 | 2.8 | 2.7 | -103.19 | 1,495.4 | -4,970.0 | 5,223.0 | 5,217.6 | 5.40 | 966.749 | |
| 1,164.2 | 1,155.2 | 1,880.9 | 1,867.1 | 3.1 | 4.5 | -105.25 | 1,404.3 | -4,948.3 | 5,220.6 | 5,213.3 | 7.35 | 710.503 | |
| 1,200.0 | 1,189.7 | 1,912.0 | 1,896.8 | 3.2 | 4.6 | -105.42 | 1,395.4 | -4,946.2 | 5,217.9 | 5,210.2 | 7.67 | 680.163 | |
| 1,300.0 | 1,286.2 | 1,993.0 | 1,973.7 | 3.7 | 5.1 | -105.89 | 1,370.4 | -4,941.3 | 5,210.7 | 5,202.1 | 8.56 | 608.825 | |
| 1,400.0 | 1,382.6 | 2,260.0 | 2,226.0 | 4.2 | 6.6 | -107.44 | 1,285.5 | -4,921.1 | 5,202.5 | 5,192.1 | 10.41 | 499.799 | |
| 1,500.0 | 1,479.1 | 2,333.9 | 2,295.5 | 4.7 | 7.0 | -107.88 | 1,261.2 | -4,914.4 | 5,193.4 | 5,182.1 | 11.33 | 458.242 | |
| 1,600.0 | 1,575.6 | 2,384.7 | 2,343.1 | 5.3 | 7.3 | -108.18 | 1,244.1 | -4,910.1 | 5,185.2 | 5,173.1 | 12.11 | 428.139 | |
| 1,700.0 | 1,672.0 | 2,447.0 | 2,401.8 | 5.8 | 7.7 | -108.55 | 1,223.6 | -4,905.4 | 5,178.3 | 5,165.4 | 12.95 | 400.011 | |
| 1,800.0 | 1,768.5 | 2,486.1 | 2,438.6 | 6.3 | 7.9 | -108.79 | 1,210.9 | -4,902.6 | 5,172.4 | 5,158.7 | 13.66 | 378.553 | |
| 1,900.0 | 1,864.9 | 2,588.1 | 2,534.2 | 6.8 | 8.6 | -109.41 | 1,176.0 | -4,896.0 | 5,167.4 | 5,152.6 | 14.78 | 349.736 | |
| 2,000.0 | 1,961.4 | 2,676.9 | 2,616.8 | 7.4 | 9.1 | -109.97 | 1,144.1 | -4,889.9 | 5,162.3 | 5,146.4 | 15.84 | 325.898 | |
| 2,100.0 | 2,057.9 | 2,728.0 | 2,664.5 | 7.9 | 9.5 | -110.29 | 1,125.8 | -4,886.6 | 5,158.2 | 5,141.6 | 16.66 | 309.632 | |
| 2,200.0 | 2,154.3 | 2,808.7 | 2,740.0 | 8.4 | 9.9 | -110.79 | 1,097.7 | -4,881.6 | 5,155.1 | 5,137.5 | 17.61 | 292.800 | |
| 2,300.0 | 2,250.8 | 2,882.0 | 2,808.7 | 9.0 | 10.4 | -111.24 | 1,072.5 | -4,877.0 | 5,152.6 | 5,134.1 | 18.54 | 277.859 | |
| 2,400.0 | 2,347.3 | 3,102.0 | 3,015.4 | 9.5 | 11.7 | -112.57 | 999.2 | -4,861.2 | 5,150.7 | 5,130.4 | 20.31 | 253.661 | |
| 2,500.0 | 2,443.7 | 3,171.5 | 3,081.2 | 10.0 | 12.1 | -112.98 | 977.7 | -4,854.6 | 5,147.2 | 5,126.0 | 21.20 | 242.841 | |
| 2,600.0 | 2,540.2 | 3,227.1 | 3,133.8 | 10.6 | 12.4 | -113.30 | 960.3 | -4,849.8 | 5,144.8 | 5,122.8 | 22.01 | 233.777 | |
| 2,700.0 | 2,636.7 | 3,289.0 | 3,192.4 | 11.1 | 12.8 | -113.66 | 941.1 | -4,844.7 | 5,143.4 | 5,120.6 | 22.85 | 225.074 | |
| 2,800.0 | 2,733.1 | 3,413.4 | 3,310.4 | 11.6 | 13.5 | -114.38 | 903.4 | -4,833.6 | 5,141.8 | 5,117.8 | 24.02 | 214.052 | |
| 2,881.0 | 2,811.2 | 3,441.0 | 3,336.6 | 12.1 | 13.7 | -114.54 | 895.0 | -4,831.2 | 5,141.3 | 5,116.8 | 24.58 | 209.178 | |
| 2,900.0 | 2,829.6 | 3,447.5 | 3,342.8 | 12.2 | 13.7 | -114.58 | 893.0 | -4,830.7 | 5,141.4 | 5,116.7 | 24.71 | 208.071 | |
| 3,000.0 | 2,926.0 | 3,476.0 | 3,369.8 | 12.7 | 13.9 | -114.74 | 884.3 | -4,828.6 | 5,142.3 | 5,117.0 | 25.37 | 202.719 | |
| 3,100.0 | 3,022.5 | 3,525.0 | 3,416.2 | 13.2 | 14.2 | -115.03 | 869.0 | -4,825.4 | 5,144.6 | 5,118.4 | 26.15 | 196.756 | |
| 3,200.0 | 3,119.0 | 3,570.0 | 3,458.9 | 13.8 | 14.4 | -115.30 | 854.8 | -4,822.9 | 5,148.1 | 5,121.2 | 26.90 | 191.353 | |
| 3,300.0 | 3,215.4 | 3,652.8 | 3,537.2 | 14.3 | 14.9 | -115.79 | 828.3 | -4,818.8 | 5,152.5 | 5,124.6 | 27.88 | 184.816 | |
| 3,400.0 | 3,311.9 | 3,724.9 | 3,605.3 | 14.9 | 15.4 | -116.22 | 805.0 | -4,815.2 | 5,157.5 | 5,128.7 | 28.80 | 179.090 | |
| 3,500.0 | 3,408.4 | 3,863.8 | 3,735.9 | 15.4 | 16.3 | -117.07 | 758.0 | -4,808.0 | 5,162.9 | 5,132.8 | 30.15 | 171.213 | |
| 3,600.0 | 3,504.8 | 3,961.0 | 3,826.4 | 15.9 | 17.0 | -117.68 | 723.1 | -4,802.3 | 5,168.2 | 5,136.9 | 31.28 | 165.210 | |
| 3,700.0 | 3,601.3 | 4,027.0 | 3,887.8 | 16.5 | 17.4 | -118.10 | 699.2 | -4,798.4 | 5,174.1 | 5,141.9 | 32.19 | 160.733 | |
| 3,800.0 | 3,697.7 | 4,132.0 | 3,986.1 | 17.0 | 18.0 | -118.74 | 662.9 | -4,792.2 | 5,180.6 | 5,147.3 | 33.28 | 155.643 | |
| 3,900.0 | 3,794.2 | 4,208.8 | 4,059.0 | 17.5 | 18.5 | -119.19 | 639.0 | -4,787.5 | 5,187.5 | 5,153.3 | 34.17 | 151.821 | |
| 4,000.0 | 3,890.7 | 4,284.9 | 4,131.6 | 18.1 | 18.9 | -119.61 | 617.0 | -4,783.0 | 5,195.1 | 5,160.0 | 35.05 | 148.239 | |
| 4,100.0 | 3,987.1 | 4,379.9 | 4,222.6 | 18.6 | 19.4 | -120.13 | 590.1 | -4,777.4 | 5,203.2 | 5,167.2 | 36.00 | 144.540 | |
| 4,200.0 | 4,083.6 | 4,463.5 | 4,303.4 | 19.2 | 19.8 | -120.56 | 569.3 | -4,772.4 | 5,211.6 | 5,174.8 | 36.85 | 141.432 | |
| 4,300.0 | 4,180.1 | 4,530.3 | 4,368.3 | 19.7 | 20.1 | -120.89 | 554.0 | -4,768.6 | 5,220.7 | 5,183.1 | 37.60 | 138.851 | |
| 4,400.0 | 4,276.5 | 4,598.0 | 4,434.4 | 20.2 | 20.4 | -121.21 | 539.6 | -4,765.3 | 5,230.6 | 5,192.3 | 38.34 | 136.434 | |
| 4,500.0 | 4,373.0 | 4,667.3 | 4,502.3 | 20.8 | 20.7 | -121.52 | 526.2 | -4,762.2 | 5,241.3 | 5,202.2 | 39.05 | 134.203 | |
| 4,600.0 | 4,469.5 | 4,731.0 | 4,565.0 | 21.3 | 20.9 | -121.80 | 515.3 | -4,759.6 | 5,252.5 | 5,212.8 | 39.73 | 132.189 | |
| 4,700.0 | 4,565.9 | 4,785.0 | 4,618.3 | 21.9 | 21.1 | -122.02 | 506.9 | -4,757.8 | 5,264.6 | 5,224.2 | 40.38 | 130.392 | |
| 4,800.0 | 4,662.4 | 4,847.0 | 4,679.7 | 22.4 | 21.3 | -122.27 | 498.0 | -4,756.3 | 5,277.6 | 5,236.6 | 41.02 | 128.661 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20OD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 575-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.0 | 4,758.8 | 4,918.4 | 4,750.5 | 22.9 | 21.5 | -122.54 | 488.5 | -4,754.9 | 5,291.3 | 5,249.6 | 41.68 | 126.957 | |
| 5,000.0 | 4,855.3 | 5,029.9 | 4,861.1 | 23.5 | 21.8 | -122.95 | 475.4 | -4,753.1 | 5,305.4 | 5,263.0 | 42.41 | 125.111 | |
| 5,100.0 | 4,951.8 | 5,125.1 | 4,956.0 | 24.0 | 22.0 | -123.27 | 467.2 | -4,751.4 | 5,319.2 | 5,276.2 | 43.06 | 123.532 | |
| 5,200.0 | 5,048.2 | 5,207.4 | 5,038.1 | 24.6 | 22.2 | -123.52 | 461.4 | -4,750.3 | 5,333.5 | 5,289.8 | 43.67 | 122.139 | |
| 5,300.0 | 5,144.7 | 5,295.3 | 5,125.8 | 25.1 | 22.3 | -123.79 | 456.4 | -4,749.4 | 5,348.0 | 5,303.7 | 44.26 | 120.819 | |
| 5,400.0 | 5,241.2 | 5,375.4 | 5,205.8 | 25.6 | 22.4 | -124.01 | 453.4 | -4,748.8 | 5,362.8 | 5,318.0 | 44.83 | 119.625 | |
| 5,500.0 | 5,337.6 | 5,445.4 | 5,275.8 | 26.2 | 22.5 | -124.19 | 452.0 | -4,748.8 | 5,378.2 | 5,332.8 | 45.37 | 118.544 | |
| 5,600.0 | 5,434.1 | 5,535.0 | 5,365.4 | 26.7 | 22.6 | -124.41 | 451.1 | -4,749.2 | 5,393.9 | 5,348.0 | 45.91 | 117.491 | |
| 5,700.0 | 5,530.5 | 5,620.2 | 5,450.6 | 27.3 | 22.7 | -124.61 | 450.3 | -4,749.6 | 5,409.9 | 5,363.4 | 46.44 | 116.482 | |
| 5,757.1 | 5,585.6 | 5,665.0 | 5,495.4 | 27.6 | 22.8 | -124.72 | 450.0 | -4,750.0 | 5,419.2 | 5,372.4 | 46.75 | 115.928 | |
| 5,800.0 | 5,627.1 | 5,698.3 | 5,528.7 | 27.8 | 22.8 | -124.91 | 449.7 | -4,750.3 | 5,426.0 | 5,379.1 | 46.96 | 115.551 | |
| 5,900.0 | 5,724.4 | 5,784.3 | 5,614.7 | 28.2 | 22.9 | -125.34 | 449.0 | -4,751.3 | 5,440.9 | 5,393.5 | 47.38 | 114.826 | |
| 6,000.0 | 5,822.4 | 5,928.5 | 5,758.9 | 28.5 | 23.1 | -125.80 | 447.9 | -4,752.6 | 5,453.6 | 5,405.8 | 47.82 | 114.043 | |
| 6,100.0 | 5,921.0 | 6,033.7 | 5,864.1 | 28.8 | 23.2 | -126.12 | 446.8 | -4,752.8 | 5,463.7 | 5,415.5 | 48.19 | 113.373 | |
| 6,200.0 | 6,020.2 | 6,161.2 | 5,991.6 | 29.0 | 23.3 | -126.40 | 445.8 | -4,753.0 | 5,471.6 | 5,423.1 | 48.55 | 112.704 | |
| 6,300.0 | 6,119.7 | 6,267.4 | 6,097.8 | 29.3 | 23.5 | -126.58 | 444.9 | -4,752.5 | 5,477.0 | 5,428.1 | 48.85 | 112.118 | |
| 6,400.0 | 6,219.5 | 6,411.9 | 6,242.2 | 29.4 | 23.6 | -126.72 | 443.4 | -4,751.2 | 5,479.7 | 5,430.6 | 49.16 | 111.458 | |
| 6,500.0 | 6,319.5 | 6,526.1 | 6,356.4 | 29.5 | 23.8 | -126.76 | 442.2 | -4,749.7 | 5,480.1 | 5,430.7 | 49.41 | 110.911 | |
| 6,521.3 | 6,340.8 | 6,558.7 | 6,389.0 | 29.6 | 23.8 | -98.42 | 441.7 | -4,749.1 | 5,479.9 | 5,442.7 | 37.15 | 147.520 | |
| 6,551.3 | 6,370.8 | 6,564.0 | 6,394.3 | 29.6 | 23.8 | -98.42 | 441.7 | -4,749.1 | 5,479.4 | 5,442.2 | 37.19 | 147.325 | |
| 6,600.0 | 6,419.5 | 6,593.7 | 6,424.0 | 29.6 | 23.9 | -8.45 | 441.3 | -4,748.6 | 5,477.3 | 5,427.9 | 49.39 | 110.894 | |
| 6,650.0 | 6,469.2 | 6,613.3 | 6,443.6 | 29.6 | 23.9 | -8.52 | 441.1 | -4,748.5 | 5,471.9 | 5,422.9 | 49.03 | 111.597 | |
| 6,700.0 | 6,518.4 | 6,657.0 | 6,487.3 | 29.6 | 24.0 | -8.64 | 440.6 | -4,748.6 | 5,463.6 | 5,415.1 | 48.48 | 112.701 | |
| 6,750.0 | 6,567.0 | 6,657.0 | 6,487.3 | 29.6 | 24.0 | -8.79 | 440.6 | -4,748.6 | 5,451.9 | 5,404.2 | 47.65 | 114.410 | |
| 6,800.0 | 6,614.5 | 6,680.8 | 6,511.1 | 29.6 | 24.0 | -8.99 | 440.4 | -4,748.9 | 5,437.2 | 5,390.6 | 46.64 | 116.578 | |
| 6,850.0 | 6,660.9 | 6,712.3 | 6,542.6 | 29.5 | 24.0 | -9.26 | 440.2 | -4,749.2 | 5,419.4 | 5,374.0 | 45.43 | 119.289 | |
| 6,900.0 | 6,705.9 | 6,751.0 | 6,581.3 | 29.4 | 24.1 | -9.59 | 439.9 | -4,749.8 | 5,398.6 | 5,354.5 | 44.03 | 122.599 | |
| 6,950.0 | 6,749.2 | 6,790.4 | 6,620.7 | 29.3 | 24.1 | -10.00 | 439.6 | -4,750.5 | 5,374.7 | 5,332.2 | 42.45 | 126.604 | |
| 7,000.0 | 6,790.7 | 6,841.9 | 6,672.2 | 29.2 | 24.2 | -10.52 | 439.7 | -4,751.4 | 5,347.8 | 5,307.1 | 40.72 | 131.342 | |
| 7,050.0 | 6,830.2 | 6,877.1 | 6,707.4 | 29.1 | 24.2 | -11.13 | 440.0 | -4,752.0 | 5,318.0 | 5,279.2 | 38.82 | 137.004 | |
| 7,100.0 | 6,867.4 | 6,909.8 | 6,740.1 | 29.0 | 24.2 | -11.86 | 440.1 | -4,752.5 | 5,285.7 | 5,248.9 | 36.79 | 143.662 | |
| 7,150.0 | 6,902.2 | 6,940.8 | 6,771.0 | 28.9 | 24.3 | -12.76 | 440.3 | -4,753.1 | 5,250.8 | 5,216.1 | 34.68 | 151.425 | |
| 7,200.0 | 6,934.4 | 6,971.8 | 6,802.1 | 28.7 | 24.3 | -13.88 | 440.3 | -4,753.7 | 5,213.6 | 5,181.1 | 32.51 | 160.362 | |
| 7,250.0 | 6,963.8 | 7,000.3 | 6,830.6 | 28.6 | 24.3 | -15.26 | 440.3 | -4,754.2 | 5,174.3 | 5,143.9 | 30.35 | 170.473 | |
| 7,300.0 | 6,990.4 | 7,026.1 | 6,856.4 | 28.5 | 24.4 | -17.02 | 440.2 | -4,754.7 | 5,132.9 | 5,104.6 | 28.28 | 181.490 | |
| 7,350.0 | 7,013.9 | 7,060.9 | 6,891.2 | 28.4 | 24.4 | -19.36 | 440.0 | -4,755.3 | 5,089.8 | 5,063.4 | 26.45 | 192.420 | |
| 7,400.0 | 7,034.4 | 7,093.9 | 6,924.1 | 28.2 | 24.5 | -22.50 | 439.9 | -4,755.8 | 5,045.1 | 5,020.0 | 25.07 | 201.221 | |
| 7,450.0 | 7,051.5 | 7,121.5 | 6,951.7 | 28.1 | 24.5 | -26.79 | 439.8 | -4,756.1 | 4,999.0 | 4,974.5 | 24.50 | 204.025 | |
| 7,500.0 | 7,065.4 | 7,134.7 | 6,965.0 | 28.0 | 24.5 | -32.72 | 439.7 | -4,756.3 | 4,951.8 | 4,926.6 | 25.20 | 196.514 | |
| 7,550.0 | 7,075.9 | 7,143.6 | 6,973.9 | 27.9 | 24.5 | -41.40 | 439.7 | -4,756.4 | 4,903.7 | 4,876.0 | 27.72 | 176.927 | |
| 7,600.0 | 7,082.9 | 7,149.8 | 6,980.1 | 27.8 | 24.5 | -54.48 | 439.7 | -4,756.5 | 4,855.0 | 4,822.7 | 32.24 | 150.608 | |
| 7,650.0 | 7,086.5 | 7,153.3 | 6,983.5 | 27.7 | 24.5 | -73.42 | 439.7 | -4,756.5 | 4,805.8 | 4,768.4 | 37.46 | 128.293 | |
| 7,677.7 | 7,087.0 | 7,153.9 | 6,984.2 | 27.6 | 24.5 | -86.00 | 439.7 | -4,756.5 | 4,778.6 | 4,739.2 | 39.35 | 121.447 | |
| 7,700.0 | 7,087.0 | 7,154.2 | 6,984.4 | 27.6 | 24.5 | -86.01 | 439.7 | -4,756.5 | 4,756.6 | 4,716.9 | 39.66 | 119.945 | |
| 7,800.0 | 7,086.8 | 7,155.1 | 6,985.4 | 27.5 | 24.5 | -86.08 | 439.7 | -4,756.6 | 4,658.1 | 4,616.9 | 41.19 | 113.083 | |
| 7,900.0 | 7,086.6 | 7,156.1 | 6,986.3 | 27.9 | 24.5 | -86.15 | 439.7 | -4,756.6 | 4,559.6 | 4,516.7 | 42.94 | 106.197 | |
| 8,000.0 | 7,086.4 | 7,157.0 | 6,987.3 | 29.5 | 24.5 | -86.22 | 439.7 | -4,756.6 | 4,461.2 | 4,416.4 | 44.85 | 99.470 | |
| 8,100.0 | 7,086.2 | 7,158.0 | 6,988.3 | 31.5 | 24.5 | -86.29 | 439.7 | -4,756.6 | 4,362.9 | 4,316.0 | 46.90 | 93.020 | |
| 8,200.0 | 7,086.0 | 7,159.0 | 6,989.3 | 33.7 | 24.5 | -86.36 | 439.7 | -4,756.6 | 4,264.7 | 4,215.6 | 49.07 | 86.912 | |
| 8,300.0 | 7,085.8 | 7,160.0 | 6,990.3 | 36.0 | 24.5 | -86.43 | 439.7 | -4,756.6 | 4,166.5 | 4,115.2 | 51.33 | 81.177 | |
| 8,400.0 | 7,085.6 | 7,161.0 | 6,991.3 | 38.3 | 24.5 | -86.51 | 439.7 | -4,756.6 | 4,068.4 | 4,014.8 | 53.66 | 75.821 | |
| 8,500.0 | 7,085.4 | 7,162.0 | 6,992.3 | 40.7 | 24.5 | -86.58 | 439.7 | -4,756.7 | 3,970.5 | 3,914.4 | 56.05 | 70.834 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20OD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 575-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,600.0 | 7,085.2 | 7,163.1 | 6,993.3 | 43.1 | 24.5 | -86.65 | 439.7 | -4,756.7 | 3,872.6 | 3,814.1 | 58.50 | 66.199 | |
| 8,700.0 | 7,085.0 | 7,164.1 | 6,994.4 | 45.6 | 24.5 | -86.73 | 439.7 | -4,756.7 | 3,774.8 | 3,713.8 | 60.99 | 61.894 | |
| 8,800.0 | 7,084.8 | 7,165.2 | 6,995.4 | 48.1 | 24.5 | -86.80 | 439.7 | -4,756.7 | 3,677.2 | 3,613.7 | 63.51 | 57.896 | |
| 8,900.0 | 7,084.6 | 7,166.2 | 6,996.5 | 50.7 | 24.5 | -86.88 | 439.7 | -4,756.7 | 3,579.7 | 3,513.6 | 66.07 | 54.180 | |
| 9,000.0 | 7,084.4 | 7,167.3 | 6,997.5 | 53.2 | 24.5 | -86.95 | 439.7 | -4,756.7 | 3,482.3 | 3,413.7 | 68.65 | 50.723 | |
| 9,100.0 | 7,084.2 | 7,168.4 | 6,998.6 | 55.8 | 24.5 | -87.03 | 439.7 | -4,756.7 | 3,385.1 | 3,313.9 | 71.26 | 47.505 | |
| 9,200.0 | 7,084.0 | 7,169.5 | 6,999.7 | 58.4 | 24.5 | -87.11 | 439.7 | -4,756.8 | 3,288.1 | 3,214.2 | 73.88 | 44.503 | |
| 9,300.0 | 7,083.8 | 7,170.6 | 7,000.8 | 61.1 | 24.5 | -87.19 | 439.7 | -4,756.8 | 3,191.2 | 3,114.7 | 76.53 | 41.701 | |
| 9,400.0 | 7,083.7 | 7,171.7 | 7,001.9 | 63.7 | 24.5 | -87.27 | 439.7 | -4,756.8 | 3,094.6 | 3,015.4 | 79.18 | 39.081 | |
| 9,500.0 | 7,083.5 | 7,172.8 | 7,003.0 | 66.3 | 24.5 | -87.35 | 439.7 | -4,756.8 | 2,998.1 | 2,916.3 | 81.85 | 36.628 | |
| 9,600.0 | 7,083.3 | 7,173.9 | 7,004.2 | 69.0 | 24.5 | -87.43 | 439.7 | -4,756.8 | 2,901.9 | 2,817.4 | 84.54 | 34.328 | |
| 9,700.0 | 7,083.1 | 7,175.1 | 7,005.3 | 71.7 | 24.5 | -87.51 | 439.7 | -4,756.8 | 2,806.0 | 2,718.7 | 87.23 | 32.168 | |
| 9,800.0 | 7,082.9 | 7,176.2 | 7,006.5 | 74.4 | 24.5 | -87.59 | 439.7 | -4,756.9 | 2,710.3 | 2,620.4 | 89.93 | 30.138 | |
| 9,900.0 | 7,082.7 | 7,177.4 | 7,007.7 | 77.1 | 24.5 | -87.68 | 439.7 | -4,756.9 | 2,615.0 | 2,522.4 | 92.64 | 28.228 | |
| 10,000.0 | 7,082.5 | 7,178.6 | 7,008.8 | 79.7 | 24.6 | -87.76 | 439.7 | -4,756.9 | 2,520.0 | 2,424.7 | 95.36 | 26.428 | |
| 10,100.0 | 7,082.3 | 7,179.8 | 7,010.0 | 82.5 | 24.6 | -87.85 | 439.7 | -4,756.9 | 2,425.5 | 2,327.4 | 98.08 | 24.730 | |
| 10,200.0 | 7,082.1 | 7,181.0 | 7,011.2 | 85.2 | 24.6 | -87.93 | 439.7 | -4,756.9 | 2,331.4 | 2,230.6 | 100.81 | 23.127 | |
| 10,300.0 | 7,081.9 | 7,182.2 | 7,012.5 | 87.9 | 24.6 | -88.02 | 439.7 | -4,757.0 | 2,237.8 | 2,134.3 | 103.55 | 21.612 | |
| 10,400.0 | 7,081.7 | 7,183.4 | 7,013.7 | 90.6 | 24.6 | -88.11 | 439.7 | -4,757.0 | 2,144.8 | 2,038.5 | 106.29 | 20.180 | |
| 10,500.0 | 7,081.5 | 7,184.7 | 7,014.9 | 93.3 | 24.6 | -88.20 | 439.7 | -4,757.0 | 2,052.4 | 1,943.4 | 109.03 | 18.824 | |
| 10,600.0 | 7,081.3 | 7,186.0 | 7,016.2 | 96.1 | 24.6 | -88.29 | 439.7 | -4,757.0 | 1,960.8 | 1,849.1 | 111.78 | 17.542 | |
| 10,700.0 | 7,081.1 | 7,187.2 | 7,017.5 | 98.8 | 24.6 | -88.38 | 439.7 | -4,757.0 | 1,870.1 | 1,755.6 | 114.53 | 16.328 | |
| 10,800.0 | 7,080.9 | 7,188.5 | 7,018.8 | 101.5 | 24.6 | -88.47 | 439.7 | -4,757.0 | 1,780.3 | 1,663.0 | 117.29 | 15.179 | |
| 10,900.0 | 7,080.7 | 7,189.8 | 7,020.1 | 104.3 | 24.6 | -88.56 | 439.7 | -4,757.1 | 1,691.7 | 1,571.7 | 120.05 | 14.092 | |
| 11,000.0 | 7,080.5 | 7,191.1 | 7,021.4 | 107.0 | 24.6 | -88.66 | 439.7 | -4,757.1 | 1,604.5 | 1,481.7 | 122.81 | 13.065 | |
| 11,100.0 | 7,080.3 | 7,192.5 | 7,022.7 | 109.8 | 24.6 | -88.75 | 439.7 | -4,757.1 | 1,518.8 | 1,393.2 | 125.58 | 12.094 | |
| 11,200.0 | 7,080.1 | 7,193.8 | 7,024.0 | 112.5 | 24.6 | -88.85 | 439.7 | -4,757.1 | 1,434.9 | 1,306.6 | 128.34 | 11.180 | |
| 11,300.0 | 7,079.9 | 7,195.2 | 7,025.4 | 115.3 | 24.6 | -88.94 | 439.7 | -4,757.2 | 1,353.3 | 1,222.2 | 131.11 | 10.321 | |
| 11,400.0 | 7,079.7 | 7,196.5 | 7,026.8 | 118.0 | 24.6 | -89.04 | 439.7 | -4,757.2 | 1,274.2 | 1,140.4 | 133.88 | 9.517 | |
| 11,500.0 | 7,079.5 | 7,197.9 | 7,028.2 | 120.8 | 24.6 | -89.14 | 439.7 | -4,757.2 | 1,198.3 | 1,061.7 | 136.66 | 8.769 | |
| 11,600.0 | 7,079.3 | 7,199.3 | 7,029.6 | 123.6 | 24.6 | -89.24 | 439.7 | -4,757.2 | 1,126.2 | 986.8 | 139.43 | 8.077 | |
| 11,700.0 | 7,079.1 | 7,200.7 | 7,031.0 | 126.3 | 24.6 | -89.34 | 439.7 | -4,757.2 | 1,058.6 | 916.4 | 142.21 | 7.444 | |
| 11,800.0 | 7,078.9 | 7,202.2 | 7,032.4 | 129.1 | 24.6 | -89.44 | 439.7 | -4,757.3 | 996.5 | 851.5 | 144.99 | 6.873 | |
| 11,900.0 | 7,078.7 | 7,203.6 | 7,033.9 | 131.9 | 24.6 | -89.55 | 439.7 | -4,757.3 | 940.9 | 793.1 | 147.77 | 6.368 | |
| 12,000.0 | 7,078.5 | 7,205.1 | 7,035.3 | 134.6 | 24.6 | -89.65 | 439.7 | -4,757.3 | 893.1 | 742.6 | 150.55 | 5.932 | |
| 12,100.0 | 7,078.3 | 7,206.6 | 7,036.8 | 137.4 | 24.6 | -89.76 | 439.7 | -4,757.3 | 854.4 | 701.0 | 153.33 | 5.572 | |
| 12,200.0 | 7,078.1 | 7,208.1 | 7,038.3 | 140.2 | 24.6 | -89.87 | 439.7 | -4,757.4 | 826.0 | 669.9 | 156.11 | 5.291 | |
| 12,300.0 | 7,077.9 | 7,209.6 | 7,039.9 | 142.9 | 24.6 | -89.97 | 439.7 | -4,757.4 | 809.0 | 650.1 | 158.89 | 5.092 | |
| 12,388.5 | 7,077.7 | 7,211.0 | 7,041.2 | 145.4 | 24.6 | -90.07 | 439.7 | -4,757.4 | 804.2 | 642.8 | 161.36 | 4.984 | CC |
| 12,400.0 | 7,077.7 | 7,211.2 | 7,041.4 | 145.7 | 24.6 | -90.08 | 439.7 | -4,757.4 | 804.3 | 642.6 | 161.68 | 4.974 | ES |
| 12,500.0 | 7,077.5 | 7,212.7 | 7,043.0 | 148.5 | 24.6 | -90.19 | 439.7 | -4,757.4 | 811.9 | 647.4 | 164.46 | 4.936 | SF |
| 12,600.0 | 7,077.3 | 7,214.3 | 7,044.5 | 151.3 | 24.6 | -90.31 | 439.7 | -4,757.5 | 831.5 | 664.3 | 167.25 | 4.972 | |
| 12,700.0 | 7,077.1 | 7,215.9 | 7,046.1 | 154.0 | 24.6 | -90.42 | 439.7 | -4,757.5 | 862.4 | 692.3 | 170.03 | 5.072 | |
| 12,800.0 | 7,076.9 | 7,217.5 | 7,047.7 | 156.8 | 24.6 | -90.54 | 439.7 | -4,757.5 | 903.3 | 730.5 | 172.82 | 5.227 | |
| 12,900.0 | 7,076.7 | 7,218.0 | 7,048.2 | 159.6 | 24.6 | -90.57 | 439.7 | -4,757.5 | 953.0 | 777.4 | 175.60 | 5.427 | |
| 13,000.0 | 7,076.5 | 7,218.0 | 7,048.2 | 162.4 | 24.6 | -90.57 | 439.7 | -4,757.5 | 1,010.2 | 831.8 | 178.39 | 5.663 | |
| 13,100.0 | 7,076.3 | 7,218.0 | 7,048.2 | 165.2 | 24.6 | -90.57 | 439.7 | -4,757.5 | 1,073.7 | 892.5 | 181.18 | 5.926 | |
| 13,200.0 | 7,076.1 | 7,223.1 | 7,053.3 | 168.0 | 24.6 | -90.93 | 439.7 | -4,757.6 | 1,142.4 | 958.4 | 183.96 | 6.210 | |
| 13,300.0 | 7,075.9 | 7,224.4 | 7,054.7 | 170.7 | 24.6 | -91.03 | 439.7 | -4,757.6 | 1,215.4 | 1,028.7 | 186.75 | 6.508 | |
| 13,400.0 | 7,075.7 | 7,225.7 | 7,056.0 | 173.5 | 24.6 | -91.12 | 439.7 | -4,757.7 | 1,292.1 | 1,102.6 | 189.53 | 6.817 | |
| 13,500.0 | 7,075.5 | 7,227.0 | 7,057.3 | 176.3 | 24.6 | -91.21 | 439.7 | -4,757.7 | 1,371.8 | 1,179.5 | 192.32 | 7.133 | |
| 13,600.0 | 7,075.3 | 7,228.3 | 7,058.5 | 179.1 | 24.6 | -91.30 | 439.7 | -4,757.7 | 1,454.0 | 1,258.9 | 195.11 | 7.452 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD BROWN 20OD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 575-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,700.0 | 7,075.1 | 7,229.6 | 7,059.8 | 181.9 | 24.6 | -91.39 | 439.7 | -4,757.7 | 1,538.3 | 1,340.4 | 197.89 | 7.773 | |
| 13,800.0 | 7,074.9 | 7,230.8 | 7,061.0 | 184.7 | 24.6 | -91.48 | 439.7 | -4,757.8 | 1,624.3 | 1,423.7 | 200.68 | 8.094 | |
| 13,900.0 | 7,074.7 | 7,232.0 | 7,062.3 | 187.5 | 24.6 | -91.57 | 439.7 | -4,757.8 | 1,711.9 | 1,508.5 | 203.46 | 8.414 | |
| 14,000.0 | 7,074.5 | 7,233.2 | 7,063.5 | 190.2 | 24.6 | -91.65 | 439.7 | -4,757.8 | 1,800.8 | 1,594.6 | 206.25 | 8.731 | |
| 14,100.0 | 7,074.2 | 7,234.4 | 7,064.7 | 193.0 | 24.6 | -91.74 | 439.7 | -4,757.8 | 1,890.8 | 1,681.8 | 209.04 | 9.045 | |
| 14,200.0 | 7,074.0 | 7,235.6 | 7,065.8 | 195.8 | 24.6 | -91.82 | 439.7 | -4,757.8 | 1,981.8 | 1,769.9 | 211.82 | 9.356 | |
| 14,221.4 | 7,074.0 | 7,235.8 | 7,066.1 | 196.4 | 24.6 | -91.84 | 439.7 | -4,757.8 | 2,001.3 | 1,788.9 | 212.42 | 9.422 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 12-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 704-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -46.78 | 1,796.1 | -1,911.2 | 2,622.7 | | | | |
| 100.0 | 100.0 | 86.4 | 86.4 | 0.1 | 0.1 | -46.78 | 1,796.1 | -1,911.2 | 2,622.7 | 2,622.5 | 0.18 | N/A | |
| 200.0 | 200.0 | 188.6 | 188.6 | 0.3 | 0.2 | -46.78 | 1,795.9 | -1,911.1 | 2,622.6 | 2,622.1 | 0.49 | 5,313.906 | |
| 300.0 | 300.0 | 290.8 | 290.8 | 0.5 | 0.3 | -46.78 | 1,795.7 | -1,911.1 | 2,622.4 | 2,621.6 | 0.81 | 3,232.399 | |
| 400.0 | 400.0 | 393.0 | 393.0 | 0.8 | 0.4 | -46.79 | 1,795.4 | -1,911.0 | 2,622.1 | 2,621.0 | 1.13 | 2,322.439 | |
| 500.0 | 500.0 | 495.1 | 495.1 | 1.0 | 0.5 | -75.19 | 1,794.9 | -1,910.9 | 2,621.3 | 2,619.8 | 1.44 | 1,814.070 | |
| 600.0 | 599.8 | 597.2 | 597.2 | 1.2 | 0.5 | -75.34 | 1,794.4 | -1,910.8 | 2,619.5 | 2,617.7 | 1.77 | 1,483.853 | |
| 700.0 | 699.5 | 698.9 | 698.9 | 1.5 | 0.6 | -75.59 | 1,793.7 | -1,910.6 | 2,616.8 | 2,614.7 | 2.10 | 1,245.715 | |
| 800.0 | 798.7 | 797.5 | 797.5 | 1.7 | 0.8 | -75.93 | 1,793.1 | -1,910.5 | 2,613.2 | 2,610.6 | 2.57 | 1,016.983 | |
| 900.0 | 897.5 | 892.3 | 892.3 | 2.0 | 1.0 | -76.34 | 1,792.4 | -1,910.5 | 2,608.9 | 2,605.8 | 3.06 | 851.363 | |
| 1,000.0 | 995.6 | 999.9 | 999.9 | 2.4 | 1.2 | -76.88 | 1,791.8 | -1,910.4 | 2,604.0 | 2,600.3 | 3.63 | 718.165 | |
| 1,100.0 | 1,093.1 | 1,200.2 | 1,200.0 | 2.8 | 1.7 | -78.12 | 1,784.3 | -1,909.8 | 2,596.2 | 2,591.7 | 4.47 | 580.393 | |
| 1,164.2 | 1,155.2 | 1,329.2 | 1,328.6 | 3.1 | 2.0 | -79.13 | 1,773.7 | -1,908.5 | 2,588.8 | 2,583.7 | 5.07 | 510.386 | |
| 1,200.0 | 1,189.7 | 1,400.9 | 1,399.9 | 3.2 | 2.2 | -79.66 | 1,766.1 | -1,907.5 | 2,584.1 | 2,578.6 | 5.42 | 476.600 | |
| 1,300.0 | 1,286.2 | 1,649.5 | 1,645.6 | 3.7 | 3.0 | -81.62 | 1,729.7 | -1,899.9 | 2,567.3 | 2,560.7 | 6.59 | 389.416 | |
| 1,400.0 | 1,382.6 | 1,853.3 | 1,845.1 | 4.2 | 3.8 | -83.37 | 1,689.9 | -1,888.2 | 2,546.2 | 2,538.5 | 7.73 | 329.315 | |
| 1,500.0 | 1,479.1 | 2,076.8 | 2,061.8 | 4.7 | 4.7 | -85.33 | 1,640.6 | -1,865.2 | 2,520.4 | 2,511.4 | 8.96 | 281.312 | |
| 1,600.0 | 1,575.6 | 2,164.8 | 2,146.9 | 5.3 | 5.1 | -86.11 | 1,620.6 | -1,854.3 | 2,493.9 | 2,484.2 | 9.74 | 256.001 | |
| 1,700.0 | 1,672.0 | 2,250.8 | 2,230.0 | 5.8 | 5.4 | -86.88 | 1,601.1 | -1,843.6 | 2,468.1 | 2,457.5 | 10.53 | 234.343 | |
| 1,800.0 | 1,768.5 | 2,340.7 | 2,316.8 | 6.3 | 5.8 | -87.72 | 1,580.1 | -1,833.2 | 2,442.9 | 2,431.5 | 11.37 | 214.881 | |
| 1,900.0 | 1,864.9 | 2,444.5 | 2,416.7 | 6.8 | 6.4 | -88.74 | 1,554.8 | -1,821.5 | 2,418.0 | 2,405.7 | 12.30 | 196.665 | |
| 2,000.0 | 1,961.4 | 2,595.9 | 2,561.7 | 7.4 | 7.2 | -90.30 | 1,515.4 | -1,803.3 | 2,392.4 | 2,378.9 | 13.47 | 177.554 | |
| 2,100.0 | 2,057.9 | 2,696.9 | 2,657.8 | 7.9 | 7.8 | -91.39 | 1,487.0 | -1,790.3 | 2,365.8 | 2,351.3 | 14.47 | 163.535 | |
| 2,200.0 | 2,154.3 | 2,762.0 | 2,719.7 | 8.4 | 8.1 | -92.11 | 1,468.7 | -1,782.0 | 2,340.1 | 2,324.8 | 15.28 | 153.103 | |
| 2,300.0 | 2,250.8 | 2,830.7 | 2,785.2 | 9.0 | 8.5 | -92.88 | 1,449.7 | -1,773.8 | 2,315.9 | 2,299.8 | 16.10 | 143.813 | |
| 2,400.0 | 2,347.3 | 2,908.9 | 2,859.9 | 9.5 | 8.9 | -93.77 | 1,428.1 | -1,765.3 | 2,293.3 | 2,276.3 | 16.99 | 134.979 | |
| 2,500.0 | 2,443.7 | 3,003.9 | 2,950.6 | 10.0 | 9.4 | -94.88 | 1,401.7 | -1,754.9 | 2,271.5 | 2,253.5 | 17.98 | 126.342 | |
| 2,600.0 | 2,540.2 | 3,087.3 | 3,030.2 | 10.6 | 9.9 | -95.86 | 1,378.8 | -1,745.4 | 2,250.3 | 2,231.4 | 18.90 | 119.041 | |
| 2,700.0 | 2,636.7 | 3,167.2 | 3,106.8 | 11.1 | 10.3 | -96.78 | 1,358.0 | -1,736.1 | 2,230.4 | 2,210.6 | 19.80 | 112.668 | |
| 2,800.0 | 2,733.1 | 3,251.3 | 3,187.5 | 11.6 | 10.7 | -97.75 | 1,336.7 | -1,726.1 | 2,211.4 | 2,190.7 | 20.70 | 106.823 | |
| 2,900.0 | 2,829.6 | 3,323.0 | 3,256.5 | 12.2 | 11.1 | -98.58 | 1,319.0 | -1,717.9 | 2,193.9 | 2,172.3 | 21.55 | 101.798 | |
| 3,000.0 | 2,926.0 | 3,393.3 | 3,324.3 | 12.7 | 11.4 | -99.39 | 1,302.4 | -1,710.2 | 2,177.9 | 2,155.5 | 22.38 | 97.305 | |
| 3,100.0 | 3,022.5 | 3,462.9 | 3,391.8 | 13.2 | 11.7 | -100.18 | 1,286.6 | -1,702.7 | 2,163.4 | 2,140.2 | 23.21 | 93.216 | |
| 3,200.0 | 3,119.0 | 3,529.3 | 3,456.2 | 13.8 | 12.0 | -100.94 | 1,272.0 | -1,696.1 | 2,150.6 | 2,126.6 | 24.02 | 89.541 | |
| 3,300.0 | 3,215.4 | 3,604.0 | 3,528.8 | 14.3 | 12.3 | -101.80 | 1,255.9 | -1,689.5 | 2,139.7 | 2,114.9 | 24.86 | 86.065 | |
| 3,400.0 | 3,311.9 | 3,710.1 | 3,632.1 | 14.9 | 12.8 | -103.00 | 1,233.7 | -1,680.0 | 2,129.8 | 2,103.9 | 25.84 | 82.429 | |
| 3,500.0 | 3,408.4 | 3,850.4 | 3,767.7 | 15.4 | 13.5 | -104.69 | 1,200.9 | -1,665.3 | 2,118.5 | 2,091.5 | 27.02 | 78.397 | |
| 3,600.0 | 3,504.8 | 3,960.7 | 3,873.7 | 15.9 | 14.1 | -106.08 | 1,172.7 | -1,652.9 | 2,107.1 | 2,079.0 | 28.11 | 74.964 | |
| 3,700.0 | 3,601.3 | 4,036.2 | 3,946.0 | 16.5 | 14.6 | -107.06 | 1,152.8 | -1,644.3 | 2,096.4 | 2,067.4 | 29.01 | 72.264 | |
| 3,800.0 | 3,697.7 | 4,106.9 | 4,013.9 | 17.0 | 14.9 | -107.96 | 1,134.8 | -1,636.7 | 2,087.5 | 2,057.6 | 29.87 | 69.893 | |
| 3,900.0 | 3,794.2 | 4,183.0 | 4,087.4 | 17.5 | 15.3 | -108.91 | 1,116.8 | -1,628.8 | 2,080.2 | 2,049.5 | 30.73 | 67.696 | |
| 4,000.0 | 3,890.7 | 4,274.1 | 4,175.6 | 18.1 | 15.7 | -110.04 | 1,095.4 | -1,619.5 | 2,074.2 | 2,042.5 | 31.66 | 65.517 | |
| 4,100.0 | 3,987.1 | 4,372.3 | 4,270.2 | 18.6 | 16.3 | -111.29 | 1,071.6 | -1,609.1 | 2,068.6 | 2,036.0 | 32.63 | 63.388 | |
| 4,200.0 | 4,083.6 | 4,445.0 | 4,340.5 | 19.2 | 16.6 | -112.21 | 1,054.4 | -1,601.7 | 2,064.5 | 2,031.0 | 33.47 | 61.672 | |
| 4,300.0 | 4,180.1 | 4,530.1 | 4,422.9 | 19.7 | 17.0 | -113.26 | 1,035.1 | -1,593.3 | 2,061.7 | 2,027.4 | 34.34 | 60.043 | |
| 4,400.0 | 4,276.5 | 4,595.3 | 4,486.3 | 20.2 | 17.3 | -114.06 | 1,021.0 | -1,587.1 | 2,060.5 | 2,025.4 | 35.10 | 58.707 | |
| 4,409.3 | 4,285.5 | 4,601.1 | 4,492.0 | 20.3 | 17.3 | -114.13 | 1,019.8 | -1,586.6 | 2,060.5 | 2,025.3 | 35.17 | 58.591 | |
| 4,500.0 | 4,373.0 | 4,665.4 | 4,554.8 | 20.8 | 17.6 | -114.87 | 1,007.4 | -1,581.2 | 2,061.3 | 2,025.4 | 35.86 | 57.484 | |
| 4,600.0 | 4,469.5 | 4,743.9 | 4,631.8 | 21.3 | 17.9 | -115.75 | 993.5 | -1,574.9 | 2,063.5 | 2,026.9 | 36.62 | 56.345 | |
| 4,700.0 | 4,565.9 | 4,820.0 | 4,706.7 | 21.9 | 18.2 | -116.57 | 981.4 | -1,569.5 | 2,067.2 | 2,029.9 | 37.36 | 55.339 | |
| 4,800.0 | 4,662.4 | 4,913.0 | 4,798.5 | 22.4 | 18.5 | -117.52 | 967.9 | -1,562.8 | 2,071.7 | 2,033.6 | 38.11 | 54.358 | |
| 4,900.0 | 4,758.8 | 4,984.8 | 4,869.6 | 22.9 | 18.7 | -118.22 | 959.1 | -1,557.9 | 2,077.3 | 2,038.6 | 38.78 | 53.569 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 12-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 704-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,000.0 | 4,855.3 | 5,060.7 | 4,945.0 | 23.5 | 18.9 | -118.90 | 951.6 | -1,553.7 | 2,084.7 | 2,045.3 | 39.43 | 52.869 | |
| 5,100.0 | 4,951.8 | 5,144.2 | 5,028.1 | 24.0 | 19.2 | -119.62 | 944.5 | -1,549.7 | 2,093.1 | 2,053.1 | 40.07 | 52.236 | |
| 5,200.0 | 5,048.2 | 5,224.3 | 5,108.0 | 24.6 | 19.3 | -120.25 | 939.8 | -1,546.2 | 2,102.5 | 2,061.8 | 40.68 | 51.686 | |
| 5,300.0 | 5,144.7 | 5,288.0 | 5,171.6 | 25.1 | 19.4 | -120.73 | 937.0 | -1,544.1 | 2,113.2 | 2,072.0 | 41.24 | 51.236 | |
| 5,400.0 | 5,241.2 | 5,355.5 | 5,239.0 | 25.6 | 19.5 | -121.19 | 935.3 | -1,543.0 | 2,125.6 | 2,083.8 | 41.79 | 50.868 | |
| 5,500.0 | 5,337.6 | 5,431.7 | 5,315.2 | 26.2 | 19.6 | -121.66 | 935.2 | -1,543.0 | 2,139.7 | 2,097.4 | 42.32 | 50.559 | |
| 5,600.0 | 5,434.1 | 5,525.4 | 5,408.9 | 26.7 | 19.7 | -122.22 | 935.3 | -1,543.4 | 2,154.5 | 2,111.6 | 42.85 | 50.276 | |
| 5,700.0 | 5,530.5 | 5,619.4 | 5,503.0 | 27.3 | 19.8 | -122.77 | 935.5 | -1,543.9 | 2,169.5 | 2,126.1 | 43.38 | 50.010 | |
| 5,757.1 | 5,585.6 | 5,672.7 | 5,556.2 | 27.6 | 19.9 | -123.09 | 935.5 | -1,544.2 | 2,178.2 | 2,134.5 | 43.68 | 49.868 | |
| 5,800.0 | 5,627.1 | 5,718.4 | 5,602.0 | 27.8 | 19.9 | -123.46 | 935.4 | -1,544.5 | 2,184.6 | 2,140.7 | 43.90 | 49.769 | |
| 5,900.0 | 5,724.4 | 5,822.4 | 5,706.0 | 28.2 | 20.1 | -124.22 | 935.0 | -1,544.7 | 2,198.1 | 2,153.7 | 44.33 | 49.588 | |
| 6,000.0 | 5,822.4 | 5,923.9 | 5,807.4 | 28.5 | 20.2 | -124.87 | 934.1 | -1,544.6 | 2,209.5 | 2,164.8 | 44.73 | 49.401 | |
| 6,100.0 | 5,921.0 | 6,025.1 | 5,908.6 | 28.8 | 20.3 | -125.40 | 933.0 | -1,544.4 | 2,218.9 | 2,173.8 | 45.09 | 49.206 | |
| 6,200.0 | 6,020.2 | 6,125.4 | 6,008.9 | 29.0 | 20.5 | -125.83 | 931.8 | -1,544.1 | 2,226.3 | 2,180.9 | 45.43 | 49.008 | |
| 6,300.0 | 6,119.7 | 6,227.0 | 6,110.5 | 29.3 | 20.6 | -126.15 | 930.5 | -1,543.7 | 2,231.7 | 2,185.9 | 45.73 | 48.802 | |
| 6,400.0 | 6,219.5 | 6,328.6 | 6,212.1 | 29.4 | 20.8 | -126.36 | 929.2 | -1,543.1 | 2,234.9 | 2,188.9 | 46.00 | 48.588 | |
| 6,500.0 | 6,319.5 | 6,430.2 | 6,313.7 | 29.5 | 20.9 | -126.47 | 927.8 | -1,542.5 | 2,236.0 | 2,189.7 | 46.23 | 48.365 | |
| 6,521.3 | 6,340.8 | 6,452.2 | 6,335.7 | 29.6 | 20.9 | -98.14 | 927.5 | -1,542.4 | 2,235.9 | 2,199.1 | 36.81 | 60.749 | |
| 6,551.3 | 6,370.8 | 6,483.3 | 6,366.8 | 29.6 | 21.0 | -98.15 | 927.1 | -1,542.2 | 2,235.8 | 2,198.9 | 36.90 | 60.588 | |
| 6,600.0 | 6,419.5 | 6,532.6 | 6,416.0 | 29.6 | 21.1 | -8.19 | 926.4 | -1,541.8 | 2,233.9 | 2,187.6 | 46.26 | 48.286 | |
| 6,650.0 | 6,469.2 | 6,582.1 | 6,465.6 | 29.6 | 21.1 | -8.29 | 925.6 | -1,541.4 | 2,228.5 | 2,182.6 | 45.96 | 48.489 | |
| 6,700.0 | 6,518.4 | 6,632.8 | 6,516.3 | 29.6 | 21.2 | -8.45 | 924.8 | -1,541.0 | 2,219.8 | 2,174.3 | 45.45 | 48.840 | |
| 6,750.0 | 6,567.0 | 6,683.5 | 6,567.0 | 29.6 | 21.3 | -8.68 | 924.0 | -1,540.6 | 2,207.6 | 2,162.8 | 44.74 | 49.347 | |
| 6,800.0 | 6,614.5 | 6,734.6 | 6,618.0 | 29.6 | 21.4 | -8.97 | 923.1 | -1,540.1 | 2,192.0 | 2,148.2 | 43.82 | 50.017 | |
| 6,850.0 | 6,660.9 | 6,784.5 | 6,667.9 | 29.5 | 21.4 | -9.34 | 922.2 | -1,539.4 | 2,173.1 | 2,130.4 | 42.72 | 50.866 | |
| 6,900.0 | 6,705.9 | 6,830.7 | 6,714.1 | 29.4 | 21.5 | -9.79 | 921.3 | -1,538.8 | 2,151.0 | 2,109.6 | 41.44 | 51.910 | |
| 6,950.0 | 6,749.2 | 6,875.1 | 6,758.5 | 29.3 | 21.6 | -10.35 | 920.4 | -1,538.2 | 2,125.9 | 2,085.9 | 39.98 | 53.171 | |
| 7,000.0 | 6,790.7 | 6,918.1 | 6,801.5 | 29.2 | 21.7 | -11.04 | 919.3 | -1,537.5 | 2,097.9 | 2,059.5 | 38.38 | 54.665 | |
| 7,050.0 | 6,830.2 | 6,958.8 | 6,842.2 | 29.1 | 21.7 | -11.88 | 918.2 | -1,536.8 | 2,067.0 | 2,030.4 | 36.64 | 56.420 | |
| 7,100.0 | 6,867.4 | 6,998.4 | 6,881.8 | 29.0 | 21.8 | -12.92 | 917.0 | -1,536.0 | 2,033.6 | 1,998.8 | 34.79 | 58.450 | |
| 7,150.0 | 6,902.2 | 7,035.9 | 6,919.2 | 28.9 | 21.9 | -14.20 | 915.8 | -1,535.2 | 1,997.6 | 1,964.7 | 32.87 | 60.764 | |
| 7,200.0 | 6,934.4 | 7,069.8 | 6,953.1 | 28.7 | 22.0 | -15.79 | 914.6 | -1,534.4 | 1,959.4 | 1,928.4 | 30.93 | 63.341 | |
| 7,250.0 | 6,963.8 | 7,097.7 | 6,980.9 | 28.6 | 22.0 | -17.73 | 913.6 | -1,533.8 | 1,919.1 | 1,890.0 | 29.04 | 66.085 | |
| 7,300.0 | 6,990.4 | 7,122.8 | 7,006.0 | 28.5 | 22.0 | -20.21 | 912.8 | -1,533.2 | 1,876.9 | 1,849.6 | 27.31 | 68.726 | |
| 7,350.0 | 7,013.9 | 7,144.9 | 7,028.1 | 28.4 | 22.1 | -23.41 | 912.1 | -1,532.7 | 1,833.2 | 1,807.2 | 25.94 | 70.681 | |
| 7,400.0 | 7,034.4 | 7,159.0 | 7,042.2 | 28.2 | 22.1 | -27.46 | 911.6 | -1,532.4 | 1,788.0 | 1,762.8 | 25.18 | 71.008 | |
| 7,450.0 | 7,051.5 | 7,178.1 | 7,061.3 | 28.1 | 22.2 | -33.28 | 911.1 | -1,532.0 | 1,741.6 | 1,716.1 | 25.59 | 68.071 | |
| 7,500.0 | 7,065.4 | 7,189.8 | 7,073.0 | 28.0 | 22.2 | -41.06 | 910.7 | -1,531.8 | 1,694.3 | 1,666.8 | 27.49 | 61.636 | |
| 7,550.0 | 7,075.9 | 7,198.4 | 7,081.6 | 27.9 | 22.2 | -51.84 | 910.4 | -1,531.6 | 1,646.3 | 1,615.2 | 31.05 | 53.019 | |
| 7,600.0 | 7,082.9 | 7,203.9 | 7,087.1 | 27.8 | 22.2 | -66.27 | 910.3 | -1,531.5 | 1,597.8 | 1,562.2 | 35.56 | 44.938 | |
| 7,650.0 | 7,086.5 | 7,206.3 | 7,089.4 | 27.7 | 22.2 | -83.65 | 910.2 | -1,531.4 | 1,549.0 | 1,509.9 | 39.14 | 39.574 | |
| 7,677.7 | 7,087.0 | 7,206.2 | 7,089.4 | 27.6 | 22.2 | -93.56 | 910.2 | -1,531.4 | 1,522.0 | 1,482.0 | 40.03 | 38.019 | |
| 7,700.0 | 7,087.0 | 7,205.8 | 7,089.0 | 27.6 | 22.2 | -93.49 | 910.2 | -1,531.4 | 1,500.2 | 1,459.9 | 40.34 | 37.189 | |
| 7,800.0 | 7,086.8 | 7,203.9 | 7,087.0 | 27.5 | 22.2 | -93.15 | 910.3 | -1,531.5 | 1,402.9 | 1,361.1 | 41.87 | 33.509 | |
| 7,900.0 | 7,086.6 | 7,201.9 | 7,085.1 | 27.9 | 22.2 | -92.82 | 910.3 | -1,531.5 | 1,306.0 | 1,262.4 | 43.60 | 29.956 | |
| 8,000.0 | 7,086.4 | 7,199.9 | 7,083.1 | 29.5 | 22.2 | -92.48 | 910.4 | -1,531.6 | 1,209.6 | 1,164.1 | 45.50 | 26.587 | |
| 8,100.0 | 7,086.2 | 7,197.9 | 7,081.1 | 31.5 | 22.2 | -92.14 | 910.5 | -1,531.6 | 1,113.8 | 1,066.3 | 47.53 | 23.433 | |
| 8,200.0 | 7,086.0 | 7,195.9 | 7,079.1 | 33.7 | 22.2 | -91.79 | 910.5 | -1,531.6 | 1,018.9 | 969.2 | 49.68 | 20.509 | |
| 8,300.0 | 7,085.8 | 7,193.8 | 7,077.0 | 36.0 | 22.2 | -91.44 | 910.6 | -1,531.7 | 925.0 | 873.0 | 51.92 | 17.816 | |
| 8,400.0 | 7,085.6 | 7,191.8 | 7,075.0 | 38.3 | 22.2 | -91.09 | 910.6 | -1,531.7 | 832.5 | 778.2 | 54.23 | 15.350 | |
| 8,500.0 | 7,085.4 | 7,189.7 | 7,072.9 | 40.7 | 22.2 | -90.73 | 910.7 | -1,531.8 | 741.9 | 685.3 | 56.61 | 13.106 | |
| 8,600.0 | 7,085.2 | 7,187.6 | 7,070.8 | 43.1 | 22.2 | -90.37 | 910.8 | -1,531.8 | 654.1 | 595.1 | 59.03 | 11.080 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 12-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 704-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.0 | 7,085.0 | 7,185.5 | 7,068.6 | 45.6 | 22.2 | -90.00 | 910.8 | -1,531.8 | 570.3 | 508.8 | 61.50 | 9.273 | |
| 8,800.0 | 7,084.8 | 7,183.3 | 7,066.5 | 48.1 | 22.2 | -89.63 | 910.9 | -1,531.9 | 492.6 | 428.6 | 64.00 | 7.697 | |
| 8,900.0 | 7,084.6 | 7,181.1 | 7,064.3 | 50.7 | 22.2 | -89.26 | 911.0 | -1,531.9 | 424.3 | 357.8 | 66.53 | 6.378 | |
| 9,000.0 | 7,084.4 | 7,178.9 | 7,062.1 | 53.2 | 22.2 | -88.88 | 911.0 | -1,532.0 | 370.7 | 301.6 | 69.09 | 5.366 | |
| 9,100.0 | 7,084.2 | 7,176.7 | 7,059.9 | 55.8 | 22.1 | -88.50 | 911.1 | -1,532.0 | 338.8 | 267.2 | 71.66 | 4.728 | |
| 9,163.2 | 7,084.1 | 7,175.3 | 7,058.5 | 57.5 | 22.1 | -88.26 | 911.2 | -1,532.0 | 332.9 | 259.6 | 73.30 | 4.542 | CC, ES |
| 9,200.0 | 7,084.0 | 7,174.5 | 7,057.7 | 58.4 | 22.1 | -88.12 | 911.2 | -1,532.1 | 334.9 | 260.7 | 74.25 | 4.511 | SF |
| 9,300.0 | 7,083.8 | 7,172.2 | 7,055.4 | 61.1 | 22.1 | -87.73 | 911.2 | -1,532.1 | 359.9 | 283.1 | 76.85 | 4.683 | |
| 9,400.0 | 7,083.7 | 7,169.9 | 7,053.1 | 63.7 | 22.1 | -87.33 | 911.3 | -1,532.2 | 408.5 | 329.0 | 79.47 | 5.141 | |
| 9,500.0 | 7,083.5 | 7,167.6 | 7,050.8 | 66.3 | 22.1 | -86.94 | 911.4 | -1,532.2 | 473.5 | 391.4 | 82.09 | 5.768 | |
| 9,600.0 | 7,083.3 | 7,165.3 | 7,048.5 | 69.0 | 22.1 | -86.53 | 911.5 | -1,532.3 | 549.1 | 464.4 | 84.72 | 6.482 | |
| 9,700.0 | 7,083.1 | 7,162.9 | 7,046.1 | 71.7 | 22.1 | -86.13 | 911.5 | -1,532.3 | 631.5 | 544.2 | 87.35 | 7.230 | |
| 9,800.0 | 7,082.9 | 7,160.5 | 7,043.7 | 74.4 | 22.1 | -85.72 | 911.6 | -1,532.4 | 718.4 | 628.5 | 89.98 | 7.984 | |
| 9,900.0 | 7,082.7 | 7,158.1 | 7,041.3 | 77.1 | 22.1 | -85.30 | 911.7 | -1,532.4 | 808.4 | 715.7 | 92.62 | 8.728 | |
| 10,000.0 | 7,082.5 | 7,155.6 | 7,038.8 | 79.7 | 22.1 | -84.87 | 911.7 | -1,532.5 | 900.4 | 805.1 | 95.25 | 9.453 | |
| 10,100.0 | 7,082.3 | 7,153.1 | 7,036.3 | 82.5 | 22.1 | -84.45 | 911.8 | -1,532.5 | 994.0 | 896.1 | 97.88 | 10.155 | |
| 10,200.0 | 7,082.1 | 7,150.6 | 7,033.8 | 85.2 | 22.1 | -84.02 | 911.9 | -1,532.6 | 1,088.7 | 988.2 | 100.51 | 10.831 | |
| 10,300.0 | 7,081.9 | 7,148.1 | 7,031.3 | 87.9 | 22.1 | -83.58 | 912.0 | -1,532.6 | 1,184.3 | 1,081.1 | 103.14 | 11.482 | |
| 10,400.0 | 7,081.7 | 7,145.6 | 7,028.8 | 90.6 | 22.1 | -83.15 | 912.0 | -1,532.7 | 1,280.5 | 1,174.8 | 105.76 | 12.108 | |
| 10,500.0 | 7,081.5 | 7,143.0 | 7,026.2 | 93.3 | 22.1 | -82.72 | 912.1 | -1,532.7 | 1,377.3 | 1,268.9 | 108.37 | 12.709 | |
| 10,600.0 | 7,081.3 | 7,140.4 | 7,023.7 | 96.1 | 22.1 | -82.28 | 912.2 | -1,532.8 | 1,474.5 | 1,363.5 | 110.98 | 13.286 | |
| 10,700.0 | 7,081.1 | 7,137.9 | 7,021.1 | 98.8 | 22.1 | -81.84 | 912.3 | -1,532.9 | 1,572.0 | 1,458.5 | 113.58 | 13.841 | |
| 10,800.0 | 7,080.9 | 7,135.3 | 7,018.5 | 101.5 | 22.1 | -81.40 | 912.4 | -1,532.9 | 1,669.9 | 1,553.7 | 116.17 | 14.374 | |
| 10,900.0 | 7,080.7 | 7,132.7 | 7,015.9 | 104.3 | 22.1 | -80.96 | 912.4 | -1,533.0 | 1,768.0 | 1,649.2 | 118.76 | 14.887 | |
| 11,000.0 | 7,080.5 | 7,130.1 | 7,013.3 | 107.0 | 22.1 | -80.52 | 912.5 | -1,533.0 | 1,866.2 | 1,744.9 | 121.33 | 15.382 | |
| 11,100.0 | 7,080.3 | 7,127.4 | 7,010.7 | 109.8 | 22.1 | -80.07 | 912.6 | -1,533.1 | 1,964.7 | 1,840.8 | 123.89 | 15.858 | |
| 11,200.0 | 7,080.1 | 7,124.8 | 7,008.0 | 112.5 | 22.1 | -79.63 | 912.7 | -1,533.2 | 2,063.3 | 1,936.8 | 126.44 | 16.318 | |
| 11,300.0 | 7,079.9 | 7,122.1 | 7,005.4 | 115.3 | 22.0 | -79.18 | 912.8 | -1,533.2 | 2,162.0 | 2,033.0 | 128.98 | 16.762 | |
| 11,400.0 | 7,079.7 | 7,119.5 | 7,002.7 | 118.0 | 22.0 | -78.73 | 912.9 | -1,533.3 | 2,260.8 | 2,129.3 | 131.50 | 17.192 | |
| 11,500.0 | 7,079.5 | 7,116.8 | 7,000.0 | 120.8 | 22.0 | -78.28 | 913.0 | -1,533.3 | 2,359.7 | 2,225.7 | 134.01 | 17.608 | |
| 11,600.0 | 7,079.3 | 7,114.1 | 6,997.3 | 123.6 | 22.0 | -77.83 | 913.0 | -1,533.4 | 2,458.8 | 2,322.2 | 136.51 | 18.011 | |
| 11,700.0 | 7,079.1 | 7,111.4 | 6,994.6 | 126.3 | 22.0 | -77.38 | 913.1 | -1,533.5 | 2,557.8 | 2,418.8 | 138.99 | 18.402 | |
| 11,800.0 | 7,078.9 | 7,108.7 | 6,991.9 | 129.1 | 22.0 | -76.93 | 913.2 | -1,533.5 | 2,657.0 | 2,515.5 | 141.46 | 18.782 | |
| 11,900.0 | 7,078.7 | 7,105.9 | 6,989.2 | 131.9 | 22.0 | -76.48 | 913.3 | -1,533.6 | 2,756.2 | 2,612.3 | 143.91 | 19.152 | |
| 12,000.0 | 7,078.5 | 7,103.2 | 6,986.4 | 134.6 | 22.0 | -76.02 | 913.4 | -1,533.6 | 2,855.5 | 2,709.1 | 146.35 | 19.512 | |
| 12,100.0 | 7,078.3 | 7,100.4 | 6,983.6 | 137.4 | 22.0 | -75.57 | 913.5 | -1,533.7 | 2,954.8 | 2,806.0 | 148.76 | 19.862 | |
| 12,200.0 | 7,078.1 | 7,097.6 | 6,980.9 | 140.2 | 22.0 | -75.11 | 913.6 | -1,533.8 | 3,054.1 | 2,903.0 | 151.16 | 20.205 | |
| 12,300.0 | 7,077.9 | 7,094.8 | 6,978.1 | 142.9 | 22.0 | -74.65 | 913.7 | -1,533.8 | 3,153.5 | 3,000.0 | 153.54 | 20.539 | |
| 12,400.0 | 7,077.7 | 7,092.0 | 6,975.3 | 145.7 | 22.0 | -74.19 | 913.8 | -1,533.9 | 3,252.9 | 3,097.0 | 155.90 | 20.865 | |
| 12,500.0 | 7,077.5 | 7,089.2 | 6,972.4 | 148.5 | 22.0 | -73.74 | 913.9 | -1,534.0 | 3,352.4 | 3,194.2 | 158.24 | 21.185 | |
| 12,600.0 | 7,077.3 | 7,086.3 | 6,969.6 | 151.3 | 22.0 | -73.28 | 914.0 | -1,534.0 | 3,451.9 | 3,291.3 | 160.56 | 21.499 | |
| 12,700.0 | 7,077.1 | 7,083.5 | 6,966.7 | 154.0 | 22.0 | -72.82 | 914.1 | -1,534.1 | 3,551.4 | 3,388.5 | 162.86 | 21.806 | |
| 12,800.0 | 7,076.9 | 7,080.6 | 6,963.9 | 156.8 | 22.0 | -72.36 | 914.2 | -1,534.2 | 3,650.9 | 3,485.8 | 165.14 | 22.108 | |
| 12,900.0 | 7,076.7 | 7,077.7 | 6,961.0 | 159.6 | 22.0 | -71.90 | 914.3 | -1,534.2 | 3,750.5 | 3,583.1 | 167.40 | 22.404 | |
| 13,000.0 | 7,076.5 | 7,074.8 | 6,958.1 | 162.4 | 22.0 | -71.43 | 914.4 | -1,534.3 | 3,850.1 | 3,680.4 | 169.63 | 22.696 | |
| 13,100.0 | 7,076.3 | 7,071.9 | 6,955.2 | 165.2 | 22.0 | -70.97 | 914.5 | -1,534.4 | 3,949.7 | 3,777.8 | 171.85 | 22.984 | |
| 13,200.0 | 7,076.1 | 7,068.9 | 6,952.2 | 168.0 | 22.0 | -70.51 | 914.6 | -1,534.4 | 4,049.3 | 3,875.3 | 174.04 | 23.267 | |
| 13,300.0 | 7,075.9 | 7,066.0 | 6,949.3 | 170.7 | 21.9 | -70.05 | 914.7 | -1,534.5 | 4,148.9 | 3,972.7 | 176.20 | 23.546 | |
| 13,400.0 | 7,075.7 | 7,066.0 | 6,949.3 | 173.5 | 21.9 | -70.05 | 914.7 | -1,534.5 | 4,248.6 | 4,069.7 | 178.83 | 23.757 | |
| 13,500.0 | 7,075.5 | 7,066.0 | 6,949.3 | 176.3 | 21.9 | -70.05 | 914.7 | -1,534.5 | 4,348.3 | 4,166.8 | 181.47 | 23.962 | |
| 13,600.0 | 7,075.3 | 7,066.0 | 6,949.3 | 179.1 | 21.9 | -70.05 | 914.7 | -1,534.5 | 4,447.9 | 4,263.8 | 184.10 | 24.160 | |
| 13,700.0 | 7,075.1 | 7,066.0 | 6,949.3 | 181.9 | 21.9 | -70.04 | 914.7 | -1,534.5 | 4,547.6 | 4,360.9 | 186.73 | 24.354 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 12-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 704-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.0 | 7,074.9 | 7,066.0 | 6,949.3 | 184.7 | 21.9 | -70.04 | 914.7 | -1,534.5 | 4,647.3 | 4,458.0 | 189.37 | 24.541 | |
| 13,900.0 | 7,074.7 | 7,054.0 | 6,937.3 | 187.5 | 21.9 | -68.19 | 915.1 | -1,534.8 | 4,747.0 | 4,557.2 | 189.83 | 25.007 | |
| 14,000.0 | 7,074.5 | 7,052.1 | 6,935.3 | 190.2 | 21.9 | -67.90 | 915.2 | -1,534.8 | 4,846.8 | 4,654.7 | 192.06 | 25.235 | |
| 14,100.0 | 7,074.2 | 7,050.1 | 6,933.4 | 193.0 | 21.9 | -67.61 | 915.3 | -1,534.9 | 4,946.5 | 4,752.2 | 194.29 | 25.459 | |
| 14,200.0 | 7,074.0 | 7,048.2 | 6,931.5 | 195.8 | 21.9 | -67.32 | 915.3 | -1,534.9 | 5,046.3 | 4,849.7 | 196.51 | 25.680 | |
| 14,221.4 | 7,074.0 | 7,047.8 | 6,931.1 | 196.4 | 21.9 | -67.26 | 915.4 | -1,534.9 | 5,067.6 | 4,870.6 | 196.98 | 25.726 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 21GDU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 703-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -47.16 | 1,793.2 | -1,933.8 | 2,637.3 | | | | |
| 100.0 | 100.0 | 84.0 | 84.0 | 0.1 | 0.1 | -47.16 | 1,793.3 | -1,933.7 | 2,637.2 | 2,637.1 | 0.17 | N/A | |
| 200.0 | 200.0 | 183.5 | 183.5 | 0.3 | 0.2 | -47.15 | 1,793.6 | -1,933.4 | 2,637.3 | 2,636.8 | 0.49 | 5,379.451 | |
| 300.0 | 300.0 | 282.9 | 282.9 | 0.5 | 0.3 | -47.13 | 1,794.3 | -1,932.9 | 2,637.3 | 2,636.5 | 0.81 | 3,271.236 | |
| 400.0 | 400.0 | 382.4 | 382.4 | 0.8 | 0.4 | -47.11 | 1,795.1 | -1,932.2 | 2,637.4 | 2,636.3 | 1.12 | 2,350.247 | |
| 500.0 | 500.0 | 481.8 | 481.8 | 1.0 | 0.4 | -75.46 | 1,796.3 | -1,931.2 | 2,637.0 | 2,635.6 | 1.44 | 1,833.859 | |
| 600.0 | 599.8 | 581.2 | 581.2 | 1.2 | 0.5 | -75.55 | 1,797.7 | -1,930.0 | 2,635.8 | 2,634.1 | 1.76 | 1,500.597 | |
| 700.0 | 699.5 | 680.5 | 680.4 | 1.5 | 0.6 | -75.73 | 1,799.4 | -1,928.7 | 2,633.8 | 2,631.7 | 2.09 | 1,260.190 | |
| 800.0 | 798.7 | 778.1 | 778.0 | 1.7 | 0.8 | -75.99 | 1,801.1 | -1,927.3 | 2,631.0 | 2,628.4 | 2.53 | 1,039.929 | |
| 900.0 | 897.5 | 869.0 | 868.9 | 2.0 | 1.0 | -76.33 | 1,802.0 | -1,926.9 | 2,627.5 | 2,624.5 | 3.00 | 874.515 | |
| 1,000.0 | 995.6 | 1,002.0 | 1,001.8 | 2.4 | 1.2 | -77.04 | 1,799.4 | -1,929.2 | 2,623.1 | 2,619.5 | 3.61 | 726.766 | |
| 1,100.0 | 1,093.1 | 1,161.8 | 1,161.1 | 2.8 | 1.6 | -78.20 | 1,788.1 | -1,934.8 | 2,616.0 | 2,611.7 | 4.35 | 600.938 | |
| 1,164.2 | 1,155.2 | 1,341.8 | 1,339.3 | 3.1 | 2.1 | -79.81 | 1,763.8 | -1,942.0 | 2,608.6 | 2,603.4 | 5.12 | 509.271 | |
| 1,200.0 | 1,189.7 | 1,380.3 | 1,377.2 | 3.2 | 2.2 | -80.16 | 1,757.1 | -1,943.7 | 2,604.0 | 2,598.6 | 5.41 | 481.299 | |
| 1,300.0 | 1,286.2 | 1,513.1 | 1,507.1 | 3.7 | 2.7 | -81.46 | 1,730.9 | -1,951.6 | 2,591.5 | 2,585.1 | 6.36 | 407.308 | |
| 1,400.0 | 1,382.6 | 1,735.6 | 1,721.2 | 4.2 | 3.7 | -83.92 | 1,671.9 | -1,964.5 | 2,574.9 | 2,567.1 | 7.87 | 327.363 | |
| 1,500.0 | 1,479.1 | 1,879.5 | 1,857.8 | 4.7 | 4.5 | -85.63 | 1,627.4 | -1,971.5 | 2,557.0 | 2,547.9 | 9.13 | 280.204 | |
| 1,600.0 | 1,575.6 | 2,017.4 | 1,988.6 | 5.3 | 5.2 | -87.28 | 1,583.8 | -1,975.8 | 2,538.8 | 2,528.4 | 10.35 | 245.269 | |
| 1,700.0 | 1,672.0 | 2,094.7 | 2,061.7 | 5.8 | 5.7 | -88.22 | 1,558.8 | -1,977.5 | 2,520.6 | 2,509.3 | 11.29 | 223.286 | |
| 1,800.0 | 1,768.5 | 2,151.7 | 2,115.7 | 6.3 | 6.0 | -88.92 | 1,540.6 | -1,979.1 | 2,504.1 | 2,492.0 | 12.10 | 206.874 | |
| 1,900.0 | 1,864.9 | 2,208.6 | 2,169.8 | 6.8 | 6.3 | -89.62 | 1,523.0 | -1,981.1 | 2,489.6 | 2,476.7 | 12.92 | 192.684 | |
| 2,000.0 | 1,961.4 | 2,284.9 | 2,242.4 | 7.4 | 6.7 | -90.56 | 1,499.6 | -1,984.2 | 2,476.7 | 2,462.9 | 13.85 | 178.807 | |
| 2,100.0 | 2,057.9 | 2,410.2 | 2,361.4 | 7.9 | 7.4 | -92.12 | 1,460.7 | -1,988.6 | 2,464.4 | 2,449.4 | 15.08 | 163.434 | |
| 2,200.0 | 2,154.3 | 2,509.3 | 2,455.5 | 8.4 | 7.9 | -93.35 | 1,429.8 | -1,990.9 | 2,452.3 | 2,436.2 | 16.17 | 151.676 | |
| 2,300.0 | 2,250.8 | 2,606.6 | 2,547.6 | 9.0 | 8.5 | -94.60 | 1,398.3 | -1,993.1 | 2,440.9 | 2,423.6 | 17.29 | 141.207 | |
| 2,400.0 | 2,347.3 | 2,712.2 | 2,647.0 | 9.5 | 9.2 | -95.98 | 1,362.8 | -1,995.4 | 2,430.1 | 2,411.6 | 18.48 | 131.478 | |
| 2,500.0 | 2,443.7 | 2,800.2 | 2,729.8 | 10.0 | 9.7 | -97.15 | 1,332.9 | -1,996.6 | 2,419.8 | 2,400.3 | 19.54 | 123.812 | |
| 2,600.0 | 2,540.2 | 2,868.7 | 2,794.4 | 10.6 | 10.1 | -98.04 | 1,310.5 | -1,997.6 | 2,411.2 | 2,390.7 | 20.46 | 117.827 | |
| 2,700.0 | 2,636.7 | 2,940.7 | 2,862.4 | 11.1 | 10.6 | -98.99 | 1,286.6 | -1,999.0 | 2,404.2 | 2,382.8 | 21.40 | 112.321 | |
| 2,800.0 | 2,733.1 | 2,996.3 | 2,914.7 | 11.6 | 10.9 | -99.74 | 1,267.9 | -2,000.7 | 2,399.2 | 2,376.9 | 22.27 | 107.748 | |
| 2,900.0 | 2,829.6 | 3,042.0 | 2,957.7 | 12.2 | 11.2 | -100.35 | 1,252.6 | -2,002.6 | 2,396.4 | 2,373.4 | 23.07 | 103.880 | |
| 2,971.4 | 2,898.4 | 3,090.4 | 3,003.5 | 12.6 | 11.4 | -101.00 | 1,236.8 | -2,005.0 | 2,395.9 | 2,372.2 | 23.71 | 101.051 | |
| 3,000.0 | 2,926.0 | 3,106.8 | 3,018.9 | 12.7 | 11.5 | -101.22 | 1,231.7 | -2,005.8 | 2,396.0 | 2,372.0 | 23.95 | 100.045 | |
| 3,100.0 | 3,022.5 | 3,175.7 | 3,084.5 | 13.2 | 11.9 | -102.11 | 1,210.8 | -2,009.6 | 2,397.6 | 2,372.7 | 24.85 | 96.465 | |
| 3,200.0 | 3,119.0 | 3,248.2 | 3,153.2 | 13.8 | 12.3 | -103.06 | 1,188.1 | -2,014.1 | 2,400.7 | 2,374.9 | 25.78 | 93.110 | |
| 3,300.0 | 3,215.4 | 3,307.7 | 3,209.6 | 14.3 | 12.7 | -103.85 | 1,169.4 | -2,018.2 | 2,405.8 | 2,379.1 | 26.65 | 90.287 | |
| 3,400.0 | 3,311.9 | 3,452.5 | 3,346.9 | 14.9 | 13.5 | -105.74 | 1,124.4 | -2,027.3 | 2,411.7 | 2,383.7 | 27.95 | 86.297 | |
| 3,500.0 | 3,408.4 | 3,509.0 | 3,400.4 | 15.4 | 13.9 | -106.48 | 1,106.5 | -2,029.8 | 2,417.4 | 2,388.6 | 28.77 | 84.017 | |
| 3,600.0 | 3,504.8 | 3,571.0 | 3,459.2 | 15.9 | 14.2 | -107.28 | 1,087.1 | -2,033.1 | 2,425.2 | 2,395.5 | 29.62 | 81.886 | |
| 3,700.0 | 3,601.3 | 3,603.0 | 3,489.6 | 16.5 | 14.4 | -107.69 | 1,077.4 | -2,035.5 | 2,435.9 | 2,405.6 | 30.30 | 80.392 | |
| 3,800.0 | 3,697.7 | 3,664.5 | 3,548.0 | 17.0 | 14.8 | -108.47 | 1,059.1 | -2,041.0 | 2,449.0 | 2,417.9 | 31.12 | 78.695 | |
| 3,900.0 | 3,794.2 | 3,745.6 | 3,624.9 | 17.5 | 15.2 | -109.51 | 1,034.6 | -2,049.2 | 2,464.2 | 2,432.2 | 32.05 | 76.891 | |
| 4,000.0 | 3,890.7 | 3,858.9 | 3,731.4 | 18.1 | 16.0 | -111.00 | 997.2 | -2,059.9 | 2,479.7 | 2,446.5 | 33.18 | 74.745 | |
| 4,100.0 | 3,987.1 | 3,972.2 | 3,836.7 | 18.6 | 16.8 | -112.54 | 956.6 | -2,069.4 | 2,495.5 | 2,461.2 | 34.33 | 72.697 | |
| 4,200.0 | 4,083.6 | 4,092.2 | 3,947.9 | 19.2 | 17.6 | -114.17 | 912.4 | -2,077.7 | 2,511.5 | 2,476.0 | 35.47 | 70.801 | |
| 4,300.0 | 4,180.1 | 4,180.3 | 4,029.8 | 19.7 | 18.2 | -115.35 | 880.2 | -2,082.9 | 2,527.9 | 2,491.5 | 36.40 | 69.445 | |
| 4,400.0 | 4,276.5 | 4,241.0 | 4,086.4 | 20.2 | 18.5 | -116.13 | 858.8 | -2,086.7 | 2,545.9 | 2,508.7 | 37.17 | 68.487 | |
| 4,500.0 | 4,373.0 | 4,327.9 | 4,167.7 | 20.8 | 19.1 | -117.24 | 828.6 | -2,092.6 | 2,565.4 | 2,527.3 | 38.07 | 67.393 | |
| 4,600.0 | 4,469.5 | 4,414.4 | 4,248.1 | 21.3 | 19.7 | -118.36 | 797.1 | -2,098.0 | 2,585.8 | 2,546.8 | 38.98 | 66.341 | |
| 4,700.0 | 4,565.9 | 4,507.2 | 4,334.1 | 21.9 | 20.4 | -119.56 | 762.9 | -2,103.5 | 2,607.2 | 2,567.3 | 39.92 | 65.317 | |
| 4,800.0 | 4,662.4 | 4,580.2 | 4,401.7 | 22.4 | 20.9 | -120.50 | 735.5 | -2,107.5 | 2,629.5 | 2,588.8 | 40.75 | 64.529 | |
| 4,900.0 | 4,758.8 | 4,645.3 | 4,461.6 | 22.9 | 21.4 | -121.35 | 710.3 | -2,111.5 | 2,653.6 | 2,612.0 | 41.53 | 63.899 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 21GDU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 703-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,000.0 | 4,855.3 | 4,741.7 | 4,551.0 | 23.5 | 22.0 | -122.55 | 674.5 | -2,117.5 | 2,678.7 | 2,636.3 | 42.39 | 63.188 | |
| 5,100.0 | 4,951.8 | 4,854.1 | 4,655.4 | 24.0 | 22.8 | -123.92 | 633.4 | -2,123.3 | 2,704.0 | 2,660.8 | 43.28 | 62.475 | |
| 5,200.0 | 5,048.2 | 4,935.7 | 4,731.6 | 24.6 | 23.3 | -124.89 | 604.5 | -2,127.3 | 2,730.0 | 2,686.0 | 44.04 | 61.994 | |
| 5,300.0 | 5,144.7 | 5,006.0 | 4,797.3 | 25.1 | 23.7 | -125.70 | 579.8 | -2,131.0 | 2,757.2 | 2,712.4 | 44.73 | 61.644 | |
| 5,400.0 | 5,241.2 | 5,256.9 | 5,037.5 | 25.6 | 25.0 | -128.22 | 508.9 | -2,140.3 | 2,782.6 | 2,736.8 | 45.75 | 60.824 | |
| 5,500.0 | 5,337.6 | 5,397.2 | 5,175.2 | 26.2 | 25.5 | -129.34 | 482.1 | -2,142.8 | 2,805.2 | 2,758.8 | 46.38 | 60.480 | |
| 5,600.0 | 5,434.1 | 5,509.5 | 5,286.2 | 26.7 | 25.9 | -130.15 | 465.0 | -2,144.5 | 2,827.4 | 2,780.5 | 46.93 | 60.245 | |
| 5,700.0 | 5,530.5 | 5,600.9 | 5,376.9 | 27.3 | 26.1 | -130.74 | 453.8 | -2,146.0 | 2,849.4 | 2,802.0 | 47.44 | 60.068 | |
| 5,757.1 | 5,585.6 | 5,641.1 | 5,416.8 | 27.6 | 26.3 | -130.99 | 449.2 | -2,147.0 | 2,862.4 | 2,814.7 | 47.71 | 59.993 | |
| 5,800.0 | 5,627.1 | 5,693.1 | 5,468.5 | 27.8 | 26.4 | -131.44 | 443.6 | -2,148.4 | 2,872.1 | 2,824.2 | 47.89 | 59.972 | |
| 5,900.0 | 5,724.4 | 5,852.1 | 5,626.8 | 28.2 | 26.8 | -132.58 | 428.5 | -2,150.5 | 2,891.6 | 2,843.3 | 48.27 | 59.905 | |
| 6,000.0 | 5,822.4 | 5,968.8 | 5,743.1 | 28.5 | 27.0 | -133.32 | 419.7 | -2,151.1 | 2,907.7 | 2,859.1 | 48.60 | 59.828 | |
| 6,100.0 | 5,921.0 | 6,093.1 | 5,867.1 | 28.8 | 27.2 | -133.94 | 412.2 | -2,151.4 | 2,921.0 | 2,872.0 | 48.92 | 59.712 | |
| 6,200.0 | 6,020.2 | 6,211.0 | 5,985.0 | 29.0 | 27.4 | -134.41 | 406.5 | -2,150.9 | 2,930.9 | 2,881.7 | 49.21 | 59.556 | |
| 6,300.0 | 6,119.7 | 6,341.1 | 6,115.0 | 29.3 | 27.6 | -134.76 | 402.4 | -2,149.7 | 2,937.6 | 2,888.1 | 49.49 | 59.354 | |
| 6,400.0 | 6,219.5 | 6,434.2 | 6,208.1 | 29.4 | 27.7 | -134.94 | 400.1 | -2,148.8 | 2,941.5 | 2,891.8 | 49.72 | 59.157 | |
| 6,500.0 | 6,319.5 | 6,522.2 | 6,296.0 | 29.5 | 27.8 | -135.05 | 397.7 | -2,148.1 | 2,943.4 | 2,893.4 | 49.93 | 58.948 | |
| 6,521.3 | 6,340.8 | 6,542.7 | 6,316.5 | 29.6 | 27.8 | -106.72 | 397.1 | -2,148.0 | 2,943.5 | 2,900.8 | 42.64 | 69.023 | |
| 6,551.3 | 6,370.8 | 6,571.5 | 6,345.3 | 29.6 | 27.9 | -106.74 | 396.2 | -2,147.8 | 2,943.6 | 2,900.8 | 42.73 | 68.889 | |
| 6,600.0 | 6,419.5 | 6,618.4 | 6,392.2 | 29.6 | 28.0 | -16.81 | 394.7 | -2,147.6 | 2,942.2 | 2,892.2 | 49.99 | 58.851 | |
| 6,650.0 | 6,469.2 | 6,666.5 | 6,440.2 | 29.6 | 28.0 | -16.98 | 393.0 | -2,147.3 | 2,937.5 | 2,887.8 | 49.68 | 59.125 | |
| 6,700.0 | 6,518.4 | 6,713.1 | 6,486.7 | 29.6 | 28.1 | -17.25 | 391.2 | -2,147.0 | 2,929.5 | 2,880.4 | 49.12 | 59.645 | |
| 6,750.0 | 6,567.0 | 6,757.9 | 6,531.6 | 29.6 | 28.2 | -17.63 | 389.4 | -2,146.7 | 2,918.3 | 2,870.0 | 48.30 | 60.421 | |
| 6,800.0 | 6,614.5 | 6,811.4 | 6,585.0 | 29.6 | 28.3 | -18.15 | 387.1 | -2,146.4 | 2,903.9 | 2,856.7 | 47.25 | 61.464 | |
| 6,850.0 | 6,660.9 | 6,876.8 | 6,650.3 | 29.5 | 28.4 | -18.85 | 384.4 | -2,145.6 | 2,886.2 | 2,840.3 | 45.97 | 62.791 | |
| 6,900.0 | 6,705.9 | 6,919.2 | 6,692.7 | 29.4 | 28.4 | -19.64 | 382.5 | -2,145.0 | 2,865.3 | 2,820.9 | 44.45 | 64.455 | |
| 6,950.0 | 6,749.2 | 6,959.9 | 6,733.3 | 29.3 | 28.5 | -20.58 | 380.7 | -2,144.4 | 2,841.6 | 2,798.8 | 42.75 | 66.476 | |
| 7,000.0 | 6,790.7 | 6,998.5 | 6,771.9 | 29.2 | 28.6 | -21.72 | 378.8 | -2,143.8 | 2,815.0 | 2,774.2 | 40.87 | 68.882 | |
| 7,050.0 | 6,830.2 | 7,035.0 | 6,808.4 | 29.1 | 28.6 | -23.07 | 376.9 | -2,143.3 | 2,785.9 | 2,747.1 | 38.86 | 71.696 | |
| 7,100.0 | 6,867.4 | 7,064.0 | 6,837.3 | 29.0 | 28.7 | -24.64 | 375.3 | -2,142.8 | 2,754.3 | 2,717.6 | 36.77 | 74.913 | |
| 7,150.0 | 6,902.2 | 7,098.2 | 6,871.5 | 28.9 | 28.7 | -26.59 | 373.4 | -2,142.3 | 2,720.4 | 2,685.8 | 34.67 | 78.463 | |
| 7,200.0 | 6,934.4 | 7,125.4 | 6,898.5 | 28.7 | 28.8 | -28.86 | 371.8 | -2,142.0 | 2,684.5 | 2,651.8 | 32.68 | 82.149 | |
| 7,250.0 | 6,963.8 | 7,150.2 | 6,923.3 | 28.6 | 28.8 | -31.58 | 370.3 | -2,141.7 | 2,646.5 | 2,615.6 | 30.94 | 85.550 | |
| 7,300.0 | 6,990.4 | 7,175.2 | 6,948.3 | 28.5 | 28.9 | -34.90 | 368.7 | -2,141.4 | 2,606.9 | 2,577.2 | 29.65 | 87.913 | |
| 7,350.0 | 7,013.9 | 7,198.6 | 6,971.6 | 28.4 | 28.9 | -38.94 | 367.3 | -2,141.1 | 2,565.6 | 2,536.6 | 29.07 | 88.259 | |
| 7,400.0 | 7,034.4 | 7,218.7 | 6,991.7 | 28.2 | 29.0 | -43.81 | 366.0 | -2,140.9 | 2,523.0 | 2,493.6 | 29.39 | 85.853 | |
| 7,450.0 | 7,051.5 | 7,235.5 | 7,008.5 | 28.1 | 29.0 | -49.66 | 364.9 | -2,140.7 | 2,479.3 | 2,448.6 | 30.68 | 80.812 | |
| 7,500.0 | 7,065.4 | 7,248.9 | 7,021.8 | 28.0 | 29.0 | -56.59 | 364.0 | -2,140.5 | 2,434.6 | 2,401.8 | 32.80 | 74.215 | |
| 7,550.0 | 7,075.9 | 7,259.2 | 7,032.1 | 27.9 | 29.1 | -64.63 | 363.4 | -2,140.4 | 2,389.2 | 2,353.8 | 35.40 | 67.490 | |
| 7,600.0 | 7,082.9 | 7,265.9 | 7,038.8 | 27.8 | 29.1 | -73.60 | 362.9 | -2,140.3 | 2,343.4 | 2,305.4 | 37.93 | 61.781 | |
| 7,650.0 | 7,086.5 | 7,269.0 | 7,041.9 | 27.7 | 29.1 | -83.07 | 362.7 | -2,140.3 | 2,297.3 | 2,257.4 | 39.85 | 57.644 | |
| 7,677.7 | 7,087.0 | 7,269.1 | 7,042.0 | 27.6 | 29.1 | -88.34 | 362.7 | -2,140.3 | 2,271.7 | 2,231.2 | 40.53 | 56.056 | |
| 7,700.0 | 7,087.0 | 7,268.7 | 7,041.6 | 27.6 | 29.1 | -88.32 | 362.7 | -2,140.3 | 2,251.2 | 2,210.4 | 40.83 | 55.130 | |
| 7,800.0 | 7,086.8 | 7,267.1 | 7,040.0 | 27.5 | 29.1 | -88.22 | 362.9 | -2,140.3 | 2,159.5 | 2,117.2 | 42.36 | 50.980 | |
| 7,900.0 | 7,086.6 | 7,265.5 | 7,038.4 | 27.9 | 29.1 | -88.11 | 363.0 | -2,140.3 | 2,068.6 | 2,024.6 | 44.09 | 46.914 | |
| 8,000.0 | 7,086.4 | 7,263.9 | 7,036.8 | 29.5 | 29.1 | -88.01 | 363.1 | -2,140.3 | 1,978.6 | 1,932.6 | 46.00 | 43.016 | |
| 8,100.0 | 7,086.2 | 7,262.3 | 7,035.2 | 31.5 | 29.1 | -87.91 | 363.2 | -2,140.3 | 1,889.6 | 1,841.6 | 48.04 | 39.335 | |
| 8,200.0 | 7,086.0 | 7,260.8 | 7,033.7 | 33.7 | 29.1 | -87.80 | 363.3 | -2,140.4 | 1,801.8 | 1,751.6 | 50.19 | 35.897 | |
| 8,300.0 | 7,085.8 | 7,259.2 | 7,032.1 | 36.0 | 29.1 | -87.70 | 363.4 | -2,140.4 | 1,715.3 | 1,662.8 | 52.44 | 32.710 | |
| 8,400.0 | 7,085.6 | 7,257.7 | 7,030.6 | 38.3 | 29.1 | -87.60 | 363.5 | -2,140.4 | 1,630.3 | 1,575.5 | 54.76 | 29.772 | |
| 8,500.0 | 7,085.4 | 7,256.1 | 7,029.0 | 40.7 | 29.1 | -87.50 | 363.6 | -2,140.4 | 1,547.1 | 1,489.9 | 57.14 | 27.075 | |
| 8,600.0 | 7,085.2 | 7,254.6 | 7,027.5 | 43.1 | 29.1 | -87.40 | 363.7 | -2,140.4 | 1,466.0 | 1,406.4 | 59.57 | 24.608 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 21GDU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 703-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.0 | 7,085.0 | 7,253.1 | 7,026.0 | 45.6 | 29.0 | -87.31 | 363.8 | -2,140.5 | 1,387.4 | 1,325.3 | 62.05 | 22.359 | |
| 8,800.0 | 7,084.8 | 7,251.6 | 7,024.5 | 48.1 | 29.0 | -87.21 | 363.9 | -2,140.5 | 1,311.7 | 1,247.1 | 64.56 | 20.317 | |
| 8,900.0 | 7,084.6 | 7,250.1 | 7,023.1 | 50.7 | 29.0 | -87.11 | 364.0 | -2,140.5 | 1,239.4 | 1,172.3 | 67.10 | 18.470 | |
| 9,000.0 | 7,084.4 | 7,248.7 | 7,021.6 | 53.2 | 29.0 | -87.02 | 364.1 | -2,140.5 | 1,171.2 | 1,101.6 | 69.67 | 16.811 | |
| 9,100.0 | 7,084.2 | 7,247.2 | 7,020.1 | 55.8 | 29.0 | -86.92 | 364.2 | -2,140.5 | 1,107.9 | 1,035.6 | 72.26 | 15.332 | |
| 9,200.0 | 7,084.0 | 7,245.8 | 7,018.7 | 58.4 | 29.0 | -86.83 | 364.2 | -2,140.6 | 1,050.3 | 975.4 | 74.87 | 14.028 | |
| 9,300.0 | 7,083.8 | 7,244.3 | 7,017.3 | 61.1 | 29.0 | -86.74 | 364.3 | -2,140.6 | 999.4 | 921.9 | 77.50 | 12.896 | |
| 9,400.0 | 7,083.7 | 7,242.9 | 7,015.8 | 63.7 | 29.0 | -86.64 | 364.4 | -2,140.6 | 956.2 | 876.1 | 80.13 | 11.933 | |
| 9,500.0 | 7,083.5 | 7,241.5 | 7,014.4 | 66.3 | 29.0 | -86.55 | 364.5 | -2,140.6 | 922.0 | 839.2 | 82.79 | 11.137 | |
| 9,600.0 | 7,083.3 | 7,240.0 | 7,013.0 | 69.0 | 29.0 | -86.46 | 364.6 | -2,140.6 | 897.6 | 812.1 | 85.45 | 10.504 | |
| 9,700.0 | 7,083.1 | 7,238.6 | 7,011.6 | 71.7 | 29.0 | -86.36 | 364.7 | -2,140.7 | 883.9 | 795.8 | 88.12 | 10.030 | |
| 9,771.9 | 7,082.9 | 7,237.6 | 7,010.6 | 73.6 | 29.0 | -86.30 | 364.8 | -2,140.7 | 881.0 | 790.9 | 90.05 | 9.783 | CC |
| 9,800.0 | 7,082.9 | 7,237.2 | 7,010.2 | 74.4 | 29.0 | -86.27 | 364.8 | -2,140.7 | 881.4 | 790.6 | 90.80 | 9.707 | ES |
| 9,900.0 | 7,082.7 | 7,235.8 | 7,008.7 | 77.1 | 29.0 | -86.18 | 364.9 | -2,140.7 | 890.2 | 796.7 | 93.49 | 9.522 | |
| 10,000.0 | 7,082.5 | 7,234.4 | 7,007.3 | 79.7 | 29.0 | -86.09 | 365.0 | -2,140.7 | 910.0 | 813.8 | 96.19 | 9.461 | SF |
| 10,100.0 | 7,082.3 | 7,233.0 | 7,005.9 | 82.5 | 29.0 | -86.00 | 365.1 | -2,140.7 | 940.1 | 841.2 | 98.89 | 9.507 | |
| 10,200.0 | 7,082.1 | 7,231.6 | 7,004.6 | 85.2 | 29.0 | -85.91 | 365.2 | -2,140.7 | 979.5 | 877.9 | 101.59 | 9.641 | |
| 10,300.0 | 7,081.9 | 7,230.2 | 7,003.2 | 87.9 | 29.0 | -85.82 | 365.3 | -2,140.8 | 1,027.1 | 922.8 | 104.30 | 9.847 | |
| 10,400.0 | 7,081.7 | 7,228.8 | 7,001.8 | 90.6 | 29.0 | -85.73 | 365.3 | -2,140.8 | 1,081.9 | 974.9 | 107.02 | 10.110 | |
| 10,500.0 | 7,081.5 | 7,227.4 | 7,000.4 | 93.3 | 29.0 | -85.64 | 365.4 | -2,140.8 | 1,142.9 | 1,033.1 | 109.73 | 10.415 | |
| 10,600.0 | 7,081.3 | 7,226.0 | 6,999.0 | 96.1 | 29.0 | -85.55 | 365.5 | -2,140.8 | 1,209.0 | 1,096.6 | 112.46 | 10.751 | |
| 10,700.0 | 7,081.1 | 7,224.7 | 6,997.7 | 98.8 | 29.0 | -85.46 | 365.6 | -2,140.8 | 1,279.6 | 1,164.4 | 115.18 | 11.109 | |
| 10,800.0 | 7,080.9 | 7,223.3 | 6,996.3 | 101.5 | 29.0 | -85.37 | 365.7 | -2,140.8 | 1,353.8 | 1,235.9 | 117.91 | 11.482 | |
| 10,900.0 | 7,080.7 | 7,221.9 | 6,994.9 | 104.3 | 29.0 | -85.28 | 365.8 | -2,140.9 | 1,431.2 | 1,310.6 | 120.64 | 11.864 | |
| 11,000.0 | 7,080.5 | 7,220.6 | 6,993.6 | 107.0 | 29.0 | -85.19 | 365.9 | -2,140.9 | 1,511.3 | 1,387.9 | 123.37 | 12.250 | |
| 11,100.0 | 7,080.3 | 7,219.2 | 6,992.2 | 109.8 | 29.0 | -85.10 | 366.0 | -2,140.9 | 1,593.6 | 1,467.5 | 126.10 | 12.638 | |
| 11,200.0 | 7,080.1 | 7,217.9 | 6,990.9 | 112.5 | 29.0 | -85.02 | 366.0 | -2,140.9 | 1,677.9 | 1,549.0 | 128.84 | 13.023 | |
| 11,300.0 | 7,079.9 | 7,216.5 | 6,989.6 | 115.3 | 29.0 | -84.93 | 366.1 | -2,140.9 | 1,763.7 | 1,632.2 | 131.57 | 13.405 | |
| 11,400.0 | 7,079.7 | 7,215.2 | 6,988.2 | 118.0 | 29.0 | -84.84 | 366.2 | -2,140.9 | 1,851.0 | 1,716.7 | 134.31 | 13.782 | |
| 11,500.0 | 7,079.5 | 7,213.9 | 6,986.9 | 120.8 | 29.0 | -84.75 | 366.3 | -2,141.0 | 1,939.6 | 1,802.5 | 137.05 | 14.152 | |
| 11,600.0 | 7,079.3 | 7,212.5 | 6,985.6 | 123.6 | 29.0 | -84.67 | 366.4 | -2,141.0 | 2,029.1 | 1,889.4 | 139.79 | 14.516 | |
| 11,700.0 | 7,079.1 | 7,211.2 | 6,984.2 | 126.3 | 29.0 | -84.58 | 366.5 | -2,141.0 | 2,119.7 | 1,977.1 | 142.53 | 14.872 | |
| 11,800.0 | 7,078.9 | 7,209.9 | 6,982.9 | 129.1 | 29.0 | -84.50 | 366.5 | -2,141.0 | 2,211.0 | 2,065.7 | 145.27 | 15.220 | |
| 11,900.0 | 7,078.7 | 7,208.6 | 6,981.6 | 131.9 | 29.0 | -84.41 | 366.6 | -2,141.0 | 2,303.1 | 2,155.0 | 148.01 | 15.560 | |
| 12,000.0 | 7,078.5 | 7,207.3 | 6,980.3 | 134.6 | 29.0 | -84.32 | 366.7 | -2,141.0 | 2,395.7 | 2,245.0 | 150.75 | 15.892 | |
| 12,100.0 | 7,078.3 | 7,206.0 | 6,979.0 | 137.4 | 29.0 | -84.24 | 366.8 | -2,141.1 | 2,489.0 | 2,335.5 | 153.49 | 16.216 | |
| 12,200.0 | 7,078.1 | 7,204.7 | 6,977.7 | 140.2 | 29.0 | -84.15 | 366.9 | -2,141.1 | 2,582.8 | 2,426.5 | 156.23 | 16.531 | |
| 12,300.0 | 7,077.9 | 7,203.4 | 6,976.4 | 142.9 | 28.9 | -84.07 | 367.0 | -2,141.1 | 2,677.0 | 2,518.0 | 158.98 | 16.839 | |
| 12,400.0 | 7,077.7 | 7,202.1 | 6,975.1 | 145.7 | 28.9 | -83.99 | 367.0 | -2,141.1 | 2,771.6 | 2,609.9 | 161.72 | 17.138 | |
| 12,500.0 | 7,077.5 | 7,200.8 | 6,973.8 | 148.5 | 28.9 | -83.90 | 367.1 | -2,141.1 | 2,866.6 | 2,702.1 | 164.46 | 17.430 | |
| 12,600.0 | 7,077.3 | 7,199.5 | 6,972.5 | 151.3 | 28.9 | -83.82 | 367.2 | -2,141.1 | 2,961.9 | 2,794.7 | 167.20 | 17.714 | |
| 12,700.0 | 7,077.1 | 7,198.2 | 6,971.3 | 154.0 | 28.9 | -83.73 | 367.3 | -2,141.1 | 3,057.5 | 2,887.5 | 169.95 | 17.991 | |
| 12,800.0 | 7,076.9 | 7,196.9 | 6,970.0 | 156.8 | 28.9 | -83.65 | 367.4 | -2,141.2 | 3,153.4 | 2,980.7 | 172.69 | 18.261 | |
| 12,900.0 | 7,076.7 | 7,195.7 | 6,968.7 | 159.6 | 28.9 | -83.57 | 367.5 | -2,141.2 | 3,249.5 | 3,074.1 | 175.43 | 18.523 | |
| 13,000.0 | 7,076.5 | 7,194.4 | 6,967.4 | 162.4 | 28.9 | -83.49 | 367.5 | -2,141.2 | 3,345.9 | 3,167.7 | 178.17 | 18.779 | |
| 13,100.0 | 7,076.3 | 7,193.1 | 6,966.2 | 165.2 | 28.9 | -83.40 | 367.6 | -2,141.2 | 3,442.4 | 3,261.5 | 180.91 | 19.028 | |
| 13,200.0 | 7,076.1 | 7,191.9 | 6,964.9 | 168.0 | 28.9 | -83.32 | 367.7 | -2,141.2 | 3,539.2 | 3,355.5 | 183.65 | 19.271 | |
| 13,300.0 | 7,075.9 | 7,190.6 | 6,963.7 | 170.7 | 28.9 | -83.24 | 367.8 | -2,141.2 | 3,636.1 | 3,449.7 | 186.39 | 19.508 | |
| 13,400.0 | 7,075.7 | 7,189.4 | 6,962.4 | 173.5 | 28.9 | -83.16 | 367.8 | -2,141.3 | 3,733.2 | 3,544.1 | 189.13 | 19.738 | |
| 13,500.0 | 7,075.5 | 7,188.1 | 6,961.2 | 176.3 | 28.9 | -83.08 | 367.9 | -2,141.3 | 3,830.4 | 3,638.6 | 191.87 | 19.963 | |
| 13,600.0 | 7,075.3 | 7,186.9 | 6,959.9 | 179.1 | 28.9 | -83.00 | 368.0 | -2,141.3 | 3,927.8 | 3,733.2 | 194.61 | 20.183 | |
| 13,700.0 | 7,075.1 | 7,185.6 | 6,958.7 | 181.9 | 28.9 | -82.91 | 368.1 | -2,141.3 | 4,025.3 | 3,828.0 | 197.35 | 20.397 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 21GDU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 703-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.0 | 7,074.9 | 7,184.4 | 6,957.5 | 184.7 | 28.9 | -82.83 | 368.2 | -2,141.3 | 4,122.9 | 3,922.9 | 200.09 | 20.606 | |
| 13,900.0 | 7,074.7 | 7,183.2 | 6,956.2 | 187.5 | 28.9 | -82.75 | 368.2 | -2,141.3 | 4,220.7 | 4,017.8 | 202.82 | 20.810 | |
| 14,000.0 | 7,074.5 | 7,181.9 | 6,955.0 | 190.2 | 28.9 | -82.67 | 368.3 | -2,141.3 | 4,318.5 | 4,113.0 | 205.56 | 21.008 | |
| 14,100.0 | 7,074.2 | 7,180.7 | 6,953.8 | 193.0 | 28.9 | -82.59 | 368.4 | -2,141.4 | 4,416.4 | 4,208.2 | 208.30 | 21.203 | |
| 14,200.0 | 7,074.0 | 7,179.5 | 6,952.6 | 195.8 | 28.9 | -82.51 | 368.5 | -2,141.4 | 4,514.5 | 4,303.4 | 211.03 | 21.393 | |
| 14,221.4 | 7,074.0 | 7,179.2 | 6,952.3 | 196.4 | 28.9 | -82.50 | 368.5 | -2,141.4 | 4,535.4 | 4,323.8 | 211.62 | 21.433 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 21KDU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 155-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -46.42 | 1,798.6 | -1,890.3 | 2,609.3 | | | | |
| 100.0 | 100.0 | 92.5 | 92.5 | 0.1 | 0.0 | -46.42 | 1,798.6 | -1,890.1 | 2,609.1 | 2,609.0 | 0.11 | N/A | |
| 200.0 | 200.0 | 203.0 | 202.9 | 0.3 | 0.1 | -46.41 | 1,798.5 | -1,889.4 | 2,608.6 | 2,608.2 | 0.45 | 5,808.616 | |
| 300.0 | 300.0 | 614.7 | 613.2 | 0.5 | 1.2 | -46.69 | 1,771.1 | -1,878.5 | 2,602.6 | 2,600.9 | 1.71 | 1,517.975 | |
| 400.0 | 400.0 | 1,267.5 | 1,247.4 | 0.8 | 4.2 | -47.57 | 1,645.5 | -1,800.3 | 2,587.2 | 2,582.7 | 4.41 | 586.411 | |
| 500.0 | 500.0 | 1,477.3 | 1,443.0 | 1.0 | 5.7 | -76.99 | 1,587.5 | -1,751.3 | 2,550.3 | 2,545.6 | 4.67 | 546.152 | |
| 600.0 | 599.8 | 1,600.4 | 1,556.4 | 1.2 | 6.6 | -78.17 | 1,550.5 | -1,721.0 | 2,510.6 | 2,505.3 | 5.33 | 471.224 | |
| 700.0 | 699.5 | 1,670.0 | 1,620.6 | 1.5 | 7.1 | -79.29 | 1,529.8 | -1,704.0 | 2,470.8 | 2,464.9 | 5.82 | 424.444 | |
| 800.0 | 798.7 | 1,761.5 | 1,705.2 | 1.7 | 7.7 | -80.62 | 1,502.4 | -1,682.2 | 2,430.8 | 2,424.3 | 6.43 | 378.322 | |
| 900.0 | 897.5 | 1,838.7 | 1,776.4 | 2.0 | 8.3 | -81.98 | 1,478.8 | -1,664.3 | 2,390.4 | 2,383.4 | 7.05 | 339.019 | |
| 1,000.0 | 995.6 | 1,910.0 | 1,842.4 | 2.4 | 8.7 | -83.38 | 1,457.1 | -1,648.1 | 2,350.4 | 2,342.7 | 7.71 | 304.727 | |
| 1,100.0 | 1,093.1 | 1,991.8 | 1,918.3 | 2.8 | 9.3 | -84.96 | 1,432.7 | -1,629.9 | 2,310.9 | 2,302.4 | 8.50 | 271.919 | |
| 1,164.2 | 1,155.2 | 2,052.7 | 1,974.7 | 3.1 | 9.7 | -86.11 | 1,414.1 | -1,616.4 | 2,285.5 | 2,276.4 | 9.09 | 251.347 | |
| 1,200.0 | 1,189.7 | 2,080.8 | 2,000.8 | 3.2 | 9.9 | -86.40 | 1,405.6 | -1,610.2 | 2,271.3 | 2,261.9 | 9.39 | 241.885 | |
| 1,300.0 | 1,286.2 | 2,156.7 | 2,071.2 | 3.7 | 10.4 | -87.19 | 1,382.8 | -1,593.2 | 2,232.4 | 2,222.2 | 10.22 | 218.394 | |
| 1,400.0 | 1,382.6 | 2,231.0 | 2,140.3 | 4.2 | 10.9 | -87.97 | 1,361.1 | -1,576.8 | 2,194.6 | 2,183.6 | 11.05 | 198.560 | |
| 1,500.0 | 1,479.1 | 2,318.5 | 2,221.8 | 4.7 | 11.5 | -88.93 | 1,335.5 | -1,557.7 | 2,157.6 | 2,145.6 | 11.98 | 180.043 | |
| 1,600.0 | 1,575.6 | 2,385.8 | 2,284.4 | 5.3 | 12.0 | -89.70 | 1,315.3 | -1,543.5 | 2,121.4 | 2,108.5 | 12.84 | 165.188 | |
| 1,700.0 | 1,672.0 | 2,456.1 | 2,350.0 | 5.8 | 12.4 | -90.53 | 1,294.6 | -1,529.2 | 2,086.5 | 2,072.8 | 13.72 | 152.051 | |
| 1,800.0 | 1,768.5 | 2,556.7 | 2,444.1 | 6.3 | 13.1 | -91.73 | 1,265.4 | -1,508.8 | 2,052.8 | 2,038.0 | 14.78 | 138.875 | |
| 1,900.0 | 1,864.9 | 2,666.6 | 2,546.1 | 6.8 | 13.9 | -93.12 | 1,231.6 | -1,485.6 | 2,018.1 | 2,002.2 | 15.95 | 126.492 | |
| 2,000.0 | 1,961.4 | 2,792.0 | 2,661.8 | 7.4 | 14.9 | -94.81 | 1,191.3 | -1,458.8 | 1,983.5 | 1,966.2 | 17.29 | 114.713 | |
| 2,100.0 | 2,057.9 | 2,855.2 | 2,719.8 | 7.9 | 15.3 | -95.69 | 1,170.8 | -1,444.9 | 1,949.0 | 1,930.8 | 18.23 | 106.905 | |
| 2,200.0 | 2,154.3 | 2,942.4 | 2,800.5 | 8.4 | 16.0 | -96.90 | 1,143.5 | -1,425.9 | 1,916.2 | 1,896.9 | 19.33 | 99.122 | |
| 2,300.0 | 2,250.8 | 3,055.1 | 2,904.3 | 9.0 | 16.8 | -98.52 | 1,107.9 | -1,400.1 | 1,883.4 | 1,862.7 | 20.64 | 91.251 | |
| 2,400.0 | 2,347.3 | 3,133.2 | 2,976.1 | 9.5 | 17.4 | -99.67 | 1,083.3 | -1,381.6 | 1,850.9 | 1,829.2 | 21.71 | 85.240 | |
| 2,500.0 | 2,443.7 | 3,200.9 | 3,038.6 | 10.0 | 17.9 | -100.66 | 1,062.9 | -1,365.6 | 1,820.0 | 1,797.3 | 22.70 | 80.160 | |
| 2,600.0 | 2,540.2 | 3,266.2 | 3,099.2 | 10.6 | 18.4 | -101.64 | 1,043.5 | -1,350.8 | 1,791.1 | 1,767.4 | 23.68 | 75.650 | |
| 2,700.0 | 2,636.7 | 3,354.0 | 3,180.7 | 11.1 | 19.0 | -102.99 | 1,017.5 | -1,331.3 | 1,763.6 | 1,738.7 | 24.82 | 71.046 | |
| 2,800.0 | 2,733.1 | 3,438.4 | 3,259.2 | 11.6 | 19.6 | -104.29 | 993.1 | -1,312.2 | 1,737.1 | 1,711.2 | 25.94 | 66.961 | |
| 2,900.0 | 2,829.6 | 3,508.7 | 3,324.8 | 12.2 | 20.1 | -105.39 | 973.2 | -1,296.5 | 1,712.2 | 1,685.3 | 26.96 | 63.516 | |
| 3,000.0 | 2,926.0 | 3,589.3 | 3,400.1 | 12.7 | 20.6 | -106.69 | 950.2 | -1,279.2 | 1,689.2 | 1,661.2 | 28.05 | 60.212 | |
| 3,100.0 | 3,022.5 | 3,668.6 | 3,474.2 | 13.2 | 21.2 | -107.99 | 927.6 | -1,262.3 | 1,667.5 | 1,638.3 | 29.15 | 57.211 | |
| 3,200.0 | 3,119.0 | 3,736.7 | 3,538.0 | 13.8 | 21.6 | -109.12 | 908.5 | -1,248.3 | 1,647.8 | 1,617.7 | 30.16 | 54.645 | |
| 3,300.0 | 3,215.4 | 3,811.5 | 3,608.4 | 14.3 | 22.1 | -110.38 | 887.7 | -1,233.5 | 1,630.3 | 1,599.1 | 31.21 | 52.241 | |
| 3,400.0 | 3,311.9 | 3,938.6 | 3,727.2 | 14.9 | 23.0 | -112.60 | 850.9 | -1,207.5 | 1,613.1 | 1,580.4 | 32.69 | 49.352 | |
| 3,500.0 | 3,408.4 | 4,020.1 | 3,802.8 | 15.4 | 23.6 | -114.09 | 825.8 | -1,190.4 | 1,596.6 | 1,562.8 | 33.85 | 47.172 | |
| 3,600.0 | 3,504.8 | 4,102.0 | 3,878.7 | 15.9 | 24.2 | -115.63 | 800.1 | -1,173.4 | 1,581.9 | 1,546.9 | 35.01 | 45.179 | |
| 3,700.0 | 3,601.3 | 4,171.4 | 3,943.2 | 16.5 | 24.7 | -116.95 | 778.5 | -1,159.3 | 1,569.3 | 1,533.3 | 36.06 | 43.520 | |
| 3,800.0 | 3,697.7 | 4,275.2 | 4,040.0 | 17.0 | 25.4 | -118.89 | 747.8 | -1,138.4 | 1,558.7 | 1,521.4 | 37.33 | 41.757 | |
| 3,900.0 | 3,794.2 | 4,351.3 | 4,111.3 | 17.5 | 25.9 | -120.28 | 726.7 | -1,122.3 | 1,548.9 | 1,510.6 | 38.36 | 40.382 | |
| 4,000.0 | 3,890.7 | 4,423.4 | 4,179.1 | 18.1 | 26.3 | -121.61 | 706.6 | -1,107.8 | 1,541.6 | 1,502.3 | 39.35 | 39.179 | |
| 4,100.0 | 3,987.1 | 4,495.3 | 4,246.7 | 18.6 | 26.8 | -122.94 | 686.3 | -1,094.0 | 1,536.7 | 1,496.3 | 40.33 | 38.104 | |
| 4,200.0 | 4,083.6 | 4,570.0 | 4,317.0 | 19.2 | 27.3 | -124.35 | 665.0 | -1,080.5 | 1,534.3 | 1,493.0 | 41.32 | 37.137 | |
| 4,300.0 | 4,180.1 | 4,697.2 | 4,436.3 | 19.7 | 28.1 | -126.76 | 628.3 | -1,056.1 | 1,532.8 | 1,490.1 | 42.64 | 35.946 | |
| 4,400.0 | 4,276.5 | 4,791.4 | 4,524.5 | 20.2 | 28.8 | -128.53 | 601.8 | -1,036.3 | 1,531.1 | 1,487.4 | 43.71 | 35.029 | |
| 4,437.0 | 4,312.2 | 4,819.7 | 4,551.0 | 20.4 | 29.0 | -129.05 | 594.0 | -1,030.4 | 1,531.0 | 1,486.9 | 44.06 | 34.751 | |
| 4,500.0 | 4,373.0 | 4,868.7 | 4,597.0 | 20.8 | 29.3 | -129.97 | 580.3 | -1,020.3 | 1,531.4 | 1,486.8 | 44.64 | 34.306 | |
| 4,600.0 | 4,469.5 | 4,950.7 | 4,674.5 | 21.3 | 29.8 | -131.45 | 558.9 | -1,003.9 | 1,533.7 | 1,488.1 | 45.56 | 33.663 | |
| 4,700.0 | 4,565.9 | 5,037.0 | 4,756.1 | 21.9 | 30.3 | -132.99 | 536.9 | -986.9 | 1,537.6 | 1,491.1 | 46.47 | 33.087 | |
| 4,800.0 | 4,662.4 | 5,111.5 | 4,826.8 | 22.4 | 30.8 | -134.30 | 518.0 | -972.7 | 1,543.5 | 1,496.2 | 47.30 | 32.635 | |
| 4,900.0 | 4,758.8 | 5,189.7 | 4,901.4 | 22.9 | 31.3 | -135.62 | 499.4 | -958.7 | 1,551.4 | 1,503.3 | 48.09 | 32.262 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 21KDU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 155-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,000.0 | 4,855.3 | 5,261.8 | 4,970.8 | 23.5 | 31.6 | -136.76 | 483.8 | -946.7 | 1,561.3 | 1,512.5 | 48.81 | 31.990 | |
| 5,100.0 | 4,951.8 | 5,329.7 | 5,036.7 | 24.0 | 32.0 | -137.76 | 470.8 | -937.1 | 1,573.6 | 1,524.1 | 49.47 | 31.811 | |
| 5,200.0 | 5,048.2 | 5,412.0 | 5,117.2 | 24.6 | 32.3 | -138.88 | 456.7 | -927.0 | 1,587.9 | 1,537.8 | 50.13 | 31.677 | |
| 5,300.0 | 5,144.7 | 5,488.8 | 5,192.7 | 25.1 | 32.6 | -139.85 | 445.1 | -918.8 | 1,603.8 | 1,553.1 | 50.73 | 31.616 | |
| 5,400.0 | 5,241.2 | 5,569.1 | 5,271.9 | 25.6 | 32.9 | -140.78 | 434.5 | -911.5 | 1,621.0 | 1,569.7 | 51.30 | 31.599 | |
| 5,500.0 | 5,337.6 | 5,652.5 | 5,354.6 | 26.2 | 33.1 | -141.65 | 425.3 | -905.3 | 1,639.4 | 1,587.6 | 51.84 | 31.626 | |
| 5,600.0 | 5,434.1 | 5,744.1 | 5,445.6 | 26.7 | 33.3 | -142.52 | 416.8 | -899.7 | 1,658.8 | 1,606.5 | 52.35 | 31.684 | |
| 5,700.0 | 5,530.5 | 5,851.0 | 5,552.1 | 27.3 | 33.6 | -143.44 | 409.1 | -893.9 | 1,678.3 | 1,625.5 | 52.85 | 31.757 | |
| 5,757.1 | 5,585.6 | 5,908.8 | 5,609.7 | 27.6 | 33.7 | -143.89 | 406.2 | -891.0 | 1,689.3 | 1,636.2 | 53.12 | 31.803 | |
| 5,800.0 | 5,627.1 | 5,947.1 | 5,647.9 | 27.8 | 33.7 | -144.26 | 404.4 | -889.1 | 1,697.3 | 1,644.0 | 53.36 | 31.809 | |
| 5,900.0 | 5,724.4 | 6,040.0 | 5,740.6 | 28.2 | 33.9 | -145.07 | 400.5 | -885.1 | 1,714.5 | 1,660.6 | 53.86 | 31.834 | |
| 6,000.0 | 5,822.4 | 6,127.7 | 5,828.2 | 28.5 | 34.0 | -145.73 | 397.0 | -881.7 | 1,729.3 | 1,675.0 | 54.30 | 31.848 | |
| 6,100.0 | 5,921.0 | 6,228.1 | 5,928.6 | 28.8 | 34.2 | -146.31 | 393.9 | -878.8 | 1,741.9 | 1,687.2 | 54.69 | 31.851 | |
| 6,200.0 | 6,020.2 | 6,319.3 | 6,019.7 | 29.0 | 34.3 | -146.70 | 392.7 | -876.9 | 1,751.4 | 1,696.4 | 55.01 | 31.839 | |
| 6,300.0 | 6,119.7 | 6,410.8 | 6,111.2 | 29.3 | 34.4 | -146.98 | 391.6 | -875.7 | 1,758.8 | 1,703.5 | 55.28 | 31.819 | |
| 6,400.0 | 6,219.5 | 6,508.9 | 6,209.2 | 29.4 | 34.5 | -147.20 | 390.1 | -874.5 | 1,763.5 | 1,708.0 | 55.50 | 31.776 | |
| 6,500.0 | 6,319.5 | 6,603.1 | 6,303.4 | 29.5 | 34.6 | -147.33 | 388.4 | -873.4 | 1,765.4 | 1,709.7 | 55.67 | 31.713 | |
| 6,521.3 | 6,340.8 | 6,622.8 | 6,323.1 | 29.6 | 34.6 | -119.00 | 388.0 | -873.2 | 1,765.5 | 1,721.2 | 44.31 | 39.845 | |
| 6,551.3 | 6,370.8 | 6,651.9 | 6,352.2 | 29.6 | 34.6 | -119.02 | 387.4 | -872.9 | 1,765.5 | 1,721.2 | 44.39 | 39.775 | |
| 6,600.0 | 6,419.5 | 6,699.9 | 6,400.2 | 29.6 | 34.7 | -29.13 | 386.5 | -872.5 | 1,764.2 | 1,708.6 | 55.61 | 31.722 | |
| 6,650.0 | 6,469.2 | 6,749.4 | 6,449.7 | 29.6 | 34.7 | -29.41 | 385.6 | -872.1 | 1,759.8 | 1,704.6 | 55.23 | 31.864 | |
| 6,700.0 | 6,518.4 | 6,798.9 | 6,499.2 | 29.6 | 34.8 | -29.87 | 384.9 | -871.9 | 1,752.4 | 1,697.8 | 54.63 | 32.081 | |
| 6,750.0 | 6,567.0 | 6,845.0 | 6,545.3 | 29.6 | 34.8 | -30.50 | 384.4 | -871.7 | 1,742.1 | 1,688.3 | 53.81 | 32.374 | |
| 6,800.0 | 6,614.5 | 6,888.8 | 6,589.1 | 29.6 | 34.9 | -31.31 | 383.9 | -871.6 | 1,729.0 | 1,676.2 | 52.81 | 32.740 | |
| 6,850.0 | 6,660.9 | 6,932.6 | 6,632.9 | 29.5 | 34.9 | -32.34 | 383.4 | -871.7 | 1,713.1 | 1,661.5 | 51.64 | 33.176 | |
| 6,900.0 | 6,705.9 | 6,976.3 | 6,676.5 | 29.4 | 35.0 | -33.59 | 383.0 | -871.8 | 1,694.6 | 1,644.3 | 50.33 | 33.669 | |
| 6,950.0 | 6,749.2 | 7,018.4 | 6,718.7 | 29.3 | 35.0 | -35.08 | 382.7 | -872.1 | 1,673.6 | 1,624.7 | 48.93 | 34.203 | |
| 7,000.0 | 6,790.7 | 7,059.0 | 6,759.3 | 29.2 | 35.0 | -36.85 | 382.5 | -872.4 | 1,650.2 | 1,602.7 | 47.49 | 34.748 | |
| 7,050.0 | 6,830.2 | 7,097.7 | 6,797.9 | 29.1 | 35.1 | -38.91 | 382.4 | -872.8 | 1,624.4 | 1,578.4 | 46.08 | 35.255 | |
| 7,100.0 | 6,867.4 | 7,137.5 | 6,837.8 | 29.0 | 35.1 | -41.37 | 382.2 | -873.1 | 1,596.6 | 1,551.8 | 44.78 | 35.652 | |
| 7,150.0 | 6,902.2 | 7,174.7 | 6,875.0 | 28.9 | 35.1 | -44.21 | 382.1 | -873.4 | 1,566.8 | 1,523.1 | 43.71 | 35.848 | |
| 7,200.0 | 6,934.4 | 7,208.7 | 6,909.0 | 28.7 | 35.2 | -47.43 | 382.0 | -873.6 | 1,535.2 | 1,492.3 | 42.95 | 35.747 | |
| 7,250.0 | 6,963.8 | 7,239.7 | 6,940.0 | 28.6 | 35.2 | -51.05 | 382.0 | -873.8 | 1,502.1 | 1,459.6 | 42.58 | 35.277 | |
| 7,300.0 | 6,990.4 | 7,267.7 | 6,968.0 | 28.5 | 35.2 | -55.07 | 382.0 | -874.0 | 1,467.8 | 1,425.2 | 42.64 | 34.424 | |
| 7,350.0 | 7,013.9 | 7,293.5 | 6,993.8 | 28.4 | 35.2 | -59.51 | 382.0 | -874.2 | 1,432.4 | 1,389.3 | 43.10 | 33.239 | |
| 7,400.0 | 7,034.4 | 7,317.4 | 7,017.7 | 28.2 | 35.2 | -64.32 | 382.1 | -874.3 | 1,396.3 | 1,352.4 | 43.86 | 31.832 | |
| 7,450.0 | 7,051.5 | 7,337.3 | 7,037.6 | 28.1 | 35.3 | -69.32 | 382.1 | -874.3 | 1,359.7 | 1,314.9 | 44.80 | 30.350 | |
| 7,500.0 | 7,065.4 | 7,353.2 | 7,053.5 | 28.0 | 35.3 | -74.37 | 382.2 | -874.3 | 1,322.8 | 1,277.1 | 45.78 | 28.898 | |
| 7,550.0 | 7,075.9 | 7,365.1 | 7,065.4 | 27.9 | 35.3 | -79.31 | 382.2 | -874.3 | 1,286.1 | 1,239.4 | 46.71 | 27.534 | |
| 7,600.0 | 7,082.9 | 7,373.0 | 7,073.3 | 27.8 | 35.3 | -84.00 | 382.3 | -874.3 | 1,249.8 | 1,202.2 | 47.56 | 26.276 | |
| 7,650.0 | 7,086.5 | 7,376.9 | 7,077.1 | 27.7 | 35.3 | -88.32 | 382.3 | -874.3 | 1,214.1 | 1,165.8 | 48.35 | 25.113 | |
| 7,677.7 | 7,087.0 | 7,377.3 | 7,077.6 | 27.6 | 35.3 | -90.51 | 382.3 | -874.3 | 1,194.8 | 1,146.0 | 48.77 | 24.500 | |
| 7,700.0 | 7,087.0 | 7,377.2 | 7,077.5 | 27.6 | 35.3 | -90.50 | 382.3 | -874.3 | 1,179.4 | 1,130.4 | 49.08 | 24.033 | |
| 7,800.0 | 7,086.8 | 7,376.7 | 7,076.9 | 27.5 | 35.3 | -90.47 | 382.3 | -874.3 | 1,113.6 | 1,063.0 | 50.61 | 22.003 | |
| 7,900.0 | 7,086.6 | 7,376.1 | 7,076.4 | 27.9 | 35.3 | -90.43 | 382.3 | -874.3 | 1,053.1 | 1,000.7 | 52.35 | 20.117 | |
| 8,000.0 | 7,086.4 | 7,375.6 | 7,075.9 | 29.5 | 35.3 | -90.40 | 382.3 | -874.3 | 998.9 | 944.7 | 54.26 | 18.411 | |
| 8,100.0 | 7,086.2 | 7,375.2 | 7,075.4 | 31.5 | 35.3 | -90.37 | 382.3 | -874.3 | 952.2 | 895.9 | 56.30 | 16.913 | |
| 8,200.0 | 7,086.0 | 7,374.7 | 7,074.9 | 33.7 | 35.3 | -90.34 | 382.3 | -874.3 | 914.2 | 855.7 | 58.46 | 15.637 | |
| 8,300.0 | 7,085.8 | 7,374.2 | 7,074.5 | 36.0 | 35.3 | -90.30 | 382.3 | -874.3 | 885.8 | 825.1 | 60.71 | 14.590 | |
| 8,400.0 | 7,085.6 | 7,373.7 | 7,074.0 | 38.3 | 35.3 | -90.27 | 382.3 | -874.3 | 868.1 | 805.0 | 63.04 | 13.771 | |
| 8,500.0 | 7,085.4 | 7,373.3 | 7,073.6 | 40.7 | 35.3 | -90.24 | 382.3 | -874.3 | 861.7 | 796.2 | 65.42 | 13.170 | |
| 8,505.4 | 7,085.4 | 7,373.3 | 7,073.5 | 40.8 | 35.3 | -90.24 | 382.3 | -874.3 | 861.6 | 796.1 | 65.56 | 13.144 | CC, ES |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 21KDU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 155-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,600.0 | 7,085.2 | 7,372.8 | 7,073.1 | 43.1 | 35.3 | -90.21 | 382.3 | -874.3 | 866.8 | 798.9 | 67.86 | 12.773 | |
| 8,700.0 | 7,085.0 | 7,372.4 | 7,072.7 | 45.6 | 35.3 | -90.19 | 382.3 | -874.3 | 883.3 | 813.0 | 70.34 | 12.557 | |
| 8,800.0 | 7,084.8 | 7,372.0 | 7,072.3 | 48.1 | 35.3 | -90.16 | 382.3 | -874.3 | 910.6 | 837.7 | 72.86 | 12.497 | SF |
| 8,900.0 | 7,084.6 | 7,371.6 | 7,071.8 | 50.7 | 35.3 | -90.13 | 382.3 | -874.3 | 947.7 | 872.3 | 75.41 | 12.567 | |
| 9,000.0 | 7,084.4 | 7,371.1 | 7,071.4 | 53.2 | 35.3 | -90.10 | 382.3 | -874.3 | 993.5 | 915.5 | 77.99 | 12.739 | |
| 9,100.0 | 7,084.2 | 7,370.7 | 7,071.0 | 55.8 | 35.3 | -90.07 | 382.3 | -874.3 | 1,046.9 | 966.3 | 80.59 | 12.991 | |
| 9,200.0 | 7,084.0 | 7,370.4 | 7,070.6 | 58.4 | 35.3 | -90.05 | 382.3 | -874.3 | 1,106.7 | 1,023.5 | 83.21 | 13.301 | |
| 9,300.0 | 7,083.8 | 7,370.0 | 7,070.2 | 61.1 | 35.3 | -90.02 | 382.3 | -874.3 | 1,172.1 | 1,086.2 | 85.84 | 13.654 | |
| 9,400.0 | 7,083.7 | 7,369.6 | 7,069.9 | 63.7 | 35.3 | -90.00 | 382.3 | -874.3 | 1,242.0 | 1,153.6 | 88.49 | 14.036 | |
| 9,500.0 | 7,083.5 | 7,369.2 | 7,069.5 | 66.3 | 35.3 | -89.97 | 382.3 | -874.3 | 1,315.9 | 1,224.7 | 91.15 | 14.436 | |
| 9,600.0 | 7,083.3 | 7,368.8 | 7,069.1 | 69.0 | 35.3 | -89.95 | 382.3 | -874.3 | 1,393.0 | 1,299.2 | 93.83 | 14.846 | |
| 9,700.0 | 7,083.1 | 7,368.5 | 7,068.8 | 71.7 | 35.3 | -89.92 | 382.3 | -874.3 | 1,472.9 | 1,376.4 | 96.51 | 15.261 | |
| 9,800.0 | 7,082.9 | 7,368.1 | 7,068.4 | 74.4 | 35.3 | -89.90 | 382.3 | -874.3 | 1,555.1 | 1,455.9 | 99.21 | 15.675 | |
| 9,900.0 | 7,082.7 | 7,367.8 | 7,068.1 | 77.1 | 35.3 | -89.88 | 382.3 | -874.3 | 1,639.3 | 1,537.4 | 101.91 | 16.085 | |
| 10,000.0 | 7,082.5 | 7,367.4 | 7,067.7 | 79.7 | 35.3 | -89.85 | 382.2 | -874.3 | 1,725.2 | 1,620.5 | 104.62 | 16.489 | |
| 10,100.0 | 7,082.3 | 7,367.1 | 7,067.4 | 82.5 | 35.3 | -89.83 | 382.2 | -874.3 | 1,812.5 | 1,705.1 | 107.34 | 16.886 | |
| 10,200.0 | 7,082.1 | 7,366.8 | 7,067.1 | 85.2 | 35.3 | -89.81 | 382.2 | -874.3 | 1,901.0 | 1,791.0 | 110.06 | 17.273 | |
| 10,300.0 | 7,081.9 | 7,366.5 | 7,066.7 | 87.9 | 35.3 | -89.79 | 382.2 | -874.3 | 1,990.7 | 1,877.9 | 112.79 | 17.650 | |
| 10,400.0 | 7,081.7 | 7,366.1 | 7,066.4 | 90.6 | 35.3 | -89.77 | 382.2 | -874.3 | 2,081.3 | 1,965.8 | 115.52 | 18.017 | |
| 10,500.0 | 7,081.5 | 7,365.8 | 7,066.1 | 93.3 | 35.3 | -89.75 | 382.2 | -874.3 | 2,172.7 | 2,054.5 | 118.26 | 18.373 | |
| 10,600.0 | 7,081.3 | 7,365.5 | 7,065.8 | 96.1 | 35.3 | -89.73 | 382.2 | -874.3 | 2,264.9 | 2,143.9 | 121.00 | 18.718 | |
| 10,700.0 | 7,081.1 | 7,365.2 | 7,065.5 | 98.8 | 35.3 | -89.70 | 382.2 | -874.3 | 2,357.7 | 2,233.9 | 123.74 | 19.053 | |
| 10,800.0 | 7,080.9 | 7,364.9 | 7,065.2 | 101.5 | 35.3 | -89.68 | 382.2 | -874.3 | 2,451.0 | 2,324.5 | 126.49 | 19.377 | |
| 10,900.0 | 7,080.7 | 7,364.6 | 7,064.9 | 104.3 | 35.3 | -89.66 | 382.2 | -874.3 | 2,544.9 | 2,415.6 | 129.25 | 19.690 | |
| 11,000.0 | 7,080.5 | 7,364.3 | 7,064.6 | 107.0 | 35.3 | -89.65 | 382.2 | -874.3 | 2,639.2 | 2,507.2 | 132.00 | 19.994 | |
| 11,100.0 | 7,080.3 | 7,364.1 | 7,064.3 | 109.8 | 35.3 | -89.63 | 382.2 | -874.3 | 2,733.9 | 2,599.1 | 134.76 | 20.288 | |
| 11,200.0 | 7,080.1 | 7,363.8 | 7,064.1 | 112.5 | 35.3 | -89.61 | 382.2 | -874.3 | 2,829.0 | 2,691.5 | 137.52 | 20.572 | |
| 11,300.0 | 7,079.9 | 7,363.5 | 7,063.8 | 115.3 | 35.3 | -89.59 | 382.2 | -874.3 | 2,924.4 | 2,784.1 | 140.28 | 20.847 | |
| 11,400.0 | 7,079.7 | 7,363.2 | 7,063.5 | 118.0 | 35.3 | -89.57 | 382.2 | -874.3 | 3,020.1 | 2,877.0 | 143.04 | 21.113 | |
| 11,500.0 | 7,079.5 | 7,363.0 | 7,063.3 | 120.8 | 35.3 | -89.55 | 382.2 | -874.3 | 3,116.1 | 2,970.2 | 145.81 | 21.371 | |
| 11,600.0 | 7,079.3 | 7,362.7 | 7,063.0 | 123.6 | 35.3 | -89.53 | 382.2 | -874.3 | 3,212.3 | 3,063.7 | 148.58 | 21.620 | |
| 11,700.0 | 7,079.1 | 7,362.5 | 7,062.7 | 126.3 | 35.3 | -89.52 | 382.2 | -874.3 | 3,308.7 | 3,157.4 | 151.35 | 21.862 | |
| 11,800.0 | 7,078.9 | 7,362.2 | 7,062.5 | 129.1 | 35.3 | -89.50 | 382.2 | -874.3 | 3,405.4 | 3,251.2 | 154.12 | 22.096 | |
| 11,900.0 | 7,078.7 | 7,362.0 | 7,062.2 | 131.9 | 35.3 | -89.48 | 382.2 | -874.3 | 3,502.2 | 3,345.3 | 156.89 | 22.322 | |
| 12,000.0 | 7,078.5 | 7,361.7 | 7,062.0 | 134.6 | 35.3 | -89.47 | 382.2 | -874.3 | 3,599.2 | 3,439.5 | 159.67 | 22.542 | |
| 12,100.0 | 7,078.3 | 7,361.5 | 7,061.7 | 137.4 | 35.3 | -89.45 | 382.2 | -874.3 | 3,696.4 | 3,533.9 | 162.44 | 22.755 | |
| 12,200.0 | 7,078.1 | 7,361.2 | 7,061.5 | 140.2 | 35.3 | -89.43 | 382.2 | -874.3 | 3,793.7 | 3,628.5 | 165.22 | 22.961 | |
| 12,300.0 | 7,077.9 | 7,361.0 | 7,061.3 | 142.9 | 35.3 | -89.42 | 382.2 | -874.3 | 3,891.2 | 3,723.2 | 168.00 | 23.162 | |
| 12,400.0 | 7,077.7 | 7,360.8 | 7,061.0 | 145.7 | 35.3 | -89.40 | 382.2 | -874.3 | 3,988.7 | 3,818.0 | 170.78 | 23.356 | |
| 12,500.0 | 7,077.5 | 7,360.5 | 7,060.8 | 148.5 | 35.3 | -89.39 | 382.2 | -874.3 | 4,086.4 | 3,912.9 | 173.56 | 23.545 | |
| 12,600.0 | 7,077.3 | 7,360.3 | 7,060.6 | 151.3 | 35.3 | -89.37 | 382.2 | -874.3 | 4,184.2 | 4,007.9 | 176.34 | 23.728 | |
| 12,700.0 | 7,077.1 | 7,360.1 | 7,060.4 | 154.0 | 35.3 | -89.35 | 382.2 | -874.3 | 4,282.1 | 4,103.0 | 179.12 | 23.906 | |
| 12,800.0 | 7,076.9 | 7,359.9 | 7,060.1 | 156.8 | 35.3 | -89.34 | 382.2 | -874.3 | 4,380.1 | 4,198.2 | 181.91 | 24.079 | |
| 12,900.0 | 7,076.7 | 7,359.6 | 7,059.9 | 159.6 | 35.3 | -89.32 | 382.2 | -874.3 | 4,478.2 | 4,293.5 | 184.69 | 24.247 | |
| 13,000.0 | 7,076.5 | 7,359.4 | 7,059.7 | 162.4 | 35.3 | -89.31 | 382.2 | -874.3 | 4,576.4 | 4,388.9 | 187.47 | 24.411 | |
| 13,100.0 | 7,076.3 | 7,359.2 | 7,059.5 | 165.2 | 35.3 | -89.30 | 382.2 | -874.3 | 4,674.6 | 4,484.4 | 190.26 | 24.570 | |
| 13,200.0 | 7,076.1 | 7,359.0 | 7,059.3 | 168.0 | 35.3 | -89.28 | 382.2 | -874.3 | 4,773.0 | 4,579.9 | 193.05 | 24.724 | |
| 13,300.0 | 7,075.9 | 7,358.8 | 7,059.1 | 170.7 | 35.3 | -89.27 | 382.2 | -874.3 | 4,871.4 | 4,675.5 | 195.83 | 24.875 | |
| 13,400.0 | 7,075.7 | 7,358.6 | 7,058.9 | 173.5 | 35.3 | -89.25 | 382.2 | -874.3 | 4,969.8 | 4,771.2 | 198.62 | 25.022 | |
| 13,500.0 | 7,075.5 | 7,358.4 | 7,058.7 | 176.3 | 35.3 | -89.24 | 382.2 | -874.3 | 5,068.3 | 4,866.9 | 201.41 | 25.164 | |
| 13,600.0 | 7,075.3 | 7,358.2 | 7,058.5 | 179.1 | 35.3 | -89.23 | 382.2 | -874.3 | 5,166.9 | 4,962.7 | 204.20 | 25.303 | |
| 13,700.0 | 7,075.1 | 7,358.0 | 7,058.3 | 181.9 | 35.3 | -89.21 | 382.2 | -874.3 | 5,265.5 | 5,058.5 | 206.99 | 25.439 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 21KDU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 155-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.0 | 7,074.9 | 7,357.8 | 7,058.1 | 184.7 | 35.3 | -89.20 | 382.2 | -874.3 | 5,364.2 | 5,154.4 | 209.78 | 25.571 | |
| 13,900.0 | 7,074.7 | 7,357.6 | 7,057.9 | 187.5 | 35.3 | -89.19 | 382.2 | -874.3 | 5,462.9 | 5,250.4 | 212.57 | 25.700 | |
| 14,000.0 | 7,074.5 | 7,357.4 | 7,057.7 | 190.2 | 35.3 | -89.17 | 382.2 | -874.3 | 5,561.7 | 5,346.3 | 215.36 | 25.825 | |
| 14,100.0 | 7,074.2 | 7,357.3 | 7,057.5 | 193.0 | 35.3 | -89.16 | 382.2 | -874.3 | 5,660.5 | 5,442.4 | 218.15 | 25.948 | |
| 14,200.0 | 7,074.0 | 7,357.1 | 7,057.4 | 195.8 | 35.3 | -89.15 | 382.2 | -874.3 | 5,759.4 | 5,538.4 | 220.94 | 26.067 | |
| 14,221.4 | 7,074.0 | 7,357.0 | 7,057.3 | 196.4 | 35.3 | -89.14 | 382.2 | -874.3 | 5,780.5 | 5,559.0 | 221.54 | 26.092 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 22-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 147-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -46.08 | 1,800.5 | -1,869.3 | 2,595.4 | | | | |
| 100.0 | 100.0 | 118.1 | 118.1 | 0.1 | 0.0 | -46.06 | 1,800.3 | -1,868.4 | 2,594.9 | 2,594.7 | 0.13 | N/A | |
| 200.0 | 200.0 | 231.1 | 231.1 | 0.3 | 0.2 | -46.04 | 1,799.7 | -1,866.4 | 2,593.2 | 2,592.7 | 0.52 | 4,960.341 | |
| 300.0 | 300.0 | 500.8 | 500.3 | 0.5 | 0.8 | -46.00 | 1,791.6 | -1,855.5 | 2,588.3 | 2,586.9 | 1.37 | 1,888.765 | |
| 400.0 | 400.0 | 655.5 | 654.3 | 0.8 | 1.3 | -46.01 | 1,781.2 | -1,845.3 | 2,578.9 | 2,576.9 | 1.97 | 1,306.996 | |
| 500.0 | 500.0 | 1,119.7 | 1,111.2 | 1.0 | 3.0 | -74.77 | 1,729.9 | -1,784.7 | 2,562.8 | 2,559.5 | 3.34 | 768.190 | |
| 600.0 | 599.8 | 1,198.0 | 1,187.0 | 1.2 | 3.3 | -75.24 | 1,720.9 | -1,767.4 | 2,537.5 | 2,533.8 | 3.75 | 675.950 | |
| 700.0 | 699.5 | 1,445.2 | 1,423.9 | 1.5 | 4.7 | -75.76 | 1,692.3 | -1,702.9 | 2,508.0 | 2,503.3 | 4.68 | 535.467 | |
| 800.0 | 798.7 | 1,628.3 | 1,596.3 | 1.7 | 5.9 | -76.51 | 1,666.9 | -1,647.0 | 2,472.8 | 2,467.3 | 5.51 | 448.522 | |
| 900.0 | 897.5 | 1,812.8 | 1,768.3 | 2.0 | 7.2 | -77.48 | 1,639.5 | -1,586.1 | 2,435.4 | 2,429.0 | 6.39 | 380.994 | |
| 1,000.0 | 995.6 | 1,932.3 | 1,878.3 | 2.4 | 8.1 | -78.62 | 1,618.7 | -1,544.3 | 2,393.5 | 2,386.4 | 7.10 | 336.967 | |
| 1,100.0 | 1,093.1 | 2,076.8 | 2,010.4 | 2.8 | 9.3 | -80.01 | 1,592.5 | -1,491.9 | 2,349.7 | 2,341.8 | 7.94 | 295.972 | |
| 1,164.2 | 1,155.2 | 2,130.5 | 2,059.3 | 3.1 | 9.7 | -80.86 | 1,582.7 | -1,471.9 | 2,320.9 | 2,312.6 | 8.38 | 277.004 | |
| 1,200.0 | 1,189.7 | 2,154.4 | 2,081.0 | 3.2 | 9.9 | -80.96 | 1,578.4 | -1,463.0 | 2,304.9 | 2,296.3 | 8.62 | 267.361 | |
| 1,300.0 | 1,286.2 | 2,227.0 | 2,147.3 | 3.7 | 10.5 | -81.26 | 1,566.0 | -1,436.1 | 2,260.8 | 2,251.5 | 9.33 | 242.436 | |
| 1,400.0 | 1,382.6 | 2,297.6 | 2,211.9 | 4.2 | 11.0 | -81.56 | 1,554.5 | -1,410.2 | 2,217.4 | 2,207.4 | 10.04 | 220.914 | |
| 1,500.0 | 1,479.1 | 2,390.3 | 2,296.9 | 4.7 | 11.7 | -81.97 | 1,539.5 | -1,376.2 | 2,174.4 | 2,163.5 | 10.83 | 200.730 | |
| 1,600.0 | 1,575.6 | 2,480.7 | 2,379.7 | 5.3 | 12.4 | -82.40 | 1,524.3 | -1,343.2 | 2,131.2 | 2,119.6 | 11.63 | 183.288 | |
| 1,700.0 | 1,672.0 | 2,579.1 | 2,469.7 | 5.8 | 13.2 | -82.89 | 1,507.6 | -1,307.3 | 2,088.0 | 2,075.5 | 12.45 | 167.644 | |
| 1,800.0 | 1,768.5 | 2,679.4 | 2,561.4 | 6.3 | 14.1 | -83.41 | 1,490.1 | -1,270.4 | 2,044.3 | 2,031.0 | 13.29 | 153.782 | |
| 1,900.0 | 1,864.9 | 2,783.2 | 2,656.0 | 6.8 | 14.9 | -84.01 | 1,471.0 | -1,232.3 | 2,000.3 | 1,986.1 | 14.14 | 141.423 | |
| 2,000.0 | 1,961.4 | 2,847.9 | 2,715.1 | 7.4 | 15.4 | -84.40 | 1,459.0 | -1,208.7 | 1,956.5 | 1,941.6 | 14.87 | 131.591 | |
| 2,100.0 | 2,057.9 | 2,929.3 | 2,789.6 | 7.9 | 16.1 | -84.91 | 1,444.6 | -1,179.6 | 1,913.8 | 1,898.1 | 15.64 | 122.344 | |
| 2,200.0 | 2,154.3 | 3,023.8 | 2,876.2 | 8.4 | 16.9 | -85.53 | 1,427.6 | -1,145.5 | 1,871.0 | 1,854.5 | 16.46 | 113.658 | |
| 2,300.0 | 2,250.8 | 3,118.8 | 2,963.1 | 9.0 | 17.6 | -86.19 | 1,410.2 | -1,111.4 | 1,828.2 | 1,810.9 | 17.29 | 105.768 | |
| 2,400.0 | 2,347.3 | 3,200.8 | 3,038.1 | 9.5 | 18.3 | -86.79 | 1,394.8 | -1,081.9 | 1,785.3 | 1,767.3 | 18.07 | 98.812 | |
| 2,500.0 | 2,443.7 | 3,270.4 | 3,102.0 | 10.0 | 18.9 | -87.34 | 1,381.7 | -1,057.7 | 1,743.6 | 1,724.8 | 18.81 | 92.689 | |
| 2,600.0 | 2,540.2 | 3,350.0 | 3,175.3 | 10.6 | 19.5 | -87.98 | 1,367.5 | -1,030.0 | 1,702.6 | 1,683.0 | 19.58 | 86.946 | |
| 2,700.0 | 2,636.7 | 3,423.0 | 3,242.6 | 11.1 | 20.0 | -88.54 | 1,355.7 | -1,004.5 | 1,662.6 | 1,642.3 | 20.34 | 81.746 | |
| 2,800.0 | 2,733.1 | 3,510.7 | 3,323.8 | 11.6 | 20.7 | -89.25 | 1,342.0 | -974.3 | 1,623.5 | 1,602.4 | 21.14 | 76.790 | |
| 2,900.0 | 2,829.6 | 3,591.3 | 3,398.4 | 12.2 | 21.3 | -89.93 | 1,329.2 | -946.7 | 1,584.8 | 1,562.8 | 21.93 | 72.274 | |
| 3,000.0 | 2,926.0 | 3,671.5 | 3,473.0 | 12.7 | 21.9 | -90.63 | 1,317.0 | -919.6 | 1,547.0 | 1,524.3 | 22.71 | 68.114 | |
| 3,100.0 | 3,022.5 | 3,756.7 | 3,552.3 | 13.2 | 22.5 | -91.48 | 1,302.6 | -892.1 | 1,509.9 | 1,486.4 | 23.52 | 64.209 | |
| 3,200.0 | 3,119.0 | 3,867.4 | 3,655.4 | 13.8 | 23.3 | -92.65 | 1,283.9 | -856.4 | 1,473.3 | 1,448.8 | 24.42 | 60.340 | |
| 3,300.0 | 3,215.4 | 3,985.5 | 3,764.2 | 14.3 | 24.2 | -93.91 | 1,263.7 | -815.1 | 1,434.4 | 1,409.0 | 25.37 | 56.534 | |
| 3,400.0 | 3,311.9 | 4,074.8 | 3,846.3 | 14.9 | 24.9 | -94.94 | 1,247.8 | -783.6 | 1,395.5 | 1,369.2 | 26.24 | 53.176 | |
| 3,500.0 | 3,408.4 | 4,151.3 | 3,916.6 | 15.4 | 25.5 | -95.88 | 1,233.9 | -757.2 | 1,357.3 | 1,330.3 | 27.07 | 50.138 | |
| 3,600.0 | 3,504.8 | 4,237.7 | 3,996.5 | 15.9 | 26.2 | -96.99 | 1,218.7 | -727.8 | 1,320.5 | 1,292.6 | 27.95 | 47.241 | |
| 3,700.0 | 3,601.3 | 4,323.1 | 4,075.3 | 16.5 | 26.9 | -98.12 | 1,203.9 | -698.3 | 1,283.9 | 1,255.1 | 28.85 | 44.506 | |
| 3,800.0 | 3,697.7 | 4,398.7 | 4,145.3 | 17.0 | 27.4 | -99.22 | 1,190.2 | -673.6 | 1,249.0 | 1,219.2 | 29.73 | 42.017 | |
| 3,900.0 | 3,794.2 | 4,494.7 | 4,234.2 | 17.5 | 28.1 | -100.78 | 1,171.1 | -642.8 | 1,214.5 | 1,183.8 | 30.74 | 39.510 | |
| 4,000.0 | 3,890.7 | 4,572.8 | 4,306.7 | 18.1 | 28.7 | -102.01 | 1,157.6 | -617.2 | 1,181.3 | 1,149.7 | 31.68 | 37.296 | |
| 4,100.0 | 3,987.1 | 4,677.4 | 4,403.8 | 18.6 | 29.5 | -103.64 | 1,141.3 | -581.8 | 1,148.5 | 1,115.7 | 32.76 | 35.063 | |
| 4,200.0 | 4,083.6 | 4,763.1 | 4,483.3 | 19.2 | 30.2 | -105.06 | 1,127.5 | -552.7 | 1,116.1 | 1,082.3 | 33.77 | 33.048 | |
| 4,300.0 | 4,180.1 | 4,848.0 | 4,562.0 | 19.7 | 30.8 | -106.56 | 1,113.7 | -524.1 | 1,084.8 | 1,050.0 | 34.81 | 31.163 | |
| 4,400.0 | 4,276.5 | 4,929.4 | 4,637.7 | 20.2 | 31.4 | -108.09 | 1,100.2 | -497.3 | 1,054.9 | 1,019.0 | 35.86 | 29.420 | |
| 4,500.0 | 4,373.0 | 5,017.3 | 4,719.5 | 20.8 | 32.0 | -109.85 | 1,085.1 | -469.2 | 1,026.7 | 989.7 | 36.99 | 27.754 | |
| 4,600.0 | 4,469.5 | 5,106.2 | 4,802.5 | 21.3 | 32.7 | -111.69 | 1,070.3 | -440.6 | 999.7 | 961.5 | 38.16 | 26.195 | |
| 4,700.0 | 4,565.9 | 5,187.1 | 4,878.1 | 21.9 | 33.2 | -113.41 | 1,057.5 | -414.8 | 974.2 | 934.9 | 39.29 | 24.797 | |
| 4,800.0 | 4,662.4 | 5,251.1 | 4,938.2 | 22.4 | 33.7 | -114.83 | 1,047.2 | -395.4 | 951.4 | 911.2 | 40.29 | 23.613 | |
| 4,900.0 | 4,758.8 | 5,315.0 | 4,999.0 | 22.9 | 34.1 | -116.27 | 1,037.5 | -378.5 | 933.6 | 892.3 | 41.30 | 22.605 | |
| 5,000.0 | 4,855.3 | 5,380.0 | 5,061.5 | 23.5 | 34.4 | -117.76 | 1,028.0 | -363.2 | 919.8 | 877.5 | 42.30 | 21.744 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 22-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 147-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 5,459.7 | 5,138.3 | 24.0 | 34.8 | -119.59 | 1,016.7 | -345.3 | 908.8 | 865.4 | 43.41 | 20.936 | |
| 5,200.0 | 5,048.2 | 5,536.0 | 5,212.2 | 24.6 | 35.2 | -121.30 | 1,007.2 | -329.2 | 900.6 | 856.2 | 44.46 | 20.259 | |
| 5,300.0 | 5,144.7 | 5,608.7 | 5,283.2 | 25.1 | 35.5 | -122.87 | 999.3 | -315.5 | 895.9 | 850.4 | 45.44 | 19.717 | |
| 5,400.0 | 5,241.2 | 5,689.0 | 5,362.1 | 25.6 | 35.8 | -124.53 | 991.9 | -302.5 | 894.7 | 848.3 | 46.42 | 19.275 | |
| 5,402.8 | 5,243.9 | 5,689.0 | 5,362.1 | 25.7 | 35.8 | -124.53 | 991.9 | -302.5 | 894.7 | 848.3 | 46.43 | 19.270 | |
| 5,500.0 | 5,337.6 | 5,761.5 | 5,433.6 | 26.2 | 36.0 | -125.95 | 986.3 | -292.3 | 896.6 | 849.3 | 47.30 | 18.955 | |
| 5,600.0 | 5,434.1 | 5,840.9 | 5,512.2 | 26.7 | 36.3 | -127.43 | 981.1 | -282.4 | 901.1 | 852.9 | 48.18 | 18.703 | |
| 5,700.0 | 5,530.5 | 5,920.9 | 5,591.7 | 27.3 | 36.5 | -128.83 | 976.9 | -274.1 | 908.2 | 859.2 | 49.00 | 18.533 | |
| 5,757.1 | 5,585.6 | 5,970.0 | 5,640.6 | 27.6 | 36.6 | -129.64 | 974.8 | -269.7 | 913.3 | 863.8 | 49.47 | 18.461 | |
| 5,800.0 | 5,627.1 | 6,002.9 | 5,673.3 | 27.8 | 36.6 | -130.22 | 973.5 | -267.1 | 917.4 | 867.6 | 49.83 | 18.412 | |
| 5,900.0 | 5,724.4 | 6,087.1 | 5,757.3 | 28.2 | 36.8 | -131.53 | 970.7 | -261.4 | 926.9 | 876.3 | 50.57 | 18.328 | |
| 6,000.0 | 5,822.4 | 6,175.4 | 5,845.4 | 28.5 | 36.9 | -132.67 | 968.4 | -256.6 | 935.6 | 884.4 | 51.23 | 18.265 | |
| 6,100.0 | 5,921.0 | 6,267.7 | 5,937.6 | 28.8 | 37.1 | -133.64 | 966.3 | -252.4 | 943.2 | 891.4 | 51.79 | 18.212 | |
| 6,200.0 | 6,020.2 | 6,362.4 | 6,032.2 | 29.0 | 37.2 | -134.42 | 964.6 | -248.9 | 949.0 | 896.8 | 52.26 | 18.160 | |
| 6,300.0 | 6,119.7 | 6,459.0 | 6,128.8 | 29.3 | 37.3 | -135.01 | 963.1 | -245.7 | 953.0 | 900.3 | 52.64 | 18.105 | |
| 6,400.0 | 6,219.5 | 6,557.0 | 6,226.7 | 29.4 | 37.4 | -135.41 | 961.7 | -242.8 | 954.8 | 901.9 | 52.92 | 18.040 | |
| 6,500.0 | 6,319.5 | 6,658.2 | 6,327.8 | 29.5 | 37.6 | -135.65 | 960.2 | -239.7 | 954.1 | 901.0 | 53.13 | 17.957 | |
| 6,521.3 | 6,340.8 | 6,679.4 | 6,349.1 | 29.6 | 37.6 | -107.33 | 959.9 | -239.0 | 953.6 | 899.8 | 53.80 | 17.726 | |
| 6,551.3 | 6,370.8 | 6,709.3 | 6,379.0 | 29.6 | 37.6 | -107.37 | 959.5 | -238.1 | 952.9 | 899.0 | 53.87 | 17.690 | |
| 6,600.0 | 6,419.5 | 6,757.0 | 6,426.6 | 29.6 | 37.7 | -17.53 | 958.9 | -236.7 | 950.1 | 897.1 | 53.02 | 17.920 | |
| 6,650.0 | 6,469.2 | 6,805.4 | 6,475.0 | 29.6 | 37.8 | -17.82 | 958.4 | -235.4 | 944.1 | 891.5 | 52.61 | 17.945 | |
| 6,700.0 | 6,518.4 | 6,847.7 | 6,517.2 | 29.6 | 37.8 | -18.23 | 958.0 | -234.4 | 934.9 | 882.9 | 52.01 | 17.976 | |
| 6,750.0 | 6,567.0 | 6,888.5 | 6,558.1 | 29.6 | 37.8 | -18.78 | 957.5 | -233.8 | 923.0 | 871.7 | 51.25 | 18.009 | |
| 6,800.0 | 6,614.5 | 6,930.3 | 6,599.8 | 29.6 | 37.9 | -19.50 | 957.0 | -233.4 | 908.2 | 857.9 | 50.34 | 18.040 | |
| 6,850.0 | 6,660.9 | 6,972.2 | 6,641.7 | 29.5 | 37.9 | -20.41 | 956.5 | -233.3 | 890.6 | 841.3 | 49.32 | 18.059 | |
| 6,900.0 | 6,705.9 | 7,013.2 | 6,682.7 | 29.4 | 37.9 | -21.54 | 956.0 | -233.4 | 870.3 | 822.1 | 48.20 | 18.056 | |
| 6,950.0 | 6,749.2 | 7,053.1 | 6,722.7 | 29.3 | 38.0 | -22.93 | 955.4 | -233.7 | 847.3 | 800.2 | 47.03 | 18.017 | |
| 7,000.0 | 6,790.7 | 7,092.0 | 6,761.5 | 29.2 | 38.0 | -24.62 | 954.7 | -234.1 | 821.7 | 775.9 | 45.85 | 17.923 | |
| 7,050.0 | 6,830.2 | 7,126.6 | 6,796.2 | 29.1 | 38.0 | -26.60 | 954.0 | -234.6 | 793.9 | 749.2 | 44.72 | 17.753 | |
| 7,100.0 | 6,867.4 | 7,160.0 | 6,829.5 | 29.0 | 38.1 | -29.00 | 953.2 | -235.2 | 763.9 | 720.2 | 43.73 | 17.468 | |
| 7,150.0 | 6,902.2 | 7,192.9 | 6,862.4 | 28.9 | 38.1 | -31.93 | 952.3 | -235.9 | 732.0 | 689.0 | 43.01 | 17.017 | |
| 7,200.0 | 6,934.4 | 7,229.8 | 6,899.3 | 28.7 | 38.1 | -35.74 | 951.4 | -236.8 | 698.1 | 655.3 | 42.82 | 16.304 | |
| 7,250.0 | 6,963.8 | 7,263.5 | 6,932.9 | 28.6 | 38.1 | -40.29 | 950.8 | -237.5 | 662.4 | 619.1 | 43.25 | 15.314 | |
| 7,300.0 | 6,990.4 | 7,292.9 | 6,962.3 | 28.5 | 38.1 | -45.56 | 950.5 | -238.0 | 625.3 | 580.8 | 44.44 | 14.070 | |
| 7,350.0 | 7,013.9 | 7,318.0 | 6,987.4 | 28.4 | 38.2 | -51.50 | 950.2 | -238.4 | 587.2 | 540.8 | 46.35 | 12.670 | |
| 7,400.0 | 7,034.4 | 7,339.8 | 7,009.2 | 28.2 | 38.2 | -58.07 | 950.0 | -238.7 | 548.5 | 499.8 | 48.76 | 11.248 | |
| 7,450.0 | 7,051.5 | 7,358.2 | 7,027.6 | 28.1 | 38.2 | -64.96 | 949.9 | -239.0 | 509.8 | 458.5 | 51.30 | 9.937 | |
| 7,500.0 | 7,065.4 | 7,373.1 | 7,042.5 | 28.0 | 38.2 | -71.76 | 949.7 | -239.2 | 471.6 | 418.0 | 53.58 | 8.802 | |
| 7,550.0 | 7,075.9 | 7,384.6 | 7,054.0 | 27.9 | 38.2 | -78.03 | 949.6 | -239.4 | 434.6 | 379.3 | 55.39 | 7.847 | |
| 7,600.0 | 7,082.9 | 7,392.5 | 7,061.9 | 27.8 | 38.2 | -83.36 | 949.6 | -239.5 | 399.7 | 343.0 | 56.73 | 7.047 | |
| 7,650.0 | 7,086.5 | 7,396.8 | 7,066.2 | 27.7 | 38.2 | -87.49 | 949.5 | -239.5 | 367.9 | 310.2 | 57.73 | 6.373 | |
| 7,677.7 | 7,087.0 | 7,397.6 | 7,067.0 | 27.6 | 38.2 | -89.20 | 949.5 | -239.5 | 352.0 | 293.8 | 58.21 | 6.047 | |
| 7,700.0 | 7,087.0 | 7,397.8 | 7,067.2 | 27.6 | 38.2 | -89.24 | 949.5 | -239.5 | 340.3 | 281.8 | 58.52 | 5.814 | |
| 7,800.0 | 7,086.8 | 7,398.8 | 7,068.2 | 27.5 | 38.2 | -89.43 | 949.5 | -239.5 | 302.8 | 242.7 | 60.07 | 5.040 | |
| 7,870.6 | 7,086.6 | 7,399.4 | 7,068.9 | 27.7 | 38.2 | -89.56 | 949.5 | -239.5 | 294.4 | 233.1 | 61.31 | 4.802 | CC, ES |
| 7,900.0 | 7,086.6 | 7,399.7 | 7,069.2 | 27.9 | 38.2 | -89.62 | 949.5 | -239.5 | 295.9 | 234.0 | 61.82 | 4.786 | SF |
| 8,000.0 | 7,086.4 | 7,400.7 | 7,070.1 | 29.5 | 38.2 | -89.80 | 949.5 | -239.5 | 321.6 | 257.8 | 63.74 | 5.045 | |
| 8,100.0 | 7,086.2 | 7,401.6 | 7,071.0 | 31.5 | 38.2 | -89.98 | 949.5 | -239.6 | 373.2 | 307.4 | 65.80 | 5.672 | |
| 8,200.0 | 7,086.0 | 7,402.5 | 7,072.0 | 33.7 | 38.2 | -90.16 | 949.5 | -239.6 | 441.7 | 373.8 | 67.97 | 6.499 | |
| 8,300.0 | 7,085.8 | 7,403.4 | 7,072.9 | 36.0 | 38.2 | -90.34 | 949.5 | -239.6 | 520.6 | 450.3 | 70.23 | 7.413 | |
| 8,400.0 | 7,085.6 | 7,404.3 | 7,073.7 | 38.3 | 38.2 | -90.51 | 949.5 | -239.6 | 605.7 | 533.1 | 72.56 | 8.347 | |
| 8,500.0 | 7,085.4 | 7,405.2 | 7,074.6 | 40.7 | 38.2 | -90.68 | 949.5 | -239.6 | 694.8 | 619.8 | 74.95 | 9.269 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 22-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 147-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,600.0 | 7,085.2 | 7,406.1 | 7,075.5 | 43.1 | 38.2 | -90.85 | 949.5 | -239.6 | 786.5 | 709.1 | 77.40 | 10.162 | |
| 8,700.0 | 7,085.0 | 7,406.9 | 7,076.4 | 45.6 | 38.2 | -91.02 | 949.5 | -239.6 | 880.0 | 800.1 | 79.89 | 11.016 | |
| 8,800.0 | 7,084.8 | 7,407.8 | 7,077.2 | 48.1 | 38.2 | -91.18 | 949.4 | -239.6 | 974.8 | 892.4 | 82.41 | 11.829 | |
| 8,900.0 | 7,084.6 | 7,408.6 | 7,078.0 | 50.7 | 38.2 | -91.34 | 949.4 | -239.6 | 1,070.6 | 985.6 | 84.96 | 12.601 | |
| 9,000.0 | 7,084.4 | 7,409.4 | 7,078.9 | 53.2 | 38.2 | -91.50 | 949.4 | -239.6 | 1,167.0 | 1,079.5 | 87.54 | 13.332 | |
| 9,100.0 | 7,084.2 | 7,410.2 | 7,079.7 | 55.8 | 38.2 | -91.66 | 949.4 | -239.7 | 1,264.1 | 1,173.9 | 90.13 | 14.024 | |
| 9,200.0 | 7,084.0 | 7,411.0 | 7,080.5 | 58.4 | 38.2 | -91.81 | 949.4 | -239.7 | 1,361.5 | 1,268.8 | 92.75 | 14.679 | |
| 9,300.0 | 7,083.8 | 7,411.8 | 7,081.3 | 61.1 | 38.2 | -91.97 | 949.4 | -239.7 | 1,459.3 | 1,363.9 | 95.38 | 15.299 | |
| 9,400.0 | 7,083.7 | 7,412.6 | 7,082.0 | 63.7 | 38.2 | -92.12 | 949.4 | -239.7 | 1,557.4 | 1,459.3 | 98.03 | 15.886 | |
| 9,500.0 | 7,083.5 | 7,413.4 | 7,082.8 | 66.3 | 38.2 | -92.27 | 949.4 | -239.7 | 1,655.7 | 1,555.0 | 100.69 | 16.443 | |
| 9,600.0 | 7,083.3 | 7,414.1 | 7,083.6 | 69.0 | 38.2 | -92.41 | 949.4 | -239.7 | 1,754.2 | 1,650.8 | 103.36 | 16.972 | |
| 9,700.0 | 7,083.1 | 7,414.9 | 7,084.3 | 71.7 | 38.2 | -92.56 | 949.4 | -239.7 | 1,852.8 | 1,746.8 | 106.04 | 17.473 | |
| 9,800.0 | 7,082.9 | 7,415.6 | 7,085.1 | 74.4 | 38.2 | -92.70 | 949.4 | -239.7 | 1,951.6 | 1,842.9 | 108.72 | 17.950 | |
| 9,900.0 | 7,082.7 | 7,416.4 | 7,085.8 | 77.1 | 38.2 | -92.84 | 949.4 | -239.7 | 2,050.5 | 1,939.1 | 111.42 | 18.404 | |
| 10,000.0 | 7,082.5 | 7,417.1 | 7,086.5 | 79.7 | 38.2 | -92.98 | 949.4 | -239.7 | 2,149.5 | 2,035.4 | 114.12 | 18.836 | |
| 10,100.0 | 7,082.3 | 7,417.8 | 7,087.2 | 82.5 | 38.2 | -93.12 | 949.4 | -239.7 | 2,248.6 | 2,131.8 | 116.82 | 19.249 | |
| 10,200.0 | 7,082.1 | 7,418.5 | 7,087.9 | 85.2 | 38.2 | -93.26 | 949.4 | -239.7 | 2,347.8 | 2,228.3 | 119.53 | 19.642 | |
| 10,300.0 | 7,081.9 | 7,419.2 | 7,088.6 | 87.9 | 38.2 | -93.39 | 949.4 | -239.7 | 2,447.0 | 2,324.8 | 122.24 | 20.018 | |
| 10,400.0 | 7,081.7 | 7,419.9 | 7,089.3 | 90.6 | 38.2 | -93.52 | 949.4 | -239.8 | 2,546.3 | 2,421.4 | 124.96 | 20.377 | |
| 10,500.0 | 7,081.5 | 7,420.6 | 7,090.0 | 93.3 | 38.2 | -93.65 | 949.4 | -239.8 | 2,645.7 | 2,518.0 | 127.68 | 20.721 | |
| 10,600.0 | 7,081.3 | 7,421.2 | 7,090.7 | 96.1 | 38.2 | -93.78 | 949.4 | -239.8 | 2,745.1 | 2,614.7 | 130.41 | 21.050 | |
| 10,700.0 | 7,081.1 | 7,421.9 | 7,091.3 | 98.8 | 38.2 | -93.91 | 949.3 | -239.8 | 2,844.5 | 2,711.4 | 133.13 | 21.366 | |
| 10,800.0 | 7,080.9 | 7,422.6 | 7,092.0 | 101.5 | 38.2 | -94.03 | 949.3 | -239.8 | 2,944.0 | 2,808.1 | 135.86 | 21.669 | |
| 10,900.0 | 7,080.7 | 7,423.2 | 7,092.6 | 104.3 | 38.2 | -94.16 | 949.3 | -239.8 | 3,043.5 | 2,904.9 | 138.59 | 21.960 | |
| 11,000.0 | 7,080.5 | 7,423.8 | 7,093.3 | 107.0 | 38.2 | -94.28 | 949.3 | -239.8 | 3,143.1 | 3,001.7 | 141.32 | 22.240 | |
| 11,100.0 | 7,080.3 | 7,424.5 | 7,093.9 | 109.8 | 38.2 | -94.40 | 949.3 | -239.8 | 3,242.6 | 3,098.6 | 144.06 | 22.509 | |
| 11,200.0 | 7,080.1 | 7,425.1 | 7,094.5 | 112.5 | 38.2 | -94.52 | 949.3 | -239.8 | 3,342.2 | 3,195.4 | 146.79 | 22.768 | |
| 11,300.0 | 7,079.9 | 7,425.7 | 7,095.1 | 115.3 | 38.2 | -94.64 | 949.3 | -239.8 | 3,441.8 | 3,292.3 | 149.53 | 23.018 | |
| 11,400.0 | 7,079.7 | 7,426.3 | 7,095.7 | 118.0 | 38.2 | -94.76 | 949.3 | -239.8 | 3,541.5 | 3,389.2 | 152.26 | 23.259 | |
| 11,500.0 | 7,079.5 | 7,426.9 | 7,096.3 | 120.8 | 38.2 | -94.87 | 949.3 | -239.8 | 3,641.1 | 3,486.1 | 155.00 | 23.491 | |
| 11,600.0 | 7,079.3 | 7,427.5 | 7,096.9 | 123.6 | 38.2 | -94.98 | 949.3 | -239.8 | 3,740.8 | 3,583.1 | 157.74 | 23.715 | |
| 11,700.0 | 7,079.1 | 7,428.1 | 7,097.5 | 126.3 | 38.2 | -95.10 | 949.3 | -239.8 | 3,840.5 | 3,680.0 | 160.48 | 23.931 | |
| 11,800.0 | 7,078.9 | 7,428.7 | 7,098.1 | 129.1 | 38.2 | -95.21 | 949.3 | -239.8 | 3,940.2 | 3,777.0 | 163.22 | 24.140 | |
| 11,900.0 | 7,078.7 | 7,429.3 | 7,098.7 | 131.9 | 38.2 | -95.32 | 949.3 | -239.8 | 4,040.0 | 3,874.0 | 165.96 | 24.343 | |
| 12,000.0 | 7,078.5 | 7,429.8 | 7,099.3 | 134.6 | 38.2 | -95.42 | 949.3 | -239.8 | 4,139.7 | 3,971.0 | 168.70 | 24.539 | |
| 12,100.0 | 7,078.3 | 7,430.4 | 7,099.8 | 137.4 | 38.2 | -95.53 | 949.3 | -239.9 | 4,239.4 | 4,068.0 | 171.44 | 24.728 | |
| 12,200.0 | 7,078.1 | 7,431.0 | 7,100.4 | 140.2 | 38.2 | -95.64 | 949.3 | -239.9 | 4,339.2 | 4,165.0 | 174.18 | 24.912 | |
| 12,300.0 | 7,077.9 | 7,431.5 | 7,100.9 | 142.9 | 38.2 | -95.74 | 949.3 | -239.9 | 4,439.0 | 4,262.0 | 176.92 | 25.090 | |
| 12,400.0 | 7,077.7 | 7,432.0 | 7,101.5 | 145.7 | 38.2 | -95.84 | 949.3 | -239.9 | 4,538.8 | 4,359.1 | 179.66 | 25.262 | |
| 12,500.0 | 7,077.5 | 7,432.6 | 7,102.0 | 148.5 | 38.2 | -95.95 | 949.3 | -239.9 | 4,638.5 | 4,456.1 | 182.40 | 25.430 | |
| 12,600.0 | 7,077.3 | 7,433.1 | 7,102.5 | 151.3 | 38.2 | -96.05 | 949.3 | -239.9 | 4,738.3 | 4,553.2 | 185.15 | 25.593 | |
| 12,700.0 | 7,077.1 | 7,433.6 | 7,103.1 | 154.0 | 38.2 | -96.15 | 949.3 | -239.9 | 4,838.2 | 4,650.3 | 187.89 | 25.751 | |
| 12,800.0 | 7,076.9 | 7,434.2 | 7,103.6 | 156.8 | 38.2 | -96.25 | 949.3 | -239.9 | 4,938.0 | 4,747.3 | 190.63 | 25.904 | |
| 12,900.0 | 7,076.7 | 7,434.7 | 7,104.1 | 159.6 | 38.2 | -96.34 | 949.3 | -239.9 | 5,037.8 | 4,844.4 | 193.37 | 26.053 | |
| 13,000.0 | 7,076.5 | 7,435.2 | 7,104.6 | 162.4 | 38.2 | -96.44 | 949.3 | -239.9 | 5,137.6 | 4,941.5 | 196.11 | 26.198 | |
| 13,100.0 | 7,076.3 | 7,435.7 | 7,105.1 | 165.2 | 38.2 | -96.53 | 949.3 | -239.9 | 5,237.5 | 5,038.6 | 198.84 | 26.339 | |
| 13,200.0 | 7,076.1 | 7,436.2 | 7,105.6 | 168.0 | 38.2 | -96.63 | 949.3 | -239.9 | 5,337.3 | 5,135.7 | 201.58 | 26.477 | |
| 13,300.0 | 7,075.9 | 7,436.7 | 7,106.1 | 170.7 | 38.2 | -96.72 | 949.2 | -239.9 | 5,437.2 | 5,232.8 | 204.32 | 26.611 | |
| 13,400.0 | 7,075.7 | 7,437.2 | 7,106.6 | 173.5 | 38.2 | -96.81 | 949.2 | -239.9 | 5,537.0 | 5,329.9 | 207.06 | 26.741 | |
| 13,500.0 | 7,075.5 | 7,437.7 | 7,107.1 | 176.3 | 38.2 | -96.90 | 949.2 | -239.9 | 5,636.9 | 5,427.1 | 209.80 | 26.868 | |
| 13,600.0 | 7,075.3 | 7,438.1 | 7,107.6 | 179.1 | 38.2 | -96.99 | 949.2 | -239.9 | 5,736.7 | 5,524.2 | 212.53 | 26.992 | |
| 13,700.0 | 7,075.1 | 7,438.6 | 7,108.0 | 181.9 | 38.2 | -97.08 | 949.2 | -239.9 | 5,836.6 | 5,621.3 | 215.27 | 27.113 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD CENTENNIAL 22-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 147-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.0 | 7,074.9 | 7,439.1 | 7,108.5 | 184.7 | 38.2 | -97.17 | 949.2 | -239.9 | 5,936.5 | 5,718.5 | 218.01 | 27.231 | |
| 13,900.0 | 7,074.7 | 7,439.5 | 7,109.0 | 187.5 | 38.2 | -97.26 | 949.2 | -239.9 | 6,036.3 | 5,815.6 | 220.74 | 27.346 | |
| 14,000.0 | 7,074.5 | 7,440.0 | 7,109.4 | 190.2 | 38.2 | -97.34 | 949.2 | -239.9 | 6,136.2 | 5,912.7 | 223.48 | 27.458 | |
| 14,100.0 | 7,074.2 | 7,440.5 | 7,109.9 | 193.0 | 38.2 | -97.43 | 949.2 | -239.9 | 6,236.1 | 6,009.9 | 226.21 | 27.567 | |
| 14,200.0 | 7,074.0 | 7,440.9 | 7,110.3 | 195.8 | 38.2 | -97.51 | 949.2 | -239.9 | 6,336.0 | 6,107.1 | 228.95 | 27.674 | |
| 14,221.4 | 7,074.0 | 7,441.0 | 7,110.4 | 196.4 | 38.2 | -97.53 | 949.2 | -239.9 | 6,357.4 | 6,127.8 | 229.53 | 27.697 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD EEE 21ADU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 706-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -45.89 | 1,923.2 | -1,984.0 | 2,763.2 | | | | |
| 100.0 | 100.0 | 83.3 | 83.3 | 0.1 | 0.1 | -45.89 | 1,923.3 | -1,984.0 | 2,763.2 | 2,763.0 | 0.17 | N/A | |
| 200.0 | 200.0 | 182.0 | 182.0 | 0.3 | 0.2 | -45.89 | 1,923.4 | -1,983.9 | 2,763.2 | 2,762.7 | 0.49 | 5,673.157 | |
| 300.0 | 300.0 | 280.6 | 280.6 | 0.5 | 0.3 | -45.88 | 1,923.7 | -1,983.8 | 2,763.4 | 2,762.6 | 0.80 | 3,448.503 | |
| 400.0 | 400.0 | 379.2 | 379.2 | 0.8 | 0.3 | -45.87 | 1,924.1 | -1,983.7 | 2,763.5 | 2,762.4 | 1.12 | 2,477.235 | |
| 500.0 | 500.0 | 477.8 | 477.8 | 1.0 | 0.4 | -74.25 | 1,924.6 | -1,983.5 | 2,763.3 | 2,761.8 | 1.43 | 1,934.489 | |
| 600.0 | 599.8 | 576.3 | 576.3 | 1.2 | 0.5 | -74.36 | 1,925.2 | -1,983.3 | 2,762.1 | 2,760.4 | 1.74 | 1,582.908 | |
| 700.0 | 699.5 | 674.6 | 674.6 | 1.5 | 0.6 | -74.56 | 1,925.9 | -1,983.0 | 2,760.1 | 2,758.0 | 2.08 | 1,329.317 | |
| 800.0 | 798.7 | 771.5 | 771.5 | 1.7 | 0.8 | -74.83 | 1,926.7 | -1,982.8 | 2,757.2 | 2,754.7 | 2.51 | 1,098.561 | |
| 900.0 | 897.5 | 878.4 | 878.4 | 2.0 | 1.0 | -75.23 | 1,927.4 | -1,982.6 | 2,753.5 | 2,750.4 | 3.02 | 910.998 | |
| 1,000.0 | 995.6 | 1,158.2 | 1,157.9 | 2.4 | 1.6 | -76.38 | 1,925.1 | -1,973.6 | 2,746.2 | 2,742.3 | 3.96 | 693.472 | |
| 1,100.0 | 1,093.1 | 1,437.4 | 1,435.3 | 2.8 | 2.3 | -77.68 | 1,916.2 | -1,942.8 | 2,729.7 | 2,724.7 | 5.02 | 544.051 | |
| 1,164.2 | 1,155.2 | 1,731.3 | 1,723.5 | 3.1 | 3.4 | -79.05 | 1,899.0 | -1,888.2 | 2,714.0 | 2,707.9 | 6.06 | 447.716 | |
| 1,200.0 | 1,189.7 | 1,772.6 | 1,763.5 | 3.2 | 3.6 | -79.21 | 1,895.9 | -1,879.0 | 2,704.1 | 2,697.8 | 6.34 | 426.419 | |
| 1,300.0 | 1,286.2 | 1,867.8 | 1,855.9 | 3.7 | 4.0 | -79.55 | 1,889.2 | -1,856.9 | 2,676.5 | 2,669.5 | 7.08 | 377.958 | |
| 1,400.0 | 1,382.6 | 2,005.4 | 1,989.0 | 4.2 | 4.6 | -79.99 | 1,881.5 | -1,822.7 | 2,649.1 | 2,641.1 | 7.97 | 332.478 | |
| 1,500.0 | 1,479.1 | 2,141.7 | 2,119.9 | 4.7 | 5.4 | -80.41 | 1,872.6 | -1,786.2 | 2,619.2 | 2,610.3 | 8.89 | 294.777 | |
| 1,600.0 | 1,575.6 | 2,243.5 | 2,217.6 | 5.3 | 5.9 | -80.74 | 1,865.5 | -1,758.3 | 2,588.8 | 2,579.1 | 9.70 | 266.795 | |
| 1,700.0 | 1,672.0 | 2,366.8 | 2,335.6 | 5.8 | 6.6 | -81.14 | 1,856.9 | -1,723.6 | 2,557.9 | 2,547.3 | 10.61 | 241.201 | |
| 1,800.0 | 1,768.5 | 2,526.7 | 2,487.8 | 6.3 | 7.6 | -81.65 | 1,844.0 | -1,676.1 | 2,525.3 | 2,513.7 | 11.64 | 216.917 | |
| 1,900.0 | 1,864.9 | 2,666.4 | 2,619.7 | 6.8 | 8.5 | -82.13 | 1,830.5 | -1,632.4 | 2,490.4 | 2,477.8 | 12.62 | 197.372 | |
| 2,000.0 | 1,961.4 | 2,753.6 | 2,701.9 | 7.4 | 9.1 | -82.45 | 1,821.4 | -1,604.8 | 2,455.0 | 2,441.6 | 13.41 | 183.041 | |
| 2,100.0 | 2,057.9 | 2,811.7 | 2,756.9 | 7.9 | 9.4 | -82.67 | 1,815.4 | -1,586.9 | 2,420.3 | 2,406.2 | 14.11 | 171.587 | |
| 2,200.0 | 2,154.3 | 2,875.5 | 2,817.6 | 8.4 | 9.7 | -82.93 | 1,809.3 | -1,568.2 | 2,387.2 | 2,372.4 | 14.81 | 161.146 | |
| 2,300.0 | 2,250.8 | 2,975.9 | 2,913.2 | 9.0 | 10.3 | -83.35 | 1,799.5 | -1,539.1 | 2,354.4 | 2,338.8 | 15.63 | 150.607 | |
| 2,400.0 | 2,347.3 | 3,044.0 | 2,978.0 | 9.5 | 10.7 | -83.64 | 1,792.9 | -1,519.3 | 2,321.8 | 2,305.5 | 16.36 | 141.900 | |
| 2,500.0 | 2,443.7 | 3,108.7 | 3,039.7 | 10.0 | 11.1 | -83.91 | 1,787.3 | -1,500.9 | 2,290.5 | 2,273.4 | 17.08 | 134.124 | |
| 2,600.0 | 2,540.2 | 3,194.2 | 3,121.7 | 10.6 | 11.6 | -84.27 | 1,781.2 | -1,477.3 | 2,260.6 | 2,242.7 | 17.86 | 126.602 | |
| 2,700.0 | 2,636.7 | 3,292.7 | 3,216.0 | 11.1 | 12.1 | -84.69 | 1,773.7 | -1,449.9 | 2,230.4 | 2,211.7 | 18.68 | 119.426 | |
| 2,800.0 | 2,733.1 | 3,382.4 | 3,302.0 | 11.6 | 12.6 | -85.09 | 1,767.1 | -1,425.0 | 2,200.5 | 2,181.1 | 19.47 | 113.019 | |
| 2,900.0 | 2,829.6 | 3,477.9 | 3,393.5 | 12.2 | 13.2 | -85.50 | 1,760.5 | -1,398.2 | 2,170.8 | 2,150.5 | 20.29 | 107.011 | |
| 3,000.0 | 2,926.0 | 3,557.2 | 3,469.3 | 12.7 | 13.6 | -85.84 | 1,755.6 | -1,375.7 | 2,141.3 | 2,120.3 | 21.06 | 101.684 | |
| 3,100.0 | 3,022.5 | 3,632.6 | 3,541.5 | 13.2 | 14.0 | -86.15 | 1,752.0 | -1,354.5 | 2,113.0 | 2,091.2 | 21.82 | 96.849 | |
| 3,200.0 | 3,119.0 | 3,743.0 | 3,647.8 | 13.8 | 14.6 | -86.69 | 1,744.7 | -1,325.3 | 2,085.0 | 2,062.3 | 22.66 | 92.027 | |
| 3,300.0 | 3,215.4 | 3,876.2 | 3,775.5 | 14.3 | 15.4 | -87.44 | 1,732.4 | -1,289.6 | 2,055.4 | 2,031.9 | 23.54 | 87.303 | |
| 3,400.0 | 3,311.9 | 3,999.2 | 3,892.9 | 14.9 | 16.1 | -88.17 | 1,719.6 | -1,255.3 | 2,024.4 | 2,000.0 | 24.40 | 82.955 | |
| 3,500.0 | 3,408.4 | 4,075.0 | 3,965.2 | 15.4 | 16.6 | -88.63 | 1,711.8 | -1,234.0 | 1,993.6 | 1,968.4 | 25.13 | 79.318 | |
| 3,600.0 | 3,504.8 | 4,133.2 | 4,021.0 | 15.9 | 16.9 | -88.99 | 1,706.1 | -1,218.3 | 1,964.2 | 1,938.4 | 25.81 | 76.102 | |
| 3,700.0 | 3,601.3 | 4,200.1 | 4,085.4 | 16.5 | 17.2 | -89.42 | 1,700.1 | -1,201.3 | 1,936.5 | 1,910.0 | 26.50 | 73.067 | |
| 3,800.0 | 3,697.7 | 4,280.6 | 4,163.2 | 17.0 | 17.6 | -89.95 | 1,693.1 | -1,181.5 | 1,910.0 | 1,882.8 | 27.23 | 70.156 | |
| 3,900.0 | 3,794.2 | 4,377.3 | 4,256.4 | 17.5 | 18.1 | -90.59 | 1,685.3 | -1,157.5 | 1,883.8 | 1,855.8 | 27.99 | 67.297 | |
| 4,000.0 | 3,890.7 | 4,457.1 | 4,333.5 | 18.1 | 18.6 | -91.10 | 1,679.7 | -1,137.6 | 1,858.3 | 1,829.6 | 28.72 | 64.697 | |
| 4,100.0 | 3,987.1 | 4,592.2 | 4,463.7 | 18.6 | 19.3 | -91.99 | 1,670.0 | -1,102.9 | 1,832.3 | 1,802.7 | 29.59 | 61.913 | |
| 4,200.0 | 4,083.6 | 4,697.2 | 4,564.5 | 19.2 | 19.9 | -92.68 | 1,662.4 | -1,074.2 | 1,805.0 | 1,774.6 | 30.40 | 59.382 | |
| 4,300.0 | 4,180.1 | 4,787.4 | 4,651.0 | 19.7 | 20.4 | -93.30 | 1,655.5 | -1,049.6 | 1,777.9 | 1,746.7 | 31.15 | 57.073 | |
| 4,400.0 | 4,276.5 | 4,882.1 | 4,741.8 | 20.2 | 20.9 | -93.96 | 1,648.5 | -1,024.0 | 1,751.2 | 1,719.3 | 31.92 | 54.869 | |
| 4,500.0 | 4,373.0 | 4,959.3 | 4,816.0 | 20.8 | 21.4 | -94.52 | 1,642.9 | -1,003.1 | 1,724.9 | 1,692.3 | 32.64 | 52.854 | |
| 4,600.0 | 4,469.5 | 5,011.0 | 4,865.8 | 21.3 | 21.6 | -94.90 | 1,639.5 | -989.8 | 1,700.5 | 1,667.2 | 33.29 | 51.076 | |
| 4,700.0 | 4,565.9 | 5,078.1 | 4,930.9 | 21.9 | 22.0 | -95.40 | 1,635.6 | -973.7 | 1,678.1 | 1,644.2 | 33.97 | 49.397 | |
| 4,800.0 | 4,662.4 | 5,137.2 | 4,988.5 | 22.4 | 22.2 | -95.86 | 1,632.6 | -961.0 | 1,658.4 | 1,623.8 | 34.63 | 47.891 | |
| 4,900.0 | 4,758.8 | 5,198.0 | 5,048.1 | 22.9 | 22.5 | -96.35 | 1,629.8 | -949.1 | 1,640.9 | 1,605.6 | 35.28 | 46.507 | |
| 5,000.0 | 4,855.3 | 5,265.0 | 5,114.0 | 23.5 | 22.7 | -96.90 | 1,627.1 | -937.2 | 1,625.6 | 1,589.6 | 35.94 | 45.231 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD EEE 21ADU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 706-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 5,332.0 | 5,180.0 | 24.0 | 22.9 | -97.45 | 1,624.9 | -926.6 | 1,612.4 | 1,575.8 | 36.59 | 44.064 | |
| 5,200.0 | 5,048.2 | 5,401.5 | 5,248.9 | 24.6 | 23.2 | -98.06 | 1,622.6 | -916.8 | 1,601.3 | 1,564.0 | 37.24 | 42.996 | |
| 5,300.0 | 5,144.7 | 5,479.0 | 5,325.7 | 25.1 | 23.4 | -98.74 | 1,620.4 | -907.0 | 1,591.9 | 1,554.0 | 37.90 | 42.004 | |
| 5,400.0 | 5,241.2 | 5,555.1 | 5,401.2 | 25.6 | 23.6 | -99.41 | 1,618.6 | -898.2 | 1,584.1 | 1,545.6 | 38.55 | 41.092 | |
| 5,500.0 | 5,337.6 | 5,619.8 | 5,465.6 | 26.2 | 23.7 | -99.98 | 1,617.5 | -891.5 | 1,578.2 | 1,539.0 | 39.18 | 40.281 | |
| 5,600.0 | 5,434.1 | 5,666.0 | 5,511.6 | 26.7 | 23.8 | -100.38 | 1,617.1 | -887.6 | 1,574.9 | 1,535.1 | 39.78 | 39.591 | |
| 5,700.0 | 5,530.5 | 5,760.0 | 5,605.4 | 27.3 | 24.0 | -101.19 | 1,617.5 | -881.7 | 1,573.9 | 1,533.5 | 40.43 | 38.925 | |
| 5,710.2 | 5,540.3 | 5,760.0 | 5,605.4 | 27.3 | 24.0 | -101.19 | 1,617.5 | -881.7 | 1,573.9 | 1,533.4 | 40.49 | 38.872 | |
| 5,757.1 | 5,585.6 | 5,782.5 | 5,627.9 | 27.6 | 24.0 | -101.39 | 1,617.7 | -880.7 | 1,574.3 | 1,533.5 | 40.76 | 38.620 | |
| 5,800.0 | 5,627.1 | 5,810.2 | 5,655.6 | 27.8 | 24.1 | -101.64 | 1,618.0 | -879.7 | 1,575.1 | 1,534.2 | 40.99 | 38.429 | |
| 5,900.0 | 5,724.4 | 5,883.0 | 5,728.4 | 28.2 | 24.2 | -102.26 | 1,618.6 | -878.1 | 1,578.2 | 1,536.7 | 41.43 | 38.089 | |
| 6,000.0 | 5,822.4 | 5,974.8 | 5,820.1 | 28.5 | 24.3 | -102.93 | 1,619.2 | -877.0 | 1,581.6 | 1,539.7 | 41.86 | 37.781 | |
| 6,100.0 | 5,921.0 | 6,070.2 | 5,915.5 | 28.8 | 24.4 | -103.53 | 1,619.5 | -876.2 | 1,584.6 | 1,542.3 | 42.26 | 37.499 | |
| 6,200.0 | 6,020.2 | 6,165.3 | 6,010.7 | 29.0 | 24.5 | -104.00 | 1,619.7 | -875.7 | 1,587.2 | 1,544.6 | 42.62 | 37.244 | |
| 6,300.0 | 6,119.7 | 6,262.9 | 6,108.3 | 29.3 | 24.6 | -104.35 | 1,619.8 | -875.3 | 1,589.2 | 1,546.3 | 42.94 | 37.008 | |
| 6,400.0 | 6,219.5 | 6,358.9 | 6,204.2 | 29.4 | 24.7 | -104.58 | 1,619.8 | -875.2 | 1,590.6 | 1,547.3 | 43.23 | 36.793 | |
| 6,500.0 | 6,319.5 | 6,458.7 | 6,304.0 | 29.5 | 24.8 | -104.67 | 1,620.0 | -875.2 | 1,591.2 | 1,547.8 | 43.49 | 36.590 | |
| 6,521.3 | 6,340.8 | 6,481.1 | 6,326.4 | 29.6 | 24.8 | -76.33 | 1,620.0 | -875.2 | 1,591.3 | 1,548.5 | 42.80 | 37.180 | |
| 6,551.3 | 6,370.8 | 6,512.2 | 6,357.5 | 29.6 | 24.8 | -76.32 | 1,620.1 | -875.1 | 1,591.2 | 1,548.4 | 42.88 | 37.112 | |
| 6,600.0 | 6,419.5 | 6,558.6 | 6,403.9 | 29.6 | 24.9 | 13.73 | 1,620.3 | -875.0 | 1,589.6 | 1,546.1 | 43.46 | 36.576 | |
| 6,650.0 | 6,469.2 | 6,606.3 | 6,451.6 | 29.6 | 24.9 | 13.88 | 1,620.6 | -875.0 | 1,584.6 | 1,541.5 | 43.12 | 36.750 | |
| 6,700.0 | 6,518.4 | 6,655.8 | 6,501.1 | 29.6 | 25.0 | 14.13 | 1,620.9 | -875.0 | 1,576.4 | 1,533.7 | 42.62 | 36.991 | |
| 6,750.0 | 6,567.0 | 6,704.2 | 6,549.5 | 29.6 | 25.0 | 14.48 | 1,621.3 | -874.9 | 1,564.8 | 1,522.8 | 41.95 | 37.299 | |
| 6,800.0 | 6,614.5 | 6,750.0 | 6,595.4 | 29.6 | 25.1 | 14.95 | 1,621.6 | -875.0 | 1,549.9 | 1,508.8 | 41.14 | 37.674 | |
| 6,850.0 | 6,660.9 | 6,795.0 | 6,640.3 | 29.5 | 25.1 | 15.53 | 1,621.8 | -875.0 | 1,532.0 | 1,491.8 | 40.20 | 38.107 | |
| 6,900.0 | 6,705.9 | 6,839.6 | 6,684.9 | 29.4 | 25.2 | 16.26 | 1,621.9 | -875.2 | 1,511.0 | 1,471.8 | 39.16 | 38.584 | |
| 6,950.0 | 6,749.2 | 6,882.7 | 6,728.1 | 29.3 | 25.2 | 17.16 | 1,621.8 | -875.4 | 1,487.1 | 1,449.0 | 38.05 | 39.086 | |
| 7,000.0 | 6,790.7 | 6,928.9 | 6,774.2 | 29.2 | 25.3 | 18.27 | 1,621.4 | -875.6 | 1,460.2 | 1,423.3 | 36.91 | 39.559 | |
| 7,050.0 | 6,830.2 | 6,972.6 | 6,817.9 | 29.1 | 25.3 | 19.63 | 1,620.9 | -875.7 | 1,430.5 | 1,394.7 | 35.80 | 39.957 | |
| 7,100.0 | 6,867.4 | 7,011.8 | 6,857.1 | 29.0 | 25.4 | 21.27 | 1,620.2 | -875.7 | 1,398.2 | 1,363.5 | 34.78 | 40.206 | |
| 7,150.0 | 6,902.2 | 7,048.2 | 6,893.5 | 28.9 | 25.4 | 23.26 | 1,619.5 | -875.8 | 1,363.6 | 1,329.6 | 33.93 | 40.183 | |
| 7,200.0 | 6,934.4 | 7,083.1 | 6,928.4 | 28.7 | 25.5 | 25.73 | 1,618.7 | -875.8 | 1,326.6 | 1,293.3 | 33.40 | 39.725 | |
| 7,250.0 | 6,963.8 | 7,116.8 | 6,962.0 | 28.6 | 25.5 | 28.82 | 1,617.8 | -875.7 | 1,287.7 | 1,254.4 | 33.31 | 38.662 | |
| 7,300.0 | 6,990.4 | 7,146.9 | 6,992.2 | 28.5 | 25.5 | 32.67 | 1,616.9 | -875.6 | 1,246.9 | 1,213.1 | 33.79 | 36.899 | |
| 7,350.0 | 7,013.9 | 7,174.8 | 7,020.1 | 28.4 | 25.6 | 37.52 | 1,616.0 | -875.5 | 1,204.5 | 1,169.5 | 35.01 | 34.405 | |
| 7,400.0 | 7,034.4 | 7,200.5 | 7,045.8 | 28.2 | 25.6 | 43.67 | 1,615.1 | -875.2 | 1,160.8 | 1,123.8 | 37.05 | 31.330 | |
| 7,450.0 | 7,051.5 | 7,221.6 | 7,066.8 | 28.1 | 25.6 | 51.21 | 1,614.4 | -874.9 | 1,116.0 | 1,076.2 | 39.78 | 28.058 | |
| 7,500.0 | 7,065.4 | 7,238.0 | 7,083.2 | 28.0 | 25.7 | 60.14 | 1,613.7 | -874.6 | 1,070.4 | 1,027.6 | 42.83 | 24.995 | |
| 7,550.0 | 7,075.9 | 7,249.9 | 7,095.1 | 27.9 | 25.7 | 70.15 | 1,613.2 | -874.4 | 1,024.4 | 978.8 | 45.58 | 22.473 | |
| 7,600.0 | 7,082.9 | 7,257.3 | 7,102.5 | 27.8 | 25.7 | 80.55 | 1,612.9 | -874.2 | 978.2 | 930.8 | 47.40 | 20.637 | |
| 7,650.0 | 7,086.5 | 7,260.1 | 7,105.3 | 27.7 | 25.7 | 90.44 | 1,612.8 | -874.2 | 932.1 | 884.1 | 47.99 | 19.423 | |
| 7,677.7 | 7,087.0 | 7,259.9 | 7,105.1 | 27.6 | 25.7 | 95.45 | 1,612.8 | -874.2 | 906.7 | 858.9 | 47.85 | 18.950 | |
| 7,700.0 | 7,087.0 | 7,259.4 | 7,104.5 | 27.6 | 25.7 | 95.36 | 1,612.8 | -874.2 | 886.4 | 838.2 | 48.17 | 18.403 | |
| 7,800.0 | 7,086.8 | 7,256.8 | 7,101.9 | 27.5 | 25.7 | 94.96 | 1,612.9 | -874.3 | 796.7 | 746.9 | 49.74 | 16.016 | |
| 7,900.0 | 7,086.6 | 7,254.0 | 7,099.2 | 27.9 | 25.7 | 94.54 | 1,613.1 | -874.3 | 709.7 | 658.1 | 51.53 | 13.772 | |
| 8,000.0 | 7,086.4 | 7,251.4 | 7,096.6 | 29.5 | 25.7 | 94.14 | 1,613.2 | -874.4 | 626.5 | 573.0 | 53.48 | 11.715 | |
| 8,100.0 | 7,086.2 | 7,248.9 | 7,094.1 | 31.5 | 25.7 | 93.75 | 1,613.3 | -874.4 | 549.0 | 493.5 | 55.57 | 9.880 | |
| 8,200.0 | 7,086.0 | 7,246.5 | 7,091.7 | 33.7 | 25.7 | 93.37 | 1,613.4 | -874.5 | 479.9 | 422.2 | 57.77 | 8.308 | |
| 8,300.0 | 7,085.8 | 7,244.1 | 7,089.3 | 36.0 | 25.7 | 93.01 | 1,613.5 | -874.5 | 423.4 | 363.3 | 60.06 | 7.049 | |
| 8,400.0 | 7,085.6 | 7,241.9 | 7,087.1 | 38.3 | 25.7 | 92.66 | 1,613.6 | -874.6 | 384.8 | 322.4 | 62.42 | 6.165 | |
| 8,500.0 | 7,085.4 | 7,239.7 | 7,084.9 | 40.7 | 25.7 | 92.32 | 1,613.6 | -874.6 | 370.1 | 305.3 | 64.84 | 5.708 | |
| 8,505.7 | 7,085.4 | 7,239.6 | 7,084.8 | 40.8 | 25.7 | 92.30 | 1,613.7 | -874.6 | 370.1 | 305.1 | 64.98 | 5.695 | CC, ES |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD EEE 21ADU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 706-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,600.0 | 7,085.2 | 7,237.6 | 7,082.8 | 43.1 | 25.7 | 91.99 | 1,613.7 | -874.6 | 381.9 | 314.6 | 67.31 | 5.673 | SF |
| 8,700.0 | 7,085.0 | 7,235.5 | 7,080.7 | 45.6 | 25.7 | 91.68 | 1,613.8 | -874.7 | 417.9 | 348.1 | 69.82 | 5.986 | |
| 8,800.0 | 7,084.8 | 7,233.6 | 7,078.8 | 48.1 | 25.7 | 91.37 | 1,613.9 | -874.7 | 472.8 | 400.4 | 72.36 | 6.534 | |
| 8,900.0 | 7,084.6 | 7,231.6 | 7,076.9 | 50.7 | 25.7 | 91.08 | 1,614.0 | -874.7 | 540.7 | 465.8 | 74.93 | 7.216 | |
| 9,000.0 | 7,084.4 | 7,229.8 | 7,075.0 | 53.2 | 25.7 | 90.79 | 1,614.0 | -874.8 | 617.4 | 539.9 | 77.53 | 7.963 | |
| 9,100.0 | 7,084.2 | 7,228.0 | 7,073.2 | 55.8 | 25.7 | 90.51 | 1,614.1 | -874.8 | 700.0 | 619.9 | 80.15 | 8.734 | |
| 9,200.0 | 7,084.0 | 7,226.3 | 7,071.5 | 58.4 | 25.7 | 90.25 | 1,614.2 | -874.8 | 786.7 | 703.9 | 82.78 | 9.503 | |
| 9,300.0 | 7,083.8 | 7,224.6 | 7,069.8 | 61.1 | 25.6 | 89.99 | 1,614.2 | -874.9 | 876.1 | 790.7 | 85.43 | 10.256 | |
| 9,400.0 | 7,083.7 | 7,223.0 | 7,068.2 | 63.7 | 25.6 | 89.73 | 1,614.3 | -874.9 | 967.7 | 879.6 | 88.09 | 10.985 | |
| 9,500.0 | 7,083.5 | 7,221.4 | 7,066.6 | 66.3 | 25.6 | 89.49 | 1,614.4 | -874.9 | 1,060.8 | 970.0 | 90.76 | 11.687 | |
| 9,600.0 | 7,083.3 | 7,219.8 | 7,065.1 | 69.0 | 25.6 | 89.25 | 1,614.4 | -874.9 | 1,155.0 | 1,061.6 | 93.44 | 12.360 | |
| 9,700.0 | 7,083.1 | 7,218.3 | 7,063.6 | 71.7 | 25.6 | 89.02 | 1,614.5 | -875.0 | 1,250.1 | 1,154.0 | 96.13 | 13.004 | |
| 9,800.0 | 7,082.9 | 7,216.9 | 7,062.1 | 74.4 | 25.6 | 88.80 | 1,614.5 | -875.0 | 1,345.9 | 1,247.1 | 98.83 | 13.619 | |
| 9,900.0 | 7,082.7 | 7,215.5 | 7,060.7 | 77.1 | 25.6 | 88.58 | 1,614.6 | -875.0 | 1,442.3 | 1,340.8 | 101.53 | 14.206 | |
| 10,000.0 | 7,082.5 | 7,214.1 | 7,059.3 | 79.7 | 25.6 | 88.37 | 1,614.6 | -875.0 | 1,539.2 | 1,435.0 | 104.24 | 14.766 | |
| 10,100.0 | 7,082.3 | 7,212.8 | 7,058.0 | 82.5 | 25.6 | 88.16 | 1,614.7 | -875.0 | 1,636.4 | 1,529.5 | 106.96 | 15.300 | |
| 10,200.0 | 7,082.1 | 7,211.5 | 7,056.7 | 85.2 | 25.6 | 87.96 | 1,614.7 | -875.1 | 1,734.0 | 1,624.3 | 109.67 | 15.810 | |
| 10,300.0 | 7,081.9 | 7,210.2 | 7,055.4 | 87.9 | 25.6 | 87.76 | 1,614.8 | -875.1 | 1,831.8 | 1,719.4 | 112.40 | 16.298 | |
| 10,400.0 | 7,081.7 | 7,209.0 | 7,054.2 | 90.6 | 25.6 | 87.57 | 1,614.8 | -875.1 | 1,929.8 | 1,814.7 | 115.12 | 16.763 | |
| 10,500.0 | 7,081.5 | 7,207.8 | 7,053.0 | 93.3 | 25.6 | 87.39 | 1,614.9 | -875.1 | 2,028.0 | 1,910.2 | 117.85 | 17.209 | |
| 10,600.0 | 7,081.3 | 7,206.6 | 7,051.8 | 96.1 | 25.6 | 87.21 | 1,614.9 | -875.1 | 2,126.4 | 2,005.8 | 120.58 | 17.635 | |
| 10,700.0 | 7,081.1 | 7,205.5 | 7,050.7 | 98.8 | 25.6 | 87.03 | 1,615.0 | -875.1 | 2,225.0 | 2,101.6 | 123.31 | 18.044 | |
| 10,800.0 | 7,080.9 | 7,204.4 | 7,049.6 | 101.5 | 25.6 | 86.86 | 1,615.0 | -875.2 | 2,323.6 | 2,197.6 | 126.04 | 18.435 | |
| 10,900.0 | 7,080.7 | 7,203.3 | 7,048.5 | 104.3 | 25.6 | 86.69 | 1,615.0 | -875.2 | 2,422.4 | 2,293.6 | 128.78 | 18.810 | |
| 11,000.0 | 7,080.5 | 7,202.2 | 7,047.4 | 107.0 | 25.6 | 86.53 | 1,615.1 | -875.2 | 2,521.2 | 2,389.7 | 131.52 | 19.171 | |
| 11,100.0 | 7,080.3 | 7,201.2 | 7,046.4 | 109.8 | 25.6 | 86.37 | 1,615.1 | -875.2 | 2,620.2 | 2,485.9 | 134.25 | 19.517 | |
| 11,200.0 | 7,080.1 | 7,200.2 | 7,045.4 | 112.5 | 25.6 | 86.21 | 1,615.2 | -875.2 | 2,719.2 | 2,582.2 | 136.99 | 19.849 | |
| 11,300.0 | 7,079.9 | 7,199.2 | 7,044.4 | 115.3 | 25.6 | 86.06 | 1,615.2 | -875.2 | 2,818.3 | 2,678.6 | 139.73 | 20.169 | |
| 11,400.0 | 7,079.7 | 7,198.2 | 7,043.4 | 118.0 | 25.6 | 85.91 | 1,615.2 | -875.2 | 2,917.5 | 2,775.0 | 142.47 | 20.477 | |
| 11,500.0 | 7,079.5 | 7,197.3 | 7,042.5 | 120.8 | 25.6 | 85.77 | 1,615.3 | -875.2 | 3,016.7 | 2,871.4 | 145.21 | 20.774 | |
| 11,600.0 | 7,079.3 | 7,196.3 | 7,041.6 | 123.6 | 25.6 | 85.63 | 1,615.3 | -875.3 | 3,115.9 | 2,968.0 | 147.96 | 21.060 | |
| 11,700.0 | 7,079.1 | 7,195.4 | 7,040.7 | 126.3 | 25.6 | 85.49 | 1,615.3 | -875.3 | 3,215.2 | 3,064.5 | 150.70 | 21.335 | |
| 11,800.0 | 7,078.9 | 7,194.6 | 7,039.8 | 129.1 | 25.6 | 85.35 | 1,615.4 | -875.3 | 3,314.6 | 3,161.1 | 153.44 | 21.601 | |
| 11,900.0 | 7,078.7 | 7,193.7 | 7,038.9 | 131.9 | 25.6 | 85.22 | 1,615.4 | -875.3 | 3,414.0 | 3,257.8 | 156.19 | 21.858 | |
| 12,000.0 | 7,078.5 | 7,192.9 | 7,038.1 | 134.6 | 25.6 | 85.09 | 1,615.4 | -875.3 | 3,513.4 | 3,354.4 | 158.93 | 22.107 | |
| 12,100.0 | 7,078.3 | 7,192.0 | 7,037.3 | 137.4 | 25.6 | 84.96 | 1,615.4 | -875.3 | 3,612.8 | 3,451.2 | 161.67 | 22.347 | |
| 12,200.0 | 7,078.1 | 7,191.2 | 7,036.5 | 140.2 | 25.6 | 84.84 | 1,615.5 | -875.3 | 3,712.3 | 3,547.9 | 164.42 | 22.579 | |
| 12,300.0 | 7,077.9 | 7,190.4 | 7,035.7 | 142.9 | 25.6 | 84.72 | 1,615.5 | -875.3 | 3,811.8 | 3,644.7 | 167.16 | 22.804 | |
| 12,400.0 | 7,077.7 | 7,189.7 | 7,034.9 | 145.7 | 25.6 | 84.60 | 1,615.5 | -875.3 | 3,911.3 | 3,741.4 | 169.90 | 23.021 | |
| 12,500.0 | 7,077.5 | 7,188.9 | 7,034.1 | 148.5 | 25.6 | 84.48 | 1,615.6 | -875.3 | 4,010.9 | 3,838.3 | 172.65 | 23.232 | |
| 12,600.0 | 7,077.3 | 7,188.1 | 7,033.4 | 151.3 | 25.6 | 84.37 | 1,615.6 | -875.3 | 4,110.5 | 3,935.1 | 175.39 | 23.436 | |
| 12,700.0 | 7,077.1 | 7,187.4 | 7,032.7 | 154.0 | 25.6 | 84.26 | 1,615.6 | -875.4 | 4,210.1 | 4,031.9 | 178.13 | 23.635 | |
| 12,800.0 | 7,076.9 | 7,186.7 | 7,031.9 | 156.8 | 25.6 | 84.15 | 1,615.6 | -875.4 | 4,309.7 | 4,128.8 | 180.88 | 23.827 | |
| 12,900.0 | 7,076.7 | 7,186.0 | 7,031.2 | 159.6 | 25.6 | 84.04 | 1,615.7 | -875.4 | 4,409.3 | 4,225.7 | 183.62 | 24.014 | |
| 13,000.0 | 7,076.5 | 7,185.3 | 7,030.6 | 162.4 | 25.6 | 83.93 | 1,615.7 | -875.4 | 4,509.0 | 4,322.6 | 186.36 | 24.195 | |
| 13,100.0 | 7,076.3 | 7,184.6 | 7,029.9 | 165.2 | 25.6 | 83.83 | 1,615.7 | -875.4 | 4,608.6 | 4,419.5 | 189.10 | 24.371 | |
| 13,200.0 | 7,076.1 | 7,184.0 | 7,029.2 | 168.0 | 25.6 | 83.73 | 1,615.7 | -875.4 | 4,708.3 | 4,516.5 | 191.85 | 24.542 | |
| 13,300.0 | 7,075.9 | 7,163.0 | 7,008.3 | 170.7 | 25.6 | 80.57 | 1,616.4 | -875.5 | 4,808.1 | 4,614.7 | 193.39 | 24.862 | |
| 13,400.0 | 7,075.7 | 7,163.0 | 7,008.3 | 173.5 | 25.6 | 80.57 | 1,616.4 | -875.5 | 4,907.8 | 4,711.6 | 196.15 | 25.021 | |
| 13,500.0 | 7,075.5 | 7,163.0 | 7,008.3 | 176.3 | 25.6 | 80.57 | 1,616.4 | -875.5 | 5,007.5 | 4,808.6 | 198.90 | 25.176 | |
| 13,600.0 | 7,075.3 | 7,163.0 | 7,008.3 | 179.1 | 25.6 | 80.57 | 1,616.4 | -875.5 | 5,107.2 | 4,905.5 | 201.65 | 25.327 | |
| 13,700.0 | 7,075.1 | 7,163.0 | 7,008.3 | 181.9 | 25.6 | 80.57 | 1,616.4 | -875.5 | 5,206.9 | 5,002.5 | 204.41 | 25.473 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD EEE 21ADU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 706-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.0 | 7,074.9 | 7,163.0 | 7,008.3 | 184.7 | 25.6 | 80.57 | 1,616.4 | -875.5 | 5,306.7 | 5,099.5 | 207.16 | 25.616 | |
| 13,900.0 | 7,074.7 | 7,163.0 | 7,008.3 | 187.5 | 25.6 | 80.57 | 1,616.4 | -875.5 | 5,406.4 | 5,196.5 | 209.92 | 25.755 | |
| 14,000.0 | 7,074.5 | 7,163.0 | 7,008.3 | 190.2 | 25.6 | 80.56 | 1,616.4 | -875.5 | 5,506.2 | 5,293.5 | 212.68 | 25.890 | |
| 14,100.0 | 7,074.2 | 7,163.0 | 7,008.3 | 193.0 | 25.6 | 80.56 | 1,616.4 | -875.5 | 5,606.0 | 5,390.5 | 215.43 | 26.022 | |
| 14,200.0 | 7,074.0 | 7,163.0 | 7,008.3 | 195.8 | 25.6 | 80.56 | 1,616.4 | -875.5 | 5,705.7 | 5,487.5 | 218.19 | 26.150 | |
| 14,221.4 | 7,074.0 | 7,163.0 | 7,008.3 | 196.4 | 25.6 | 80.56 | 1,616.4 | -875.5 | 5,727.1 | 5,508.3 | 218.78 | 26.177 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD EEE 21NDU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 147-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -45.73 | 1,802.3 | -1,848.7 | 2,581.9 | | | | |
| 100.0 | 100.0 | 103.2 | 103.2 | 0.1 | 0.0 | -45.73 | 1,802.1 | -1,848.4 | 2,581.5 | 2,581.4 | 0.12 | N/A | |
| 200.0 | 200.0 | 346.0 | 345.8 | 0.3 | 0.5 | -45.68 | 1,798.5 | -1,841.5 | 2,579.1 | 2,578.3 | 0.81 | 3,200.248 | |
| 300.0 | 300.0 | 605.8 | 604.2 | 0.5 | 1.2 | -45.46 | 1,788.0 | -1,816.8 | 2,569.0 | 2,567.4 | 1.66 | 1,545.832 | |
| 400.0 | 400.0 | 699.1 | 696.6 | 0.8 | 1.5 | -45.33 | 1,783.8 | -1,804.6 | 2,556.6 | 2,554.5 | 2.10 | 1,218.744 | |
| 500.0 | 500.0 | 795.2 | 791.8 | 1.0 | 1.8 | -73.82 | 1,780.1 | -1,792.1 | 2,544.1 | 2,541.5 | 2.56 | 995.678 | |
| 600.0 | 599.8 | 1,090.3 | 1,080.6 | 1.2 | 3.0 | -73.64 | 1,773.7 | -1,732.9 | 2,526.9 | 2,523.2 | 3.70 | 682.162 | |
| 700.0 | 699.5 | 1,338.5 | 1,317.0 | 1.5 | 4.5 | -73.45 | 1,768.2 | -1,657.7 | 2,500.3 | 2,495.3 | 5.00 | 500.173 | |
| 800.0 | 798.7 | 1,606.0 | 1,565.7 | 1.7 | 6.5 | -73.27 | 1,759.5 | -1,559.9 | 2,469.3 | 2,462.6 | 6.63 | 372.592 | |
| 900.0 | 897.5 | 1,740.4 | 1,687.2 | 2.0 | 7.7 | -73.56 | 1,755.4 | -1,502.7 | 2,432.7 | 2,425.0 | 7.70 | 316.122 | |
| 1,000.0 | 995.6 | 1,853.0 | 1,788.2 | 2.4 | 8.7 | -74.04 | 1,751.2 | -1,453.0 | 2,393.4 | 2,384.7 | 8.69 | 275.514 | |
| 1,100.0 | 1,093.1 | 1,927.9 | 1,855.3 | 2.8 | 9.4 | -74.71 | 1,748.6 | -1,419.8 | 2,353.4 | 2,343.9 | 9.46 | 248.717 | |
| 1,164.2 | 1,155.2 | 1,978.4 | 1,900.6 | 3.1 | 9.8 | -75.18 | 1,747.2 | -1,397.5 | 2,327.6 | 2,317.6 | 9.99 | 233.082 | |
| 1,200.0 | 1,189.7 | 2,008.1 | 1,927.3 | 3.2 | 10.1 | -75.14 | 1,746.3 | -1,384.4 | 2,313.2 | 2,302.9 | 10.32 | 224.142 | |
| 1,300.0 | 1,286.2 | 2,100.1 | 2,010.1 | 3.7 | 10.8 | -75.04 | 1,743.5 | -1,344.4 | 2,273.1 | 2,261.8 | 11.31 | 200.899 | |
| 1,400.0 | 1,382.6 | 2,194.7 | 2,095.4 | 4.2 | 11.6 | -74.96 | 1,739.9 | -1,303.7 | 2,232.8 | 2,220.5 | 12.34 | 180.962 | |
| 1,500.0 | 1,479.1 | 2,264.0 | 2,157.9 | 4.7 | 12.2 | -74.90 | 1,737.2 | -1,274.1 | 2,192.8 | 2,179.6 | 13.23 | 165.731 | |
| 1,600.0 | 1,575.6 | 2,321.0 | 2,209.6 | 5.3 | 12.7 | -74.84 | 1,735.8 | -1,250.1 | 2,154.2 | 2,140.1 | 14.06 | 153.193 | |
| 1,700.0 | 1,672.0 | 2,456.8 | 2,333.0 | 5.8 | 13.8 | -74.74 | 1,731.3 | -1,193.5 | 2,115.1 | 2,099.8 | 15.36 | 137.731 | |
| 1,800.0 | 1,768.5 | 2,610.6 | 2,471.8 | 6.3 | 15.2 | -74.63 | 1,723.4 | -1,127.8 | 2,074.4 | 2,057.6 | 16.79 | 123.586 | |
| 1,900.0 | 1,864.9 | 2,714.8 | 2,565.0 | 6.8 | 16.2 | -74.55 | 1,716.5 | -1,081.9 | 2,031.5 | 2,013.6 | 17.93 | 113.301 | |
| 2,000.0 | 1,961.4 | 2,789.0 | 2,631.4 | 7.4 | 16.9 | -74.49 | 1,711.7 | -1,049.0 | 1,988.7 | 1,969.8 | 18.89 | 105.285 | |
| 2,100.0 | 2,057.9 | 2,860.1 | 2,695.2 | 7.9 | 17.5 | -74.43 | 1,707.5 | -1,018.0 | 1,946.7 | 1,926.9 | 19.81 | 98.251 | |
| 2,200.0 | 2,154.3 | 2,924.8 | 2,753.7 | 8.4 | 18.1 | -74.37 | 1,704.2 | -990.4 | 1,905.8 | 1,885.1 | 20.71 | 92.046 | |
| 2,300.0 | 2,250.8 | 2,996.2 | 2,818.3 | 9.0 | 18.7 | -74.30 | 1,701.6 | -960.2 | 1,866.3 | 1,844.6 | 21.65 | 86.219 | |
| 2,400.0 | 2,347.3 | 3,105.5 | 2,917.3 | 9.5 | 19.7 | -74.17 | 1,697.8 | -913.9 | 1,826.8 | 1,804.0 | 22.84 | 79.981 | |
| 2,500.0 | 2,443.7 | 3,193.6 | 2,996.5 | 10.0 | 20.4 | -74.04 | 1,694.5 | -875.6 | 1,786.4 | 1,762.4 | 23.92 | 74.666 | |
| 2,600.0 | 2,540.2 | 3,257.0 | 3,053.9 | 10.6 | 21.0 | -73.94 | 1,693.2 | -848.6 | 1,747.6 | 1,722.7 | 24.85 | 70.316 | |
| 2,700.0 | 2,636.7 | 3,365.3 | 3,151.9 | 11.1 | 22.0 | -73.74 | 1,691.3 | -802.5 | 1,709.2 | 1,683.1 | 26.08 | 65.535 | |
| 2,800.0 | 2,733.1 | 3,463.2 | 3,240.3 | 11.6 | 22.8 | -73.57 | 1,688.5 | -760.5 | 1,669.7 | 1,642.5 | 27.24 | 61.300 | |
| 2,900.0 | 2,829.6 | 3,548.6 | 3,317.6 | 12.2 | 23.6 | -73.45 | 1,685.5 | -724.5 | 1,630.4 | 1,602.1 | 28.29 | 57.627 | |
| 3,000.0 | 2,926.0 | 3,631.0 | 3,392.3 | 12.7 | 24.3 | -73.31 | 1,683.0 | -689.7 | 1,591.3 | 1,562.0 | 29.33 | 54.255 | |
| 3,100.0 | 3,022.5 | 3,712.1 | 3,465.9 | 13.2 | 25.0 | -73.16 | 1,681.3 | -655.5 | 1,552.9 | 1,522.6 | 30.38 | 51.120 | |
| 3,200.0 | 3,119.0 | 3,824.5 | 3,567.8 | 13.8 | 25.9 | -72.95 | 1,678.5 | -608.4 | 1,514.5 | 1,482.9 | 31.63 | 47.889 | |
| 3,300.0 | 3,215.4 | 3,921.7 | 3,656.1 | 14.3 | 26.8 | -72.80 | 1,674.8 | -567.8 | 1,475.3 | 1,442.5 | 32.76 | 45.033 | |
| 3,400.0 | 3,311.9 | 4,030.5 | 3,754.7 | 14.9 | 27.7 | -72.66 | 1,669.4 | -522.2 | 1,435.1 | 1,401.2 | 33.96 | 42.262 | |
| 3,500.0 | 3,408.4 | 4,132.7 | 3,847.2 | 15.4 | 28.6 | -72.53 | 1,663.6 | -479.3 | 1,394.4 | 1,359.3 | 35.11 | 39.711 | |
| 3,600.0 | 3,504.8 | 4,234.4 | 3,938.7 | 15.9 | 29.6 | -72.36 | 1,657.2 | -435.3 | 1,352.5 | 1,316.2 | 36.28 | 37.276 | |
| 3,700.0 | 3,601.3 | 4,311.1 | 4,008.0 | 16.5 | 30.2 | -72.24 | 1,652.4 | -402.5 | 1,310.9 | 1,273.6 | 37.28 | 35.159 | |
| 3,800.0 | 3,697.7 | 4,380.0 | 4,070.5 | 17.0 | 30.8 | -72.14 | 1,648.7 | -373.9 | 1,270.7 | 1,232.5 | 38.23 | 33.242 | |
| 3,900.0 | 3,794.2 | 4,472.1 | 4,154.2 | 17.5 | 31.6 | -71.98 | 1,644.7 | -335.7 | 1,231.3 | 1,192.0 | 39.33 | 31.309 | |
| 4,000.0 | 3,890.7 | 4,580.7 | 4,252.1 | 18.1 | 32.6 | -71.68 | 1,640.3 | -288.9 | 1,191.1 | 1,150.5 | 40.61 | 29.328 | |
| 4,100.0 | 3,987.1 | 4,660.0 | 4,322.9 | 18.6 | 33.4 | -71.32 | 1,638.7 | -253.3 | 1,151.1 | 1,109.3 | 41.76 | 27.563 | |
| 4,200.0 | 4,083.6 | 4,764.5 | 4,415.8 | 19.2 | 34.4 | -70.73 | 1,637.5 | -205.2 | 1,111.0 | 1,067.8 | 43.17 | 25.734 | |
| 4,300.0 | 4,180.1 | 4,859.6 | 4,500.3 | 19.7 | 35.3 | -70.23 | 1,634.9 | -162.0 | 1,070.1 | 1,025.7 | 44.48 | 24.060 | |
| 4,400.0 | 4,276.5 | 4,950.6 | 4,582.0 | 20.2 | 36.1 | -69.84 | 1,630.9 | -121.9 | 1,029.3 | 983.6 | 45.69 | 22.526 | |
| 4,500.0 | 4,373.0 | 5,055.2 | 4,675.7 | 20.8 | 37.1 | -69.40 | 1,625.3 | -76.0 | 987.7 | 940.7 | 47.01 | 21.012 | |
| 4,600.0 | 4,469.5 | 5,154.6 | 4,764.2 | 21.3 | 38.1 | -68.87 | 1,619.6 | -31.0 | 945.1 | 896.8 | 48.34 | 19.552 | |
| 4,700.0 | 4,565.9 | 5,241.1 | 4,840.9 | 21.9 | 38.9 | -68.34 | 1,614.7 | 8.7 | 902.2 | 852.6 | 49.59 | 18.192 | |
| 4,800.0 | 4,662.4 | 5,316.0 | 4,907.9 | 22.4 | 39.6 | -67.89 | 1,610.8 | 41.9 | 860.7 | 809.9 | 50.73 | 16.966 | |
| 4,900.0 | 4,758.8 | 5,387.9 | 4,973.2 | 22.9 | 40.2 | -67.53 | 1,607.5 | 72.0 | 821.1 | 769.3 | 51.78 | 15.856 | |
| 5,000.0 | 4,855.3 | 5,464.3 | 5,043.4 | 23.5 | 40.8 | -67.25 | 1,604.0 | 102.0 | 783.4 | 730.5 | 52.82 | 14.832 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD EEE 21NDU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 147-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 5,543.9 | 5,117.3 | 24.0 | 41.4 | -67.06 | 1,600.8 | 131.1 | 747.5 | 693.7 | 53.82 | 13.889 | |
| 5,200.0 | 5,048.2 | 5,624.7 | 5,193.0 | 24.6 | 42.0 | -66.91 | 1,598.2 | 159.5 | 713.2 | 658.4 | 54.80 | 13.014 | |
| 5,300.0 | 5,144.7 | 5,704.8 | 5,268.5 | 25.1 | 42.5 | -66.83 | 1,596.3 | 186.0 | 680.8 | 625.1 | 55.74 | 12.214 | |
| 5,400.0 | 5,241.2 | 5,784.0 | 5,343.9 | 25.6 | 43.0 | -66.88 | 1,594.8 | 210.3 | 650.2 | 593.6 | 56.62 | 11.484 | |
| 5,500.0 | 5,337.6 | 5,866.1 | 5,422.7 | 26.2 | 43.4 | -67.07 | 1,593.8 | 233.3 | 621.8 | 564.4 | 57.44 | 10.826 | |
| 5,600.0 | 5,434.1 | 5,949.4 | 5,503.4 | 26.7 | 43.8 | -67.46 | 1,593.6 | 253.9 | 595.9 | 537.7 | 58.17 | 10.244 | |
| 5,700.0 | 5,530.5 | 6,036.5 | 5,588.4 | 27.3 | 44.2 | -68.13 | 1,593.3 | 272.9 | 571.9 | 513.1 | 58.81 | 9.725 | |
| 5,757.1 | 5,585.6 | 6,085.8 | 5,636.7 | 27.6 | 44.4 | -68.62 | 1,593.1 | 282.5 | 558.9 | 499.8 | 59.12 | 9.455 | |
| 5,800.0 | 5,627.1 | 6,121.9 | 5,672.3 | 27.8 | 44.5 | -68.85 | 1,592.9 | 289.0 | 549.8 | 490.4 | 59.41 | 9.255 | |
| 5,900.0 | 5,724.4 | 6,208.2 | 5,757.5 | 28.2 | 44.8 | -69.43 | 1,592.6 | 302.3 | 531.1 | 471.2 | 59.96 | 8.858 | |
| 6,000.0 | 5,822.4 | 6,296.0 | 5,844.6 | 28.5 | 45.0 | -70.06 | 1,592.4 | 313.2 | 515.8 | 455.4 | 60.40 | 8.539 | |
| 6,100.0 | 5,921.0 | 6,386.5 | 5,934.7 | 28.8 | 45.2 | -70.63 | 1,592.6 | 322.3 | 503.7 | 442.9 | 60.78 | 8.287 | |
| 6,200.0 | 6,020.2 | 6,479.3 | 6,027.2 | 29.0 | 45.3 | -71.09 | 1,592.9 | 329.9 | 494.2 | 433.1 | 61.12 | 8.086 | |
| 6,300.0 | 6,119.7 | 6,571.5 | 6,119.2 | 29.3 | 45.5 | -71.43 | 1,593.2 | 335.3 | 487.3 | 425.9 | 61.41 | 7.936 | |
| 6,400.0 | 6,219.5 | 6,667.2 | 6,214.8 | 29.4 | 45.6 | -71.67 | 1,593.2 | 338.9 | 482.9 | 421.3 | 61.65 | 7.833 | |
| 6,500.0 | 6,319.5 | 6,765.6 | 6,313.1 | 29.5 | 45.7 | -71.65 | 1,593.1 | 341.9 | 480.0 | 418.1 | 61.93 | 7.751 | |
| 6,521.3 | 6,340.8 | 6,786.1 | 6,333.7 | 29.6 | 45.7 | -43.26 | 1,593.1 | 342.4 | 479.6 | 424.4 | 55.19 | 8.690 | |
| 6,551.3 | 6,370.8 | 6,815.1 | 6,362.7 | 29.6 | 45.7 | -43.21 | 1,593.1 | 343.0 | 479.1 | 423.8 | 55.25 | 8.671 | |
| 6,600.0 | 6,419.5 | 6,862.9 | 6,410.5 | 29.6 | 45.8 | 47.12 | 1,593.0 | 344.0 | 477.3 | 415.1 | 62.12 | 7.683 | |
| 6,650.0 | 6,469.2 | 6,911.9 | 6,459.4 | 29.6 | 45.8 | 47.89 | 1,593.0 | 344.9 | 473.1 | 410.9 | 62.22 | 7.605 | |
| 6,700.0 | 6,518.4 | 6,961.5 | 6,509.1 | 29.6 | 45.9 | 49.13 | 1,592.9 | 345.7 | 466.8 | 404.4 | 62.39 | 7.482 | |
| 6,750.0 | 6,567.0 | 7,010.2 | 6,557.7 | 29.6 | 45.9 | 50.85 | 1,592.7 | 346.6 | 458.2 | 395.6 | 62.64 | 7.315 | |
| 6,800.0 | 6,614.5 | 7,056.9 | 6,604.4 | 29.6 | 46.0 | 53.04 | 1,592.6 | 347.3 | 447.8 | 384.8 | 62.99 | 7.109 | |
| 6,850.0 | 6,660.9 | 7,102.4 | 6,649.9 | 29.5 | 46.0 | 55.74 | 1,592.4 | 347.9 | 435.8 | 372.4 | 63.43 | 6.871 | |
| 6,900.0 | 6,705.9 | 7,146.0 | 6,693.5 | 29.4 | 46.0 | 58.91 | 1,592.3 | 348.4 | 422.7 | 358.7 | 63.95 | 6.610 | |
| 6,950.0 | 6,749.2 | 7,188.3 | 6,735.8 | 29.3 | 46.1 | 62.56 | 1,592.1 | 348.6 | 408.8 | 344.3 | 64.52 | 6.337 | |
| 7,000.0 | 6,790.7 | 7,229.7 | 6,777.2 | 29.2 | 46.1 | 66.73 | 1,591.9 | 348.8 | 394.7 | 329.6 | 65.11 | 6.063 | |
| 7,050.0 | 6,830.2 | 7,268.9 | 6,816.5 | 29.1 | 46.1 | 71.26 | 1,591.8 | 348.9 | 381.0 | 315.4 | 65.63 | 5.806 | |
| 7,100.0 | 6,867.4 | 7,306.4 | 6,853.9 | 29.0 | 46.1 | 76.05 | 1,591.7 | 349.1 | 368.5 | 302.5 | 66.02 | 5.581 | |
| 7,150.0 | 6,902.2 | 7,341.5 | 6,889.0 | 28.9 | 46.2 | 80.89 | 1,591.5 | 349.2 | 358.0 | 291.8 | 66.22 | 5.406 | |
| 7,200.0 | 6,934.4 | 7,374.0 | 6,921.5 | 28.7 | 46.2 | 85.53 | 1,591.3 | 349.4 | 350.6 | 284.4 | 66.21 | 5.295 | |
| 7,250.0 | 6,963.8 | 7,403.0 | 6,950.5 | 28.6 | 46.2 | 89.67 | 1,591.1 | 349.6 | 347.3 | 281.2 | 66.04 | 5.259 | SF |
| 7,259.9 | 6,969.3 | 7,408.4 | 6,955.9 | 28.6 | 46.2 | 90.42 | 1,591.1 | 349.6 | 347.2 | 281.2 | 66.00 | 5.260 | CC, ES |
| 7,300.0 | 6,990.4 | 7,429.3 | 6,976.8 | 28.5 | 46.2 | 93.21 | 1,590.9 | 349.7 | 348.9 | 283.1 | 65.79 | 5.303 | |
| 7,350.0 | 7,013.9 | 7,452.6 | 7,000.1 | 28.4 | 46.2 | 96.02 | 1,590.8 | 349.7 | 356.0 | 290.4 | 65.56 | 5.430 | |
| 7,400.0 | 7,034.4 | 7,472.7 | 7,020.2 | 28.2 | 46.3 | 97.96 | 1,590.7 | 349.8 | 368.8 | 303.4 | 65.47 | 5.634 | |
| 7,450.0 | 7,051.5 | 7,489.4 | 7,036.9 | 28.1 | 46.3 | 98.92 | 1,590.6 | 349.8 | 387.3 | 321.7 | 65.61 | 5.902 | |
| 7,500.0 | 7,065.4 | 7,502.8 | 7,050.3 | 28.0 | 46.3 | 98.87 | 1,590.6 | 349.8 | 410.9 | 344.8 | 66.05 | 6.221 | |
| 7,550.0 | 7,075.9 | 7,512.8 | 7,060.3 | 27.9 | 46.3 | 97.76 | 1,590.6 | 349.9 | 439.1 | 372.3 | 66.78 | 6.574 | |
| 7,600.0 | 7,082.9 | 7,519.5 | 7,067.0 | 27.8 | 46.3 | 95.52 | 1,590.6 | 349.9 | 471.1 | 403.3 | 67.76 | 6.952 | |
| 7,650.0 | 7,086.5 | 7,522.8 | 7,070.3 | 27.7 | 46.3 | 92.12 | 1,590.6 | 349.9 | 506.1 | 437.3 | 68.84 | 7.352 | |
| 7,677.7 | 7,087.0 | 7,523.2 | 7,070.7 | 27.6 | 46.3 | 89.74 | 1,590.6 | 349.9 | 526.7 | 457.2 | 69.41 | 7.587 | |
| 7,700.0 | 7,087.0 | 7,523.0 | 7,070.5 | 27.6 | 46.3 | 89.72 | 1,590.6 | 349.9 | 543.7 | 473.9 | 69.72 | 7.797 | |
| 7,800.0 | 7,086.8 | 7,522.5 | 7,070.0 | 27.5 | 46.3 | 89.63 | 1,590.6 | 349.9 | 624.0 | 552.7 | 71.26 | 8.756 | |
| 7,900.0 | 7,086.6 | 7,521.9 | 7,069.5 | 27.9 | 46.3 | 89.53 | 1,590.6 | 349.9 | 709.3 | 636.3 | 73.01 | 9.715 | |
| 8,000.0 | 7,086.4 | 7,521.4 | 7,068.9 | 29.5 | 46.3 | 89.44 | 1,590.6 | 349.9 | 798.0 | 723.1 | 74.92 | 10.651 | |
| 8,100.0 | 7,086.2 | 7,520.9 | 7,068.4 | 31.5 | 46.3 | 89.36 | 1,590.6 | 349.9 | 889.2 | 812.2 | 76.97 | 11.552 | |
| 8,200.0 | 7,086.0 | 7,520.3 | 7,067.8 | 33.7 | 46.3 | 89.27 | 1,590.6 | 349.9 | 982.0 | 902.9 | 79.14 | 12.409 | |
| 8,300.0 | 7,085.8 | 7,519.8 | 7,067.3 | 36.0 | 46.3 | 89.18 | 1,590.6 | 349.9 | 1,076.2 | 994.8 | 81.39 | 13.222 | |
| 8,400.0 | 7,085.6 | 7,519.3 | 7,066.8 | 38.3 | 46.3 | 89.09 | 1,590.6 | 349.9 | 1,171.3 | 1,087.5 | 83.72 | 13.990 | |
| 8,500.0 | 7,085.4 | 7,518.7 | 7,066.2 | 40.7 | 46.3 | 89.00 | 1,590.6 | 349.9 | 1,267.1 | 1,181.0 | 86.11 | 14.715 | |
| 8,600.0 | 7,085.2 | 7,518.2 | 7,065.7 | 43.1 | 46.3 | 88.92 | 1,590.6 | 349.9 | 1,363.6 | 1,275.0 | 88.55 | 15.399 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD EEE 21NDU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 147-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.0 | 7,085.0 | 7,517.7 | 7,065.2 | 45.6 | 46.3 | 88.83 | 1,590.6 | 349.9 | 1,460.5 | 1,369.5 | 91.04 | 16.043 | |
| 8,800.0 | 7,084.8 | 7,517.2 | 7,064.7 | 48.1 | 46.3 | 88.75 | 1,590.6 | 349.9 | 1,557.8 | 1,464.3 | 93.56 | 16.651 | |
| 8,900.0 | 7,084.6 | 7,516.7 | 7,064.2 | 50.7 | 46.3 | 88.66 | 1,590.6 | 349.9 | 1,655.5 | 1,559.4 | 96.11 | 17.226 | |
| 9,000.0 | 7,084.4 | 7,516.2 | 7,063.7 | 53.2 | 46.3 | 88.58 | 1,590.6 | 349.9 | 1,753.4 | 1,654.7 | 98.68 | 17.768 | |
| 9,100.0 | 7,084.2 | 7,515.7 | 7,063.2 | 55.8 | 46.3 | 88.49 | 1,590.6 | 349.9 | 1,851.5 | 1,750.2 | 101.28 | 18.281 | |
| 9,200.0 | 7,084.0 | 7,515.2 | 7,062.7 | 58.4 | 46.3 | 88.41 | 1,590.6 | 349.9 | 1,949.8 | 1,845.9 | 103.90 | 18.767 | |
| 9,300.0 | 7,083.8 | 7,514.7 | 7,062.2 | 61.1 | 46.3 | 88.33 | 1,590.6 | 349.9 | 2,048.3 | 1,941.8 | 106.53 | 19.227 | |
| 9,400.0 | 7,083.7 | 7,514.2 | 7,061.7 | 63.7 | 46.3 | 88.24 | 1,590.6 | 349.9 | 2,146.9 | 2,037.8 | 109.18 | 19.664 | |
| 9,500.0 | 7,083.5 | 7,513.7 | 7,061.2 | 66.3 | 46.3 | 88.16 | 1,590.6 | 349.9 | 2,245.7 | 2,133.8 | 111.85 | 20.079 | |
| 9,600.0 | 7,083.3 | 7,513.2 | 7,060.7 | 69.0 | 46.3 | 88.08 | 1,590.6 | 349.9 | 2,344.5 | 2,230.0 | 114.52 | 20.473 | |
| 9,700.0 | 7,083.1 | 7,512.7 | 7,060.2 | 71.7 | 46.3 | 88.00 | 1,590.6 | 349.9 | 2,443.5 | 2,326.3 | 117.20 | 20.849 | |
| 9,800.0 | 7,082.9 | 7,512.2 | 7,059.7 | 74.4 | 46.3 | 87.92 | 1,590.6 | 349.9 | 2,542.5 | 2,422.6 | 119.89 | 21.207 | |
| 9,900.0 | 7,082.7 | 7,511.7 | 7,059.2 | 77.1 | 46.3 | 87.84 | 1,590.6 | 349.9 | 2,641.6 | 2,519.0 | 122.59 | 21.548 | |
| 10,000.0 | 7,082.5 | 7,511.3 | 7,058.8 | 79.7 | 46.3 | 87.76 | 1,590.6 | 349.9 | 2,740.8 | 2,615.5 | 125.30 | 21.874 | |
| 10,100.0 | 7,082.3 | 7,510.8 | 7,058.3 | 82.5 | 46.3 | 87.68 | 1,590.6 | 349.9 | 2,840.0 | 2,712.0 | 128.01 | 22.186 | |
| 10,200.0 | 7,082.1 | 7,510.3 | 7,057.8 | 85.2 | 46.3 | 87.60 | 1,590.6 | 349.9 | 2,939.3 | 2,808.6 | 130.73 | 22.484 | |
| 10,300.0 | 7,081.9 | 7,509.8 | 7,057.4 | 87.9 | 46.3 | 87.52 | 1,590.6 | 349.9 | 3,038.6 | 2,905.2 | 133.45 | 22.770 | |
| 10,400.0 | 7,081.7 | 7,509.4 | 7,056.9 | 90.6 | 46.3 | 87.45 | 1,590.6 | 349.9 | 3,138.0 | 3,001.8 | 136.18 | 23.044 | |
| 10,500.0 | 7,081.5 | 7,508.9 | 7,056.4 | 93.3 | 46.3 | 87.37 | 1,590.6 | 349.9 | 3,237.4 | 3,098.5 | 138.91 | 23.306 | |
| 10,600.0 | 7,081.3 | 7,508.5 | 7,056.0 | 96.1 | 46.3 | 87.29 | 1,590.6 | 349.9 | 3,336.8 | 3,195.2 | 141.64 | 23.558 | |
| 10,700.0 | 7,081.1 | 7,508.0 | 7,055.5 | 98.8 | 46.3 | 87.22 | 1,590.6 | 349.9 | 3,436.3 | 3,291.9 | 144.38 | 23.801 | |
| 10,800.0 | 7,080.9 | 7,507.5 | 7,055.1 | 101.5 | 46.3 | 87.14 | 1,590.6 | 349.9 | 3,535.8 | 3,388.7 | 147.12 | 24.034 | |
| 10,900.0 | 7,080.7 | 7,507.1 | 7,054.6 | 104.3 | 46.3 | 87.06 | 1,590.6 | 349.9 | 3,635.3 | 3,485.5 | 149.86 | 24.258 | |
| 11,000.0 | 7,080.5 | 7,506.6 | 7,054.2 | 107.0 | 46.3 | 86.99 | 1,590.6 | 349.9 | 3,734.9 | 3,582.3 | 152.61 | 24.474 | |
| 11,100.0 | 7,080.3 | 7,506.2 | 7,053.7 | 109.8 | 46.3 | 86.91 | 1,590.6 | 349.8 | 3,834.5 | 3,679.1 | 155.36 | 24.682 | |
| 11,200.0 | 7,080.1 | 7,505.8 | 7,053.3 | 112.5 | 46.3 | 86.84 | 1,590.6 | 349.8 | 3,934.1 | 3,776.0 | 158.10 | 24.883 | |
| 11,300.0 | 7,079.9 | 7,505.3 | 7,052.8 | 115.3 | 46.3 | 86.77 | 1,590.6 | 349.8 | 4,033.7 | 3,872.8 | 160.86 | 25.076 | |
| 11,400.0 | 7,079.7 | 7,504.9 | 7,052.4 | 118.0 | 46.3 | 86.69 | 1,590.6 | 349.8 | 4,133.3 | 3,969.7 | 163.61 | 25.263 | |
| 11,500.0 | 7,079.5 | 7,504.4 | 7,052.0 | 120.8 | 46.3 | 86.62 | 1,590.6 | 349.8 | 4,233.0 | 4,066.6 | 166.36 | 25.444 | |
| 11,600.0 | 7,079.3 | 7,504.0 | 7,051.5 | 123.6 | 46.3 | 86.55 | 1,590.6 | 349.8 | 4,332.6 | 4,163.5 | 169.12 | 25.619 | |
| 11,700.0 | 7,079.1 | 7,503.6 | 7,051.1 | 126.3 | 46.3 | 86.48 | 1,590.6 | 349.8 | 4,432.3 | 4,260.4 | 171.88 | 25.788 | |
| 11,800.0 | 7,078.9 | 7,503.2 | 7,050.7 | 129.1 | 46.3 | 86.40 | 1,590.6 | 349.8 | 4,532.0 | 4,357.4 | 174.63 | 25.951 | |
| 11,900.0 | 7,078.7 | 7,502.7 | 7,050.2 | 131.9 | 46.3 | 86.33 | 1,590.6 | 349.8 | 4,631.7 | 4,454.3 | 177.39 | 26.110 | |
| 12,000.0 | 7,078.5 | 7,502.3 | 7,049.8 | 134.6 | 46.3 | 86.26 | 1,590.6 | 349.8 | 4,731.5 | 4,551.3 | 180.15 | 26.264 | |
| 12,100.0 | 7,078.3 | 7,501.9 | 7,049.4 | 137.4 | 46.3 | 86.19 | 1,590.6 | 349.8 | 4,831.2 | 4,648.3 | 182.91 | 26.412 | |
| 12,200.0 | 7,078.1 | 7,501.5 | 7,049.0 | 140.2 | 46.3 | 86.12 | 1,590.6 | 349.8 | 4,930.9 | 4,745.3 | 185.67 | 26.557 | |
| 12,300.0 | 7,077.9 | 7,501.1 | 7,048.6 | 142.9 | 46.3 | 86.05 | 1,590.6 | 349.8 | 5,030.7 | 4,842.3 | 188.44 | 26.697 | |
| 12,400.0 | 7,077.7 | 7,500.6 | 7,048.2 | 145.7 | 46.3 | 85.98 | 1,590.6 | 349.8 | 5,130.5 | 4,939.3 | 191.20 | 26.833 | |
| 12,500.0 | 7,077.5 | 7,500.2 | 7,047.7 | 148.5 | 46.3 | 85.91 | 1,590.6 | 349.8 | 5,230.2 | 5,036.3 | 193.96 | 26.965 | |
| 12,600.0 | 7,077.3 | 7,499.8 | 7,047.3 | 151.3 | 46.3 | 85.85 | 1,590.6 | 349.8 | 5,330.0 | 5,133.3 | 196.72 | 27.094 | |
| 12,700.0 | 7,077.1 | 7,499.4 | 7,046.9 | 154.0 | 46.3 | 85.78 | 1,590.6 | 349.8 | 5,429.8 | 5,230.3 | 199.49 | 27.219 | |
| 12,800.0 | 7,076.9 | 7,499.0 | 7,046.5 | 156.8 | 46.3 | 85.71 | 1,590.6 | 349.8 | 5,529.6 | 5,327.4 | 202.25 | 27.340 | |
| 12,900.0 | 7,076.7 | 7,498.6 | 7,046.1 | 159.6 | 46.3 | 85.64 | 1,590.6 | 349.8 | 5,629.4 | 5,424.4 | 205.02 | 27.458 | |
| 13,000.0 | 7,076.5 | 7,498.2 | 7,045.7 | 162.4 | 46.3 | 85.57 | 1,590.6 | 349.8 | 5,729.2 | 5,521.4 | 207.78 | 27.574 | |
| 13,100.0 | 7,076.3 | 7,497.8 | 7,045.3 | 165.2 | 46.3 | 85.51 | 1,590.6 | 349.8 | 5,829.0 | 5,618.5 | 210.54 | 27.686 | |
| 13,200.0 | 7,076.1 | 7,497.4 | 7,044.9 | 168.0 | 46.3 | 85.44 | 1,590.6 | 349.8 | 5,928.9 | 5,715.6 | 213.31 | 27.795 | |
| 13,300.0 | 7,075.9 | 7,497.0 | 7,044.5 | 170.7 | 46.3 | 85.38 | 1,590.6 | 349.8 | 6,028.7 | 5,812.6 | 216.07 | 27.901 | |
| 13,400.0 | 7,075.7 | 7,496.6 | 7,044.2 | 173.5 | 46.3 | 85.31 | 1,590.6 | 349.8 | 6,128.5 | 5,909.7 | 218.84 | 28.005 | |
| 13,500.0 | 7,075.5 | 7,496.3 | 7,043.8 | 176.3 | 46.3 | 85.24 | 1,590.6 | 349.8 | 6,228.4 | 6,006.8 | 221.60 | 28.106 | |
| 13,600.0 | 7,075.3 | 7,495.9 | 7,043.4 | 179.1 | 46.3 | 85.18 | 1,590.6 | 349.8 | 6,328.2 | 6,103.9 | 224.37 | 28.205 | |
| 13,700.0 | 7,075.1 | 7,495.5 | 7,043.0 | 181.9 | 46.3 | 85.11 | 1,590.6 | 349.8 | 6,428.1 | 6,200.9 | 227.13 | 28.301 | |
| 13,800.0 | 7,074.9 | 4,567.0 | 4,239.8 | 184.7 | 32.5 | 7.98 | 1,640.8 | -295.0 | 6,527.6 | 6,460.6 | 66.99 | 97.435 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD EEE 21NDU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 147-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.0 | 7,074.7 | 4,534.4 | 4,210.6 | 187.5 | 32.2 | 7.92 | 1,642.1 | -309.2 | 6,617.4 | 6,549.8 | 67.65 | 97.824 | |
| 14,000.0 | 7,074.5 | 4,519.4 | 4,197.0 | 190.2 | 32.0 | 7.90 | 1,642.7 | -315.7 | 6,707.5 | 6,639.1 | 68.39 | 98.082 | |
| 14,100.0 | 7,074.2 | 4,504.6 | 4,183.6 | 193.0 | 31.9 | 7.88 | 1,643.3 | -322.1 | 6,797.7 | 6,728.6 | 69.13 | 98.336 | |
| 14,200.0 | 7,074.0 | 4,473.0 | 4,155.0 | 195.8 | 31.6 | 7.82 | 1,644.6 | -335.4 | 6,888.2 | 6,818.4 | 69.78 | 98.707 | |
| 14,221.4 | 7,074.0 | 4,473.0 | 4,155.0 | 196.4 | 31.6 | 7.82 | 1,644.6 | -335.4 | 6,907.6 | 6,837.6 | 69.96 | 98.738 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 20CD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 155-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -45.59 | 1,944.4 | -1,984.8 | 2,778.5 | | | | |
| 100.0 | 100.0 | 55.7 | 55.7 | 0.1 | 0.0 | -45.59 | 1,944.5 | -1,985.1 | 2,778.9 | 2,778.8 | 0.12 | N/A | |
| 200.0 | 200.0 | 121.5 | 121.5 | 0.3 | 0.1 | -45.60 | 1,944.9 | -1,986.2 | 2,780.6 | 2,780.2 | 0.38 | 7,302.389 | |
| 300.0 | 300.0 | 195.0 | 195.0 | 0.5 | 0.1 | -45.62 | 1,945.7 | -1,988.3 | 2,783.4 | 2,782.7 | 0.69 | 4,014.793 | |
| 400.0 | 400.0 | 267.8 | 267.7 | 0.8 | 0.3 | -45.65 | 1,946.5 | -1,991.2 | 2,787.0 | 2,785.9 | 1.06 | 2,618.765 | |
| 500.0 | 500.0 | 333.0 | 332.8 | 1.0 | 0.4 | -73.98 | 1,947.3 | -1,995.0 | 2,791.5 | 2,790.0 | 1.44 | 1,941.691 | |
| 600.0 | 599.8 | 396.8 | 396.4 | 1.2 | 0.6 | -74.01 | 1,948.0 | -1,999.9 | 2,796.2 | 2,794.4 | 1.82 | 1,536.036 | |
| 700.0 | 699.5 | 474.9 | 474.2 | 1.5 | 0.8 | -74.15 | 1,948.7 | -2,007.0 | 2,801.0 | 2,798.8 | 2.26 | 1,241.895 | |
| 800.0 | 798.7 | 556.3 | 555.2 | 1.7 | 1.1 | -74.36 | 1,949.4 | -2,015.0 | 2,805.5 | 2,802.8 | 2.73 | 1,027.957 | |
| 900.0 | 897.5 | 645.6 | 644.0 | 2.0 | 1.3 | -74.67 | 1,950.1 | -2,024.7 | 2,809.8 | 2,806.6 | 3.26 | 861.565 | |
| 1,000.0 | 995.6 | 728.7 | 726.5 | 2.4 | 1.6 | -75.04 | 1,950.3 | -2,034.1 | 2,813.5 | 2,809.6 | 3.82 | 736.058 | |
| 1,100.0 | 1,093.1 | 796.0 | 793.2 | 2.8 | 1.8 | -75.37 | 1,950.7 | -2,042.7 | 2,817.6 | 2,813.2 | 4.40 | 640.726 | |
| 1,164.2 | 1,155.2 | 826.5 | 823.4 | 3.1 | 1.9 | -75.52 | 1,950.8 | -2,047.0 | 2,820.5 | 2,815.7 | 4.77 | 591.166 | |
| 1,200.0 | 1,189.7 | 849.2 | 845.9 | 3.2 | 2.0 | -75.68 | 1,950.9 | -2,050.4 | 2,822.3 | 2,817.3 | 5.01 | 563.868 | |
| 1,300.0 | 1,286.2 | 915.0 | 910.7 | 3.7 | 2.2 | -76.17 | 1,950.5 | -2,061.3 | 2,828.3 | 2,822.6 | 5.69 | 497.154 | |
| 1,400.0 | 1,382.6 | 983.0 | 977.5 | 4.2 | 2.5 | -76.71 | 1,949.0 | -2,074.2 | 2,835.6 | 2,829.2 | 6.41 | 442.534 | |
| 1,500.0 | 1,479.1 | 1,043.9 | 1,036.9 | 4.7 | 2.8 | -77.22 | 1,946.9 | -2,087.2 | 2,844.4 | 2,837.2 | 7.13 | 398.667 | |
| 1,600.0 | 1,575.6 | 1,119.4 | 1,110.2 | 5.3 | 3.1 | -77.88 | 1,943.3 | -2,104.9 | 2,854.6 | 2,846.6 | 7.95 | 359.149 | |
| 1,700.0 | 1,672.0 | 1,195.1 | 1,183.4 | 5.8 | 3.5 | -78.58 | 1,938.1 | -2,123.9 | 2,865.6 | 2,856.8 | 8.79 | 326.165 | |
| 1,800.0 | 1,768.5 | 1,264.0 | 1,249.6 | 6.3 | 3.9 | -79.23 | 1,933.3 | -2,142.3 | 2,878.3 | 2,868.7 | 9.61 | 299.453 | |
| 1,900.0 | 1,864.9 | 1,317.9 | 1,301.2 | 6.8 | 4.2 | -79.73 | 1,929.5 | -2,157.3 | 2,892.5 | 2,882.1 | 10.39 | 278.446 | |
| 2,000.0 | 1,961.4 | 1,399.9 | 1,379.6 | 7.4 | 4.7 | -80.51 | 1,923.4 | -2,180.6 | 2,907.9 | 2,896.5 | 11.30 | 257.271 | |
| 2,100.0 | 2,057.9 | 1,473.8 | 1,450.1 | 7.9 | 5.1 | -81.22 | 1,917.5 | -2,201.9 | 2,924.0 | 2,911.9 | 12.18 | 240.065 | |
| 2,200.0 | 2,154.3 | 1,544.0 | 1,517.0 | 8.4 | 5.5 | -81.88 | 1,912.4 | -2,222.7 | 2,941.9 | 2,928.8 | 13.03 | 225.721 | |
| 2,300.0 | 2,250.8 | 1,580.5 | 1,551.6 | 9.0 | 5.8 | -82.23 | 1,910.0 | -2,233.9 | 2,961.2 | 2,947.5 | 13.74 | 215.531 | |
| 2,400.0 | 2,347.3 | 1,638.0 | 1,606.0 | 9.5 | 6.1 | -82.77 | 1,906.2 | -2,252.1 | 2,982.4 | 2,967.9 | 14.55 | 205.030 | |
| 2,500.0 | 2,443.7 | 1,678.3 | 1,644.0 | 10.0 | 6.4 | -83.15 | 1,903.6 | -2,265.4 | 3,005.4 | 2,990.1 | 15.28 | 196.632 | |
| 2,600.0 | 2,540.2 | 1,731.0 | 1,693.4 | 10.6 | 6.8 | -83.65 | 1,900.5 | -2,283.4 | 3,030.2 | 3,014.1 | 16.08 | 188.402 | |
| 2,700.0 | 2,636.7 | 1,789.4 | 1,748.0 | 11.1 | 7.2 | -84.20 | 1,897.2 | -2,303.9 | 3,056.6 | 3,039.7 | 16.92 | 180.668 | |
| 2,800.0 | 2,733.1 | 1,887.5 | 1,839.6 | 11.6 | 7.9 | -85.12 | 1,891.3 | -2,338.6 | 3,083.9 | 3,065.9 | 17.94 | 171.945 | |
| 2,900.0 | 2,829.6 | 1,966.7 | 1,913.4 | 12.2 | 8.4 | -85.86 | 1,885.8 | -2,366.5 | 3,111.4 | 3,092.6 | 18.84 | 165.110 | |
| 3,000.0 | 2,926.0 | 2,012.0 | 1,955.7 | 12.7 | 8.8 | -86.28 | 1,882.8 | -2,382.7 | 3,140.2 | 3,120.6 | 19.59 | 160.284 | |
| 3,100.0 | 3,022.5 | 2,082.9 | 2,021.5 | 13.2 | 9.3 | -86.93 | 1,878.2 | -2,408.6 | 3,170.3 | 3,149.8 | 20.48 | 154.777 | |
| 3,200.0 | 3,119.0 | 2,206.3 | 2,136.0 | 13.8 | 10.2 | -88.06 | 1,870.0 | -2,453.9 | 3,201.3 | 3,179.7 | 21.58 | 148.357 | |
| 3,300.0 | 3,215.4 | 2,303.2 | 2,226.3 | 14.3 | 10.8 | -88.92 | 1,863.4 | -2,488.4 | 3,231.8 | 3,209.3 | 22.49 | 143.681 | |
| 3,400.0 | 3,311.9 | 2,369.0 | 2,287.7 | 14.9 | 11.3 | -89.49 | 1,859.0 | -2,512.0 | 3,263.1 | 3,239.8 | 23.31 | 140.007 | |
| 3,500.0 | 3,408.4 | 2,455.6 | 2,368.2 | 15.4 | 11.9 | -90.24 | 1,853.3 | -2,543.1 | 3,295.2 | 3,271.0 | 24.22 | 136.077 | |
| 3,600.0 | 3,504.8 | 2,512.6 | 2,421.2 | 15.9 | 12.3 | -90.72 | 1,849.3 | -2,563.8 | 3,328.1 | 3,303.1 | 25.00 | 133.137 | |
| 3,700.0 | 3,601.3 | 2,573.0 | 2,477.1 | 16.5 | 12.8 | -91.23 | 1,845.6 | -2,586.3 | 3,362.5 | 3,336.7 | 25.79 | 130.379 | |
| 3,800.0 | 3,697.7 | 2,629.2 | 2,529.0 | 17.0 | 13.2 | -91.70 | 1,842.1 | -2,607.7 | 3,398.1 | 3,371.5 | 26.57 | 127.882 | |
| 3,900.0 | 3,794.2 | 2,710.1 | 2,603.4 | 17.5 | 13.8 | -92.38 | 1,836.4 | -2,638.6 | 3,434.3 | 3,406.9 | 27.45 | 125.125 | |
| 4,000.0 | 3,890.7 | 2,912.9 | 2,791.6 | 18.1 | 15.3 | -94.03 | 1,821.5 | -2,713.1 | 3,469.7 | 3,440.9 | 28.73 | 120.783 | |
| 4,100.0 | 3,987.1 | 2,999.9 | 2,872.8 | 18.6 | 15.9 | -94.71 | 1,815.0 | -2,743.5 | 3,504.1 | 3,474.5 | 29.55 | 118.570 | |
| 4,200.0 | 4,083.6 | 3,093.0 | 2,959.9 | 19.2 | 16.5 | -95.42 | 1,808.8 | -2,775.8 | 3,538.9 | 3,508.5 | 30.39 | 116.456 | |
| 4,300.0 | 4,180.1 | 3,228.0 | 3,086.7 | 19.7 | 17.4 | -96.40 | 1,800.4 | -2,821.3 | 3,573.4 | 3,542.1 | 31.32 | 114.079 | |
| 4,400.0 | 4,276.5 | 3,293.4 | 3,148.3 | 20.2 | 17.8 | -96.87 | 1,796.5 | -2,842.9 | 3,607.9 | 3,575.8 | 32.06 | 112.541 | |
| 4,500.0 | 4,373.0 | 3,422.8 | 3,270.0 | 20.8 | 18.7 | -97.78 | 1,788.1 | -2,886.0 | 3,643.0 | 3,610.0 | 32.98 | 110.475 | |
| 4,600.0 | 4,469.5 | 3,588.1 | 3,426.2 | 21.3 | 19.7 | -98.92 | 1,776.5 | -2,938.7 | 3,677.3 | 3,643.4 | 33.95 | 108.326 | |
| 4,700.0 | 4,565.9 | 3,666.6 | 3,500.9 | 21.9 | 20.2 | -99.44 | 1,770.8 | -2,962.5 | 3,710.5 | 3,675.8 | 34.68 | 106.994 | |
| 4,800.0 | 4,662.4 | 3,765.8 | 3,595.1 | 22.4 | 20.8 | -100.09 | 1,764.5 | -2,992.7 | 3,744.2 | 3,708.8 | 35.46 | 105.604 | |
| 4,900.0 | 4,758.8 | 3,846.0 | 3,671.4 | 22.9 | 21.3 | -100.60 | 1,759.0 | -3,016.9 | 3,778.0 | 3,741.8 | 36.19 | 104.406 | |
| 5,000.0 | 4,855.3 | 3,926.3 | 3,747.6 | 23.5 | 21.8 | -101.12 | 1,752.8 | -3,041.6 | 3,812.5 | 3,775.5 | 36.92 | 103.267 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 20CD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 155-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 4,003.0 | 3,820.3 | 24.0 | 22.3 | -101.62 | 1,746.7 | -3,065.2 | 3,847.3 | 3,809.7 | 37.64 | 102.208 | |
| 5,200.0 | 5,048.2 | 4,070.0 | 3,883.7 | 24.6 | 22.7 | -102.04 | 1,741.5 | -3,086.2 | 3,883.0 | 3,844.7 | 38.34 | 101.285 | |
| 5,300.0 | 5,144.7 | 4,179.4 | 3,987.2 | 25.1 | 23.4 | -102.73 | 1,732.5 | -3,120.5 | 3,919.2 | 3,880.0 | 39.13 | 100.156 | |
| 5,400.0 | 5,241.2 | 4,350.0 | 4,149.6 | 25.6 | 24.5 | -103.77 | 1,719.0 | -3,171.0 | 3,953.8 | 3,913.8 | 40.02 | 98.803 | |
| 5,500.0 | 5,337.6 | 4,404.5 | 4,201.7 | 26.2 | 24.8 | -104.08 | 1,715.6 | -3,186.6 | 3,988.6 | 3,947.9 | 40.65 | 98.121 | |
| 5,600.0 | 5,434.1 | 4,460.6 | 4,255.2 | 26.7 | 25.1 | -104.39 | 1,712.8 | -3,203.3 | 4,024.5 | 3,983.2 | 41.28 | 97.482 | |
| 5,700.0 | 5,530.5 | 4,565.8 | 4,355.5 | 27.3 | 25.7 | -104.96 | 1,707.2 | -3,234.4 | 4,060.6 | 4,018.6 | 42.01 | 96.657 | |
| 5,757.1 | 5,585.6 | 4,606.9 | 4,394.6 | 27.6 | 26.0 | -105.19 | 1,704.8 | -3,246.6 | 4,081.3 | 4,038.9 | 42.39 | 96.284 | |
| 5,800.0 | 5,627.1 | 4,631.0 | 4,417.6 | 27.8 | 26.1 | -105.64 | 1,703.3 | -3,253.8 | 4,097.0 | 4,054.5 | 42.53 | 96.334 | |
| 5,900.0 | 5,724.4 | 4,699.5 | 4,482.8 | 28.2 | 26.6 | -106.73 | 1,699.2 | -3,274.5 | 4,133.3 | 4,090.5 | 42.81 | 96.559 | |
| 6,000.0 | 5,822.4 | 6,006.7 | 5,767.5 | 28.5 | 30.9 | -111.64 | 1,655.5 | -3,469.0 | 4,142.6 | 4,098.0 | 44.55 | 92.984 | |
| 6,100.0 | 5,921.0 | 6,109.1 | 5,869.9 | 28.8 | 31.0 | -112.01 | 1,654.2 | -3,470.1 | 4,149.7 | 4,104.8 | 44.90 | 92.428 | |
| 6,200.0 | 6,020.2 | 6,201.6 | 5,962.5 | 29.0 | 31.1 | -112.29 | 1,653.0 | -3,471.0 | 4,155.5 | 4,110.3 | 45.22 | 91.893 | |
| 6,300.0 | 6,119.7 | 6,301.6 | 6,062.4 | 29.3 | 31.2 | -112.51 | 1,651.7 | -3,472.2 | 4,160.1 | 4,114.6 | 45.54 | 91.352 | |
| 6,400.0 | 6,219.5 | 6,397.6 | 6,158.4 | 29.4 | 31.3 | -112.67 | 1,650.2 | -3,473.4 | 4,163.5 | 4,117.6 | 45.84 | 90.829 | |
| 6,500.0 | 6,319.5 | 6,493.2 | 6,254.0 | 29.5 | 31.4 | -112.76 | 1,648.7 | -3,474.6 | 4,165.6 | 4,119.5 | 46.12 | 90.321 | |
| 6,521.3 | 6,340.8 | 6,512.8 | 6,273.6 | 29.6 | 31.4 | -84.43 | 1,648.4 | -3,474.9 | 4,165.9 | 4,116.1 | 49.77 | 83.700 | |
| 6,551.3 | 6,370.8 | 6,539.9 | 6,300.7 | 29.6 | 31.4 | -84.43 | 1,648.0 | -3,475.3 | 4,166.3 | 4,116.4 | 49.84 | 83.585 | |
| 6,600.0 | 6,419.5 | 6,583.8 | 6,344.5 | 29.6 | 31.5 | 5.57 | 1,647.4 | -3,475.9 | 4,165.3 | 4,118.8 | 46.45 | 89.664 | |
| 6,650.0 | 6,469.2 | 6,625.6 | 6,386.4 | 29.6 | 31.5 | 5.60 | 1,646.9 | -3,476.6 | 4,160.9 | 4,114.5 | 46.47 | 89.534 | |
| 6,700.0 | 6,518.4 | 6,666.2 | 6,426.9 | 29.6 | 31.6 | 5.66 | 1,646.4 | -3,477.4 | 4,153.2 | 4,106.9 | 46.30 | 89.702 | |
| 6,750.0 | 6,567.0 | 6,708.7 | 6,469.5 | 29.6 | 31.6 | 5.76 | 1,645.8 | -3,478.2 | 4,142.2 | 4,096.3 | 45.94 | 90.157 | |
| 6,800.0 | 6,614.5 | 6,753.8 | 6,514.5 | 29.6 | 31.7 | 5.89 | 1,645.1 | -3,479.2 | 4,127.9 | 4,082.5 | 45.41 | 90.902 | |
| 6,850.0 | 6,660.9 | 6,795.6 | 6,556.3 | 29.5 | 31.7 | 6.06 | 1,644.5 | -3,480.2 | 4,110.3 | 4,065.6 | 44.69 | 91.965 | |
| 6,900.0 | 6,705.9 | 6,832.3 | 6,593.0 | 29.4 | 31.8 | 6.27 | 1,643.9 | -3,481.1 | 4,089.6 | 4,045.8 | 43.80 | 93.365 | |
| 6,950.0 | 6,749.2 | 6,876.0 | 6,636.7 | 29.3 | 31.8 | 6.53 | 1,643.1 | -3,482.2 | 4,065.9 | 4,023.1 | 42.77 | 95.074 | |
| 7,000.0 | 6,790.7 | 6,900.7 | 6,661.3 | 29.2 | 31.9 | 6.85 | 1,642.7 | -3,483.0 | 4,039.3 | 3,997.7 | 41.55 | 97.207 | |
| 7,050.0 | 6,830.2 | 6,931.6 | 6,692.3 | 29.1 | 31.9 | 7.23 | 1,642.2 | -3,483.9 | 4,009.9 | 3,969.7 | 40.23 | 99.679 | |
| 7,100.0 | 6,867.4 | 6,969.0 | 6,729.6 | 29.0 | 32.0 | 7.72 | 1,641.7 | -3,485.2 | 3,977.9 | 3,939.1 | 38.81 | 102.485 | |
| 7,150.0 | 6,902.2 | 6,993.5 | 6,754.1 | 28.9 | 32.0 | 8.29 | 1,641.4 | -3,486.0 | 3,943.3 | 3,906.0 | 37.30 | 105.706 | |
| 7,200.0 | 6,934.4 | 7,025.5 | 6,786.0 | 28.7 | 32.1 | 9.02 | 1,641.0 | -3,487.1 | 3,906.4 | 3,870.6 | 35.78 | 109.180 | |
| 7,250.0 | 6,963.8 | 7,054.9 | 6,815.5 | 28.6 | 32.1 | 9.93 | 1,640.5 | -3,488.2 | 3,867.3 | 3,833.0 | 34.27 | 112.839 | |
| 7,300.0 | 6,990.4 | 7,083.3 | 6,843.8 | 28.5 | 32.1 | 11.09 | 1,640.1 | -3,489.2 | 3,826.1 | 3,793.2 | 32.86 | 116.423 | |
| 7,350.0 | 7,013.9 | 7,109.2 | 6,869.7 | 28.4 | 32.2 | 12.60 | 1,639.6 | -3,490.2 | 3,783.1 | 3,751.4 | 31.66 | 119.480 | |
| 7,400.0 | 7,034.4 | 7,131.9 | 6,892.4 | 28.2 | 32.2 | 14.62 | 1,639.2 | -3,491.0 | 3,738.4 | 3,707.6 | 30.84 | 121.230 | |
| 7,450.0 | 7,051.5 | 7,151.3 | 6,911.8 | 28.1 | 32.2 | 17.43 | 1,638.8 | -3,491.7 | 3,692.3 | 3,661.7 | 30.66 | 120.440 | |
| 7,500.0 | 7,065.4 | 7,170.8 | 6,931.2 | 28.0 | 32.3 | 21.58 | 1,638.5 | -3,492.4 | 3,645.1 | 3,613.5 | 31.61 | 115.324 | |
| 7,550.0 | 7,075.9 | 7,187.0 | 6,947.5 | 27.9 | 32.3 | 28.11 | 1,638.2 | -3,492.9 | 3,596.8 | 3,562.4 | 34.47 | 104.352 | |
| 7,600.0 | 7,082.9 | 7,198.6 | 6,959.0 | 27.8 | 32.3 | 39.23 | 1,638.0 | -3,493.3 | 3,547.9 | 3,507.4 | 40.47 | 87.668 | |
| 7,650.0 | 7,086.5 | 7,205.5 | 6,965.9 | 27.7 | 32.3 | 59.43 | 1,637.9 | -3,493.5 | 3,498.5 | 3,448.4 | 50.07 | 69.873 | |
| 7,677.7 | 7,087.0 | 7,207.3 | 6,967.7 | 27.6 | 32.3 | 76.15 | 1,637.8 | -3,493.6 | 3,471.0 | 3,416.4 | 54.60 | 63.570 | |
| 7,700.0 | 7,087.0 | 7,208.2 | 6,968.6 | 27.6 | 32.3 | 76.27 | 1,637.8 | -3,493.6 | 3,448.8 | 3,393.9 | 54.92 | 62.793 | |
| 7,800.0 | 7,086.8 | 7,212.1 | 6,972.5 | 27.5 | 32.3 | 76.81 | 1,637.7 | -3,493.8 | 3,349.6 | 3,293.1 | 56.51 | 59.278 | |
| 7,900.0 | 7,086.6 | 7,216.0 | 6,976.4 | 27.9 | 32.3 | 77.34 | 1,637.7 | -3,493.9 | 3,250.3 | 3,192.0 | 58.28 | 55.769 | |
| 8,000.0 | 7,086.4 | 7,219.8 | 6,980.2 | 29.5 | 32.3 | 77.87 | 1,637.6 | -3,494.0 | 3,151.1 | 3,090.9 | 60.22 | 52.326 | |
| 8,100.0 | 7,086.2 | 7,223.5 | 6,983.9 | 31.5 | 32.4 | 78.39 | 1,637.5 | -3,494.1 | 3,052.0 | 2,989.7 | 62.29 | 48.993 | |
| 8,200.0 | 7,086.0 | 7,227.2 | 6,987.6 | 33.7 | 32.4 | 78.90 | 1,637.4 | -3,494.2 | 2,952.8 | 2,888.4 | 64.48 | 45.797 | |
| 8,300.0 | 7,085.8 | 7,230.8 | 6,991.2 | 36.0 | 32.4 | 79.40 | 1,637.4 | -3,494.3 | 2,853.8 | 2,787.1 | 66.75 | 42.752 | |
| 8,400.0 | 7,085.6 | 7,234.3 | 6,994.8 | 38.3 | 32.4 | 79.90 | 1,637.3 | -3,494.4 | 2,754.8 | 2,685.7 | 69.10 | 39.865 | |
| 8,500.0 | 7,085.4 | 7,237.8 | 6,998.2 | 40.7 | 32.4 | 80.39 | 1,637.2 | -3,494.5 | 2,655.9 | 2,584.4 | 71.52 | 37.136 | |
| 8,600.0 | 7,085.2 | 7,241.3 | 7,001.7 | 43.1 | 32.4 | 80.88 | 1,637.2 | -3,494.6 | 2,557.1 | 2,483.1 | 73.99 | 34.562 | |
| 8,700.0 | 7,085.0 | 7,244.6 | 7,005.0 | 45.6 | 32.4 | 81.36 | 1,637.1 | -3,494.8 | 2,458.4 | 2,381.9 | 76.50 | 32.136 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 20CD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 155-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.0 | 7,084.8 | 7,247.9 | 7,008.3 | 48.1 | 32.4 | 81.83 | 1,637.1 | -3,494.8 | 2,359.7 | 2,280.7 | 79.05 | 29.852 | |
| 8,900.0 | 7,084.6 | 7,251.1 | 7,011.5 | 50.7 | 32.4 | 82.28 | 1,637.0 | -3,494.9 | 2,261.2 | 2,179.6 | 81.63 | 27.702 | |
| 9,000.0 | 7,084.4 | 7,254.2 | 7,014.6 | 53.2 | 32.4 | 82.72 | 1,636.9 | -3,495.0 | 2,162.8 | 2,078.6 | 84.23 | 25.677 | |
| 9,100.0 | 7,084.2 | 7,257.2 | 7,017.6 | 55.8 | 32.4 | 83.15 | 1,636.9 | -3,495.1 | 2,064.6 | 1,977.8 | 86.86 | 23.769 | |
| 9,200.0 | 7,084.0 | 7,260.1 | 7,020.5 | 58.4 | 32.4 | 83.57 | 1,636.8 | -3,495.2 | 1,966.6 | 1,877.1 | 89.51 | 21.971 | |
| 9,300.0 | 7,083.8 | 7,263.1 | 7,023.5 | 61.1 | 32.4 | 84.00 | 1,636.8 | -3,495.3 | 1,868.7 | 1,776.5 | 92.17 | 20.274 | |
| 9,400.0 | 7,083.7 | 7,266.0 | 7,026.4 | 63.7 | 32.4 | 84.42 | 1,636.7 | -3,495.4 | 1,771.1 | 1,676.2 | 94.85 | 18.672 | |
| 9,500.0 | 7,083.5 | 7,268.9 | 7,029.2 | 66.3 | 32.4 | 84.83 | 1,636.7 | -3,495.5 | 1,673.8 | 1,576.2 | 97.54 | 17.159 | |
| 9,600.0 | 7,083.3 | 7,271.7 | 7,032.1 | 69.0 | 32.4 | 85.24 | 1,636.6 | -3,495.5 | 1,576.7 | 1,476.5 | 100.25 | 15.729 | |
| 9,700.0 | 7,083.1 | 7,274.5 | 7,034.9 | 71.7 | 32.4 | 85.65 | 1,636.5 | -3,495.6 | 1,480.1 | 1,377.2 | 102.96 | 14.376 | |
| 9,800.0 | 7,082.9 | 7,277.3 | 7,037.7 | 74.4 | 32.4 | 86.06 | 1,636.5 | -3,495.7 | 1,384.0 | 1,278.3 | 105.68 | 13.097 | |
| 9,900.0 | 7,082.7 | 7,280.1 | 7,040.5 | 77.1 | 32.4 | 86.46 | 1,636.4 | -3,495.8 | 1,288.4 | 1,180.0 | 108.40 | 11.886 | |
| 10,000.0 | 7,082.5 | 7,282.8 | 7,043.2 | 79.7 | 32.4 | 86.86 | 1,636.4 | -3,495.8 | 1,193.6 | 1,082.5 | 111.13 | 10.741 | |
| 10,100.0 | 7,082.3 | 7,285.5 | 7,045.9 | 82.5 | 32.4 | 87.25 | 1,636.3 | -3,495.9 | 1,099.7 | 985.8 | 113.86 | 9.658 | |
| 10,200.0 | 7,082.1 | 7,288.2 | 7,048.6 | 85.2 | 32.4 | 87.64 | 1,636.3 | -3,496.0 | 1,006.9 | 890.3 | 116.60 | 8.636 | |
| 10,300.0 | 7,081.9 | 7,290.9 | 7,051.2 | 87.9 | 32.4 | 88.03 | 1,636.2 | -3,496.1 | 915.6 | 796.3 | 119.33 | 7.673 | |
| 10,400.0 | 7,081.7 | 7,293.5 | 7,053.9 | 90.6 | 32.5 | 88.41 | 1,636.2 | -3,496.1 | 826.4 | 704.3 | 122.07 | 6.770 | |
| 10,500.0 | 7,081.5 | 7,296.1 | 7,056.5 | 93.3 | 32.5 | 88.79 | 1,636.1 | -3,496.2 | 739.9 | 615.1 | 124.81 | 5.928 | |
| 10,600.0 | 7,081.3 | 7,298.7 | 7,059.1 | 96.1 | 32.5 | 89.17 | 1,636.1 | -3,496.3 | 657.3 | 529.7 | 127.55 | 5.153 | |
| 10,700.0 | 7,081.1 | 7,301.2 | 7,061.6 | 98.8 | 32.5 | 89.54 | 1,636.0 | -3,496.3 | 580.1 | 449.8 | 130.29 | 4.452 | |
| 10,800.0 | 7,080.9 | 7,303.8 | 7,064.1 | 101.5 | 32.5 | 89.91 | 1,636.0 | -3,496.4 | 510.9 | 377.9 | 133.03 | 3.840 | |
| 10,900.0 | 7,080.7 | 7,306.3 | 7,066.6 | 104.3 | 32.5 | 90.28 | 1,635.9 | -3,496.5 | 453.3 | 317.6 | 135.77 | 3.339 | |
| 11,000.0 | 7,080.5 | 7,308.7 | 7,069.1 | 107.0 | 32.5 | 90.64 | 1,635.9 | -3,496.5 | 412.3 | 273.8 | 138.50 | 2.977 | |
| 11,100.0 | 7,080.3 | 7,311.2 | 7,071.6 | 109.8 | 32.5 | 91.00 | 1,635.8 | -3,496.6 | 393.0 | 251.7 | 141.24 | 2.782 | |
| 11,127.7 | 7,080.2 | 7,311.9 | 7,072.2 | 110.5 | 32.5 | 91.10 | 1,635.8 | -3,496.6 | 392.0 | 250.0 | 141.99 | 2.761 | CC, ES, SF |
| 11,200.0 | 7,080.1 | 7,313.6 | 7,074.0 | 112.5 | 32.5 | 91.35 | 1,635.8 | -3,496.7 | 398.6 | 254.6 | 143.97 | 2.769 | |
| 11,300.0 | 7,079.9 | 7,316.0 | 7,076.4 | 115.3 | 32.5 | 91.71 | 1,635.8 | -3,496.7 | 428.2 | 281.5 | 146.69 | 2.919 | |
| 11,400.0 | 7,079.7 | 7,318.4 | 7,078.8 | 118.0 | 32.5 | 92.05 | 1,635.7 | -3,496.8 | 477.2 | 327.8 | 149.42 | 3.194 | |
| 11,500.0 | 7,079.5 | 7,320.8 | 7,081.2 | 120.8 | 32.5 | 92.40 | 1,635.7 | -3,496.9 | 540.5 | 388.4 | 152.14 | 3.553 | |
| 11,600.0 | 7,079.3 | 7,323.1 | 7,083.5 | 123.6 | 32.5 | 92.74 | 1,635.6 | -3,496.9 | 613.7 | 458.8 | 154.85 | 3.963 | |
| 11,700.0 | 7,079.1 | 7,325.5 | 7,085.8 | 126.3 | 32.5 | 93.08 | 1,635.6 | -3,497.0 | 693.5 | 536.0 | 157.56 | 4.402 | |
| 11,800.0 | 7,078.9 | 7,327.8 | 7,088.1 | 129.1 | 32.5 | 93.42 | 1,635.5 | -3,497.0 | 778.0 | 617.8 | 160.27 | 4.855 | |
| 11,900.0 | 7,078.7 | 7,330.1 | 7,090.4 | 131.9 | 32.5 | 93.75 | 1,635.5 | -3,497.1 | 865.9 | 702.9 | 162.97 | 5.313 | |
| 12,000.0 | 7,078.5 | 7,332.3 | 7,092.7 | 134.6 | 32.5 | 94.08 | 1,635.4 | -3,497.2 | 956.1 | 790.4 | 165.67 | 5.771 | |
| 12,100.0 | 7,078.3 | 7,334.6 | 7,094.9 | 137.4 | 32.5 | 94.40 | 1,635.4 | -3,497.2 | 1,048.1 | 879.7 | 168.36 | 6.225 | |
| 12,200.0 | 7,078.1 | 7,336.8 | 7,097.1 | 140.2 | 32.5 | 94.73 | 1,635.4 | -3,497.3 | 1,141.4 | 970.3 | 171.05 | 6.673 | |
| 12,300.0 | 7,077.9 | 7,339.0 | 7,099.3 | 142.9 | 32.5 | 95.05 | 1,635.3 | -3,497.3 | 1,235.8 | 1,062.0 | 173.74 | 7.113 | |
| 12,400.0 | 7,077.7 | 7,341.2 | 7,101.5 | 145.7 | 32.5 | 95.36 | 1,635.3 | -3,497.4 | 1,331.0 | 1,154.5 | 176.41 | 7.545 | |
| 12,500.0 | 7,077.5 | 7,344.0 | 7,104.4 | 148.5 | 32.5 | 95.78 | 1,635.2 | -3,497.5 | 1,426.8 | 1,247.7 | 179.05 | 7.969 | |
| 12,600.0 | 7,077.3 | 7,344.0 | 7,104.4 | 151.3 | 32.5 | 95.78 | 1,635.2 | -3,497.5 | 1,523.2 | 1,341.3 | 181.82 | 8.377 | |
| 12,700.0 | 7,077.1 | 7,344.0 | 7,104.4 | 154.0 | 32.5 | 95.78 | 1,635.2 | -3,497.5 | 1,620.0 | 1,435.4 | 184.59 | 8.776 | |
| 12,800.0 | 7,076.9 | 7,344.0 | 7,104.4 | 156.8 | 32.5 | 95.78 | 1,635.2 | -3,497.5 | 1,717.2 | 1,529.8 | 187.36 | 9.165 | |
| 12,900.0 | 7,076.7 | 7,351.2 | 7,111.6 | 159.6 | 32.5 | 96.82 | 1,635.1 | -3,497.6 | 1,814.6 | 1,624.9 | 189.74 | 9.564 | |
| 13,000.0 | 7,076.5 | 7,353.1 | 7,113.5 | 162.4 | 32.5 | 97.10 | 1,635.0 | -3,497.7 | 1,912.4 | 1,720.0 | 192.40 | 9.940 | |
| 13,100.0 | 7,076.3 | 7,355.0 | 7,115.3 | 165.2 | 32.5 | 97.37 | 1,635.0 | -3,497.7 | 2,010.3 | 1,815.3 | 195.05 | 10.307 | |
| 13,200.0 | 7,076.1 | 7,356.8 | 7,117.2 | 168.0 | 32.5 | 97.63 | 1,635.0 | -3,497.8 | 2,108.5 | 1,910.8 | 197.69 | 10.665 | |
| 13,300.0 | 7,075.9 | 7,358.7 | 7,119.0 | 170.7 | 32.5 | 97.89 | 1,634.9 | -3,497.8 | 2,206.8 | 2,006.5 | 200.33 | 11.016 | |
| 13,400.0 | 7,075.7 | 7,360.5 | 7,120.8 | 173.5 | 32.5 | 98.15 | 1,634.9 | -3,497.9 | 2,305.2 | 2,102.3 | 202.97 | 11.358 | |
| 13,500.0 | 7,075.5 | 7,362.2 | 7,122.6 | 176.3 | 32.5 | 98.41 | 1,634.9 | -3,497.9 | 2,403.8 | 2,198.2 | 205.60 | 11.692 | |
| 13,600.0 | 7,075.3 | 7,364.0 | 7,124.3 | 179.1 | 32.5 | 98.66 | 1,634.8 | -3,497.9 | 2,502.5 | 2,294.3 | 208.23 | 12.018 | |
| 13,700.0 | 7,075.1 | 7,365.7 | 7,126.0 | 181.9 | 32.5 | 98.90 | 1,634.8 | -3,498.0 | 2,601.3 | 2,390.5 | 210.85 | 12.337 | |
| 13,800.0 | 7,074.9 | 7,367.4 | 7,127.7 | 184.7 | 32.6 | 99.15 | 1,634.8 | -3,498.0 | 2,700.2 | 2,486.7 | 213.47 | 12.649 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 20CD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 155-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.0 | 7,074.7 | 7,369.1 | 7,129.4 | 187.5 | 32.6 | 99.39 | 1,634.7 | -3,498.1 | 2,799.1 | 2,583.1 | 216.08 | 12.954 | |
| 14,000.0 | 7,074.5 | 7,370.7 | 7,131.1 | 190.2 | 32.6 | 99.62 | 1,634.7 | -3,498.1 | 2,898.2 | 2,679.5 | 218.69 | 13.252 | |
| 14,100.0 | 7,074.2 | 7,372.4 | 7,132.7 | 193.0 | 32.6 | 99.86 | 1,634.7 | -3,498.1 | 2,997.3 | 2,776.0 | 221.30 | 13.544 | |
| 14,200.0 | 7,074.0 | 7,374.0 | 7,134.3 | 195.8 | 32.6 | 100.09 | 1,634.7 | -3,498.2 | 3,096.4 | 2,872.5 | 223.90 | 13.829 | |
| 14,221.4 | 7,074.0 | 7,374.3 | 7,134.7 | 196.4 | 32.6 | 100.13 | 1,634.7 | -3,498.2 | 3,117.6 | 2,893.2 | 224.46 | 13.890 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 20SD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 155-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -47.51 | 1,790.6 | -1,955.0 | 2,651.1 | | | | |
| 100.0 | 100.0 | 130.4 | 130.4 | 0.1 | 0.0 | -47.51 | 1,790.0 | -1,954.0 | 2,650.4 | 2,650.2 | 0.14 | N/A | |
| 200.0 | 200.0 | 213.2 | 213.2 | 0.3 | 0.2 | -47.50 | 1,789.2 | -1,952.9 | 2,648.7 | 2,648.3 | 0.48 | 5,569.869 | |
| 286.9 | 286.9 | 271.4 | 271.4 | 0.5 | 0.3 | -47.51 | 1,788.7 | -1,952.8 | 2,648.3 | 2,647.5 | 0.79 | 3,362.233 | |
| 300.0 | 300.0 | 279.9 | 279.8 | 0.5 | 0.3 | -47.51 | 1,788.7 | -1,952.9 | 2,648.3 | 2,647.4 | 0.84 | 3,167.826 | |
| 400.0 | 400.0 | 336.0 | 336.0 | 0.8 | 0.4 | -47.55 | 1,787.7 | -1,954.4 | 2,649.1 | 2,647.9 | 1.19 | 2,235.503 | |
| 500.0 | 500.0 | 403.4 | 403.2 | 1.0 | 0.6 | -75.95 | 1,786.2 | -1,957.8 | 2,651.0 | 2,649.4 | 1.57 | 1,692.363 | |
| 600.0 | 599.8 | 469.3 | 469.0 | 1.2 | 0.7 | -76.08 | 1,784.4 | -1,962.8 | 2,653.5 | 2,651.5 | 1.96 | 1,354.609 | |
| 700.0 | 699.5 | 547.7 | 546.8 | 1.5 | 1.0 | -76.33 | 1,781.5 | -1,970.5 | 2,656.3 | 2,653.9 | 2.41 | 1,100.629 | |
| 800.0 | 798.7 | 642.9 | 641.3 | 1.7 | 1.2 | -76.76 | 1,776.4 | -1,981.6 | 2,658.7 | 2,655.7 | 2.96 | 897.945 | |
| 900.0 | 897.5 | 726.9 | 724.5 | 2.0 | 1.5 | -77.22 | 1,771.5 | -1,992.0 | 2,660.7 | 2,657.2 | 3.53 | 754.033 | |
| 1,000.0 | 995.6 | 799.5 | 796.2 | 2.4 | 1.8 | -77.68 | 1,766.7 | -2,002.2 | 2,663.1 | 2,658.9 | 4.12 | 646.494 | |
| 1,100.0 | 1,093.1 | 918.0 | 912.6 | 2.8 | 2.3 | -78.64 | 1,755.2 | -2,021.4 | 2,665.0 | 2,660.0 | 4.98 | 535.622 | |
| 1,164.2 | 1,155.2 | 981.0 | 974.0 | 3.1 | 2.5 | -79.23 | 1,747.0 | -2,033.0 | 2,665.8 | 2,660.3 | 5.53 | 481.946 | |
| 1,200.0 | 1,189.7 | 1,014.2 | 1,006.1 | 3.2 | 2.7 | -79.57 | 1,742.1 | -2,039.4 | 2,666.4 | 2,660.5 | 5.86 | 455.067 | |
| 1,300.0 | 1,286.2 | 1,126.8 | 1,114.7 | 3.7 | 3.3 | -80.79 | 1,723.1 | -2,062.7 | 2,668.3 | 2,661.3 | 6.92 | 385.807 | |
| 1,400.0 | 1,382.6 | 1,238.5 | 1,221.0 | 4.2 | 3.9 | -82.08 | 1,699.4 | -2,087.3 | 2,669.8 | 2,661.8 | 8.05 | 331.630 | |
| 1,500.0 | 1,479.1 | 1,353.6 | 1,329.7 | 4.7 | 4.6 | -83.47 | 1,672.1 | -2,113.5 | 2,671.9 | 2,662.7 | 9.24 | 289.060 | |
| 1,600.0 | 1,575.6 | 1,422.1 | 1,394.2 | 5.3 | 5.1 | -84.31 | 1,655.1 | -2,129.3 | 2,674.8 | 2,664.6 | 10.18 | 262.699 | |
| 1,700.0 | 1,672.0 | 1,486.4 | 1,454.3 | 5.8 | 5.5 | -85.11 | 1,638.6 | -2,144.7 | 2,679.4 | 2,668.3 | 11.12 | 240.874 | |
| 1,800.0 | 1,768.5 | 1,549.2 | 1,512.8 | 6.3 | 6.0 | -85.91 | 1,621.9 | -2,160.8 | 2,685.8 | 2,673.7 | 12.08 | 222.322 | |
| 1,900.0 | 1,864.9 | 1,630.8 | 1,588.0 | 6.8 | 6.6 | -86.96 | 1,599.0 | -2,182.5 | 2,693.8 | 2,680.6 | 13.20 | 204.089 | |
| 2,000.0 | 1,961.4 | 1,694.9 | 1,646.8 | 7.4 | 7.1 | -87.81 | 1,580.5 | -2,199.9 | 2,703.3 | 2,689.1 | 14.20 | 190.338 | |
| 2,100.0 | 2,057.9 | 1,756.7 | 1,703.3 | 7.9 | 7.6 | -88.62 | 1,562.4 | -2,217.3 | 2,714.6 | 2,699.4 | 15.20 | 178.599 | |
| 2,200.0 | 2,154.3 | 1,826.0 | 1,766.1 | 8.4 | 8.2 | -89.56 | 1,541.3 | -2,237.6 | 2,727.9 | 2,711.6 | 16.27 | 167.703 | |
| 2,300.0 | 2,250.8 | 1,906.0 | 1,838.3 | 9.0 | 8.8 | -90.64 | 1,516.3 | -2,261.4 | 2,742.7 | 2,725.3 | 17.37 | 157.921 | |
| 2,400.0 | 2,347.3 | 2,014.0 | 1,935.8 | 9.5 | 9.6 | -92.09 | 1,481.8 | -2,292.4 | 2,757.8 | 2,739.2 | 18.62 | 148.100 | |
| 2,500.0 | 2,443.7 | 2,076.3 | 1,991.9 | 10.0 | 10.1 | -92.93 | 1,461.4 | -2,310.2 | 2,774.3 | 2,754.7 | 19.59 | 141.610 | |
| 2,600.0 | 2,540.2 | 2,134.8 | 2,044.4 | 10.6 | 10.5 | -93.72 | 1,442.5 | -2,327.5 | 2,793.1 | 2,772.5 | 20.52 | 136.120 | |
| 2,700.0 | 2,636.7 | 2,217.4 | 2,118.9 | 11.1 | 11.2 | -94.81 | 1,416.1 | -2,351.9 | 2,813.2 | 2,791.6 | 21.58 | 130.385 | |
| 2,800.0 | 2,733.1 | 2,287.7 | 2,182.4 | 11.6 | 11.7 | -95.72 | 1,394.3 | -2,372.5 | 2,834.7 | 2,812.2 | 22.52 | 125.875 | |
| 2,900.0 | 2,829.6 | 2,368.4 | 2,255.5 | 12.2 | 12.3 | -96.75 | 1,369.4 | -2,396.1 | 2,857.5 | 2,833.9 | 23.56 | 121.293 | |
| 3,000.0 | 2,926.0 | 2,440.1 | 2,320.2 | 12.7 | 12.9 | -97.67 | 1,346.8 | -2,417.1 | 2,881.5 | 2,857.0 | 24.57 | 117.261 | |
| 3,100.0 | 3,022.5 | 2,526.7 | 2,398.1 | 13.2 | 13.6 | -98.77 | 1,318.9 | -2,442.8 | 2,907.0 | 2,881.3 | 25.69 | 113.156 | |
| 3,200.0 | 3,119.0 | 2,614.4 | 2,476.8 | 13.8 | 14.4 | -99.89 | 1,289.8 | -2,468.3 | 2,933.0 | 2,906.2 | 26.80 | 109.434 | |
| 3,300.0 | 3,215.4 | 2,687.8 | 2,542.2 | 14.3 | 15.0 | -100.84 | 1,264.3 | -2,489.8 | 2,960.4 | 2,932.6 | 27.82 | 106.430 | |
| 3,400.0 | 3,311.9 | 2,801.2 | 2,643.0 | 14.9 | 16.0 | -102.29 | 1,224.0 | -2,522.5 | 2,988.6 | 2,959.5 | 29.06 | 102.852 | |
| 3,500.0 | 3,408.4 | 2,889.7 | 2,722.2 | 15.4 | 16.7 | -103.39 | 1,192.9 | -2,547.0 | 3,017.0 | 2,986.9 | 30.07 | 100.318 | |
| 3,600.0 | 3,504.8 | 2,950.0 | 2,776.3 | 15.9 | 17.1 | -104.13 | 1,172.3 | -2,563.7 | 3,046.9 | 3,016.0 | 30.91 | 98.567 | |
| 3,700.0 | 3,601.3 | 2,990.6 | 2,812.8 | 16.5 | 17.5 | -104.62 | 1,158.6 | -2,575.3 | 3,078.5 | 3,046.8 | 31.66 | 97.242 | |
| 3,800.0 | 3,697.7 | 3,043.0 | 2,859.6 | 17.0 | 17.9 | -105.24 | 1,141.1 | -2,590.9 | 3,112.0 | 3,079.6 | 32.46 | 95.870 | |
| 3,900.0 | 3,794.2 | 3,078.7 | 2,891.3 | 17.5 | 18.2 | -105.67 | 1,129.0 | -2,601.8 | 3,147.3 | 3,114.1 | 33.19 | 94.812 | |
| 4,000.0 | 3,890.7 | 3,137.0 | 2,942.9 | 18.1 | 18.7 | -106.36 | 1,109.0 | -2,620.1 | 3,184.2 | 3,150.2 | 34.05 | 93.510 | |
| 4,100.0 | 3,987.1 | 3,216.2 | 3,013.0 | 18.6 | 19.4 | -107.29 | 1,081.7 | -2,645.1 | 3,222.3 | 3,187.3 | 34.99 | 92.082 | |
| 4,200.0 | 4,083.6 | 3,309.7 | 3,095.9 | 19.2 | 20.2 | -108.37 | 1,049.4 | -2,674.0 | 3,260.9 | 3,224.9 | 35.98 | 90.628 | |
| 4,300.0 | 4,180.1 | 3,359.9 | 3,140.2 | 19.7 | 20.6 | -108.95 | 1,031.9 | -2,689.5 | 3,300.4 | 3,263.6 | 36.74 | 89.820 | |
| 4,400.0 | 4,276.5 | 3,417.0 | 3,190.7 | 20.2 | 21.1 | -109.58 | 1,012.5 | -2,707.7 | 3,341.5 | 3,304.0 | 37.54 | 89.018 | |
| 4,500.0 | 4,373.0 | 3,510.6 | 3,273.7 | 20.8 | 22.0 | -110.61 | 980.9 | -2,737.6 | 3,383.6 | 3,345.1 | 38.47 | 87.947 | |
| 4,600.0 | 4,469.5 | 3,560.1 | 3,317.7 | 21.3 | 22.4 | -111.14 | 964.6 | -2,753.3 | 3,426.2 | 3,387.0 | 39.19 | 87.428 | |
| 4,700.0 | 4,565.9 | 3,617.4 | 3,368.8 | 21.9 | 22.8 | -111.72 | 946.8 | -2,771.9 | 3,470.1 | 3,430.2 | 39.93 | 86.909 | |
| 4,800.0 | 4,662.4 | 3,725.4 | 3,465.9 | 22.4 | 23.7 | -112.78 | 914.7 | -2,806.9 | 3,514.4 | 3,473.6 | 40.82 | 86.087 | |
| 4,900.0 | 4,758.8 | 3,852.4 | 3,580.2 | 22.9 | 24.7 | -114.00 | 876.4 | -2,846.7 | 3,558.7 | 3,516.9 | 41.77 | 85.200 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 20SD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 155-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,000.0 | 4,855.3 | 3,992.9 | 3,708.0 | 23.5 | 25.8 | -115.28 | 835.6 | -2,888.4 | 3,601.9 | 3,559.2 | 42.71 | 84.325 | |
| 5,100.0 | 4,951.8 | 4,047.8 | 3,757.9 | 24.0 | 26.3 | -115.79 | 818.9 | -2,904.3 | 3,645.6 | 3,602.2 | 43.40 | 84.005 | |
| 5,200.0 | 5,048.2 | 4,119.4 | 3,822.5 | 24.6 | 26.9 | -116.44 | 796.5 | -2,925.4 | 3,690.2 | 3,646.0 | 44.14 | 83.610 | |
| 5,300.0 | 5,144.7 | 4,215.3 | 3,908.9 | 25.1 | 27.7 | -117.32 | 765.4 | -2,953.2 | 3,735.2 | 3,690.3 | 44.94 | 83.119 | |
| 5,400.0 | 5,241.2 | 4,295.3 | 3,981.1 | 25.6 | 28.3 | -118.03 | 739.7 | -2,976.0 | 3,780.4 | 3,734.8 | 45.65 | 82.806 | |
| 5,500.0 | 5,337.6 | 4,361.6 | 4,041.4 | 26.2 | 28.8 | -118.59 | 720.3 | -2,995.4 | 3,826.4 | 3,780.1 | 46.31 | 82.622 | |
| 5,600.0 | 5,434.1 | 4,467.6 | 4,138.5 | 26.7 | 29.6 | -119.43 | 691.1 | -3,026.4 | 3,872.4 | 3,825.4 | 47.04 | 82.324 | |
| 5,700.0 | 5,530.5 | 4,517.1 | 4,183.6 | 27.3 | 30.0 | -119.82 | 676.7 | -3,040.8 | 3,919.1 | 3,871.4 | 47.64 | 82.256 | |
| 5,757.1 | 5,585.6 | 4,550.1 | 4,213.5 | 27.6 | 30.3 | -120.09 | 666.5 | -3,050.5 | 3,946.2 | 3,898.2 | 48.00 | 82.216 | |
| 5,800.0 | 5,627.1 | 4,590.6 | 4,250.2 | 27.8 | 30.6 | -120.81 | 654.1 | -3,062.3 | 3,966.5 | 3,918.4 | 48.11 | 82.454 | |
| 5,900.0 | 5,724.4 | 4,657.3 | 4,310.7 | 28.2 | 31.1 | -122.20 | 634.2 | -3,081.9 | 4,013.0 | 3,964.7 | 48.23 | 83.212 | |
| 6,000.0 | 5,822.4 | 4,701.0 | 4,350.2 | 28.5 | 31.5 | -123.36 | 620.9 | -3,095.0 | 4,058.8 | 4,010.5 | 48.26 | 84.098 | |
| 6,100.0 | 5,921.0 | 4,772.1 | 4,414.3 | 28.8 | 32.1 | -124.64 | 598.8 | -3,116.7 | 4,103.8 | 4,055.5 | 48.36 | 84.860 | |
| 6,200.0 | 6,020.2 | 4,935.0 | 4,561.5 | 29.0 | 33.4 | -126.31 | 548.9 | -3,165.2 | 4,146.6 | 4,097.9 | 48.70 | 85.138 | |
| 6,300.0 | 6,119.7 | 5,023.3 | 4,641.9 | 29.3 | 34.1 | -127.43 | 522.7 | -3,190.8 | 4,186.8 | 4,138.0 | 48.82 | 85.755 | |
| 6,400.0 | 6,219.5 | 6,497.3 | 6,061.0 | 29.4 | 40.8 | -131.46 | 279.8 | -3,431.6 | 4,215.1 | 4,163.6 | 51.53 | 81.796 | |
| 6,500.0 | 6,319.5 | 6,605.1 | 6,168.7 | 29.5 | 40.9 | -131.58 | 277.1 | -3,434.6 | 4,220.0 | 4,168.3 | 51.78 | 81.503 | |
| 6,521.3 | 6,340.8 | 6,631.5 | 6,195.1 | 29.6 | 41.0 | -103.26 | 276.5 | -3,435.3 | 4,220.8 | 4,161.4 | 59.38 | 71.085 | |
| 6,551.3 | 6,370.8 | 6,668.6 | 6,232.1 | 29.6 | 41.0 | -103.26 | 275.6 | -3,436.3 | 4,221.7 | 4,162.2 | 59.46 | 71.000 | |
| 6,600.0 | 6,419.5 | 6,722.1 | 6,285.6 | 29.6 | 41.1 | -13.28 | 274.6 | -3,437.6 | 4,221.4 | 4,169.4 | 52.06 | 81.091 | |
| 6,650.0 | 6,469.2 | 6,772.4 | 6,335.9 | 29.6 | 41.1 | -13.38 | 273.5 | -3,438.8 | 4,217.8 | 4,165.9 | 51.91 | 81.245 | |
| 6,700.0 | 6,518.4 | 6,824.3 | 6,387.8 | 29.6 | 41.2 | -13.55 | 272.5 | -3,440.0 | 4,210.8 | 4,159.4 | 51.48 | 81.789 | |
| 6,750.0 | 6,567.0 | 6,876.1 | 6,439.6 | 29.6 | 41.3 | -13.80 | 271.5 | -3,441.2 | 4,200.5 | 4,149.7 | 50.77 | 82.736 | |
| 6,800.0 | 6,614.5 | 6,916.9 | 6,480.4 | 29.6 | 41.3 | -14.12 | 270.7 | -3,442.2 | 4,186.8 | 4,137.1 | 49.77 | 84.119 | |
| 6,850.0 | 6,660.9 | 6,956.3 | 6,519.7 | 29.5 | 41.3 | -14.54 | 270.0 | -3,443.2 | 4,170.1 | 4,121.6 | 48.51 | 85.959 | |
| 6,900.0 | 6,705.9 | 7,000.1 | 6,563.5 | 29.4 | 41.4 | -15.06 | 269.1 | -3,444.4 | 4,150.2 | 4,103.2 | 47.00 | 88.294 | |
| 6,950.0 | 6,749.2 | 7,046.1 | 6,609.5 | 29.3 | 41.5 | -15.71 | 268.3 | -3,445.6 | 4,127.4 | 4,082.1 | 45.27 | 91.177 | |
| 7,000.0 | 6,790.7 | 7,091.3 | 6,654.6 | 29.2 | 41.5 | -16.50 | 267.6 | -3,446.8 | 4,101.5 | 4,058.2 | 43.33 | 94.666 | |
| 7,050.0 | 6,830.2 | 7,135.1 | 6,698.4 | 29.1 | 41.6 | -17.46 | 266.9 | -3,447.9 | 4,072.9 | 4,031.6 | 41.22 | 98.812 | |
| 7,100.0 | 6,867.4 | 7,173.6 | 6,736.9 | 29.0 | 41.6 | -18.60 | 266.2 | -3,448.9 | 4,041.5 | 4,002.5 | 39.00 | 103.636 | |
| 7,150.0 | 6,902.2 | 7,206.1 | 6,769.5 | 28.9 | 41.6 | -19.97 | 265.7 | -3,449.8 | 4,007.7 | 3,971.0 | 36.74 | 109.078 | |
| 7,200.0 | 6,934.4 | 7,236.4 | 6,799.7 | 28.7 | 41.7 | -21.63 | 265.3 | -3,450.6 | 3,971.6 | 3,937.1 | 34.56 | 114.907 | |
| 7,250.0 | 6,963.8 | 7,263.5 | 6,826.8 | 28.6 | 41.7 | -23.65 | 264.9 | -3,451.3 | 3,933.4 | 3,900.8 | 32.63 | 120.549 | |
| 7,300.0 | 6,990.4 | 7,286.9 | 6,850.2 | 28.5 | 41.7 | -26.13 | 264.5 | -3,452.0 | 3,893.3 | 3,862.1 | 31.17 | 124.887 | |
| 7,350.0 | 7,013.9 | 7,308.0 | 6,871.2 | 28.4 | 41.8 | -29.21 | 264.2 | -3,452.6 | 3,851.4 | 3,820.9 | 30.52 | 126.192 | |
| 7,400.0 | 7,034.4 | 7,326.5 | 6,889.8 | 28.2 | 41.8 | -33.09 | 264.0 | -3,453.2 | 3,808.0 | 3,777.0 | 31.05 | 122.652 | |
| 7,450.0 | 7,051.5 | 7,347.0 | 6,910.2 | 28.1 | 41.8 | -38.14 | 263.8 | -3,453.9 | 3,763.3 | 3,730.1 | 33.16 | 113.499 | |
| 7,500.0 | 7,065.4 | 7,357.1 | 6,920.3 | 28.0 | 41.8 | -44.46 | 263.7 | -3,454.2 | 3,717.4 | 3,680.6 | 36.88 | 100.785 | |
| 7,550.0 | 7,075.9 | 7,369.2 | 6,932.4 | 27.9 | 41.8 | -52.72 | 263.6 | -3,454.6 | 3,670.7 | 3,628.5 | 42.17 | 87.038 | |
| 7,600.0 | 7,082.9 | 7,377.9 | 6,941.1 | 27.8 | 41.8 | -63.15 | 263.5 | -3,454.9 | 3,623.3 | 3,575.1 | 48.18 | 75.204 | |
| 7,650.0 | 7,086.5 | 7,383.1 | 6,946.3 | 27.7 | 41.8 | -75.65 | 263.4 | -3,455.1 | 3,575.5 | 3,522.1 | 53.41 | 66.944 | |
| 7,677.7 | 7,087.0 | 7,384.5 | 6,947.7 | 27.6 | 41.9 | -83.18 | 263.4 | -3,455.1 | 3,548.9 | 3,493.6 | 55.30 | 64.178 | |
| 7,700.0 | 7,087.0 | 7,385.2 | 6,948.4 | 27.6 | 41.9 | -83.22 | 263.4 | -3,455.1 | 3,527.5 | 3,471.9 | 55.61 | 63.432 | |
| 7,800.0 | 7,086.8 | 7,388.4 | 6,951.6 | 27.5 | 41.9 | -83.41 | 263.4 | -3,455.2 | 3,431.6 | 3,374.4 | 57.16 | 60.036 | |
| 7,900.0 | 7,086.6 | 7,391.5 | 6,954.8 | 27.9 | 41.9 | -83.59 | 263.3 | -3,455.4 | 3,335.9 | 3,277.0 | 58.92 | 56.620 | |
| 8,000.0 | 7,086.4 | 7,394.7 | 6,957.9 | 29.5 | 41.9 | -83.77 | 263.3 | -3,455.5 | 3,240.6 | 3,179.7 | 60.85 | 53.257 | |
| 8,100.0 | 7,086.2 | 7,397.9 | 6,961.1 | 31.5 | 41.9 | -83.96 | 263.3 | -3,455.6 | 3,145.4 | 3,082.5 | 62.92 | 49.994 | |
| 8,200.0 | 7,086.0 | 7,401.1 | 6,964.3 | 33.7 | 41.9 | -84.14 | 263.3 | -3,455.7 | 3,050.6 | 2,985.6 | 65.10 | 46.863 | |
| 8,300.0 | 7,085.8 | 7,404.2 | 6,967.4 | 36.0 | 41.9 | -84.33 | 263.2 | -3,455.8 | 2,956.2 | 2,888.8 | 67.37 | 43.879 | |
| 8,400.0 | 7,085.6 | 7,407.4 | 6,970.6 | 38.3 | 41.9 | -84.51 | 263.2 | -3,455.9 | 2,862.1 | 2,792.4 | 69.72 | 41.052 | |
| 8,500.0 | 7,085.4 | 7,410.6 | 6,973.8 | 40.7 | 41.9 | -84.70 | 263.2 | -3,456.0 | 2,768.4 | 2,696.3 | 72.13 | 38.381 | |
| 8,600.0 | 7,085.2 | 7,413.8 | 6,977.0 | 43.1 | 41.9 | -84.88 | 263.1 | -3,456.1 | 2,675.2 | 2,600.6 | 74.59 | 35.865 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 20SD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 155-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.0 | 7,085.0 | 7,417.0 | 6,980.2 | 45.6 | 41.9 | -85.07 | 263.1 | -3,456.2 | 2,582.5 | 2,505.4 | 77.10 | 33.497 | |
| 8,800.0 | 7,084.8 | 7,420.2 | 6,983.4 | 48.1 | 41.9 | -85.25 | 263.1 | -3,456.3 | 2,490.3 | 2,410.7 | 79.64 | 31.271 | |
| 8,900.0 | 7,084.6 | 7,423.4 | 6,986.6 | 50.7 | 41.9 | -85.44 | 263.0 | -3,456.4 | 2,398.8 | 2,316.6 | 82.21 | 29.179 | |
| 9,000.0 | 7,084.4 | 7,426.6 | 6,989.8 | 53.2 | 41.9 | -85.63 | 263.0 | -3,456.5 | 2,308.0 | 2,223.1 | 84.81 | 27.214 | |
| 9,100.0 | 7,084.2 | 7,429.9 | 6,993.1 | 55.8 | 41.9 | -85.81 | 263.0 | -3,456.6 | 2,217.9 | 2,130.5 | 87.43 | 25.368 | |
| 9,200.0 | 7,084.0 | 7,433.1 | 6,996.3 | 58.4 | 41.9 | -86.00 | 263.0 | -3,456.8 | 2,128.7 | 2,038.7 | 90.07 | 23.634 | |
| 9,300.0 | 7,083.8 | 7,436.3 | 6,999.5 | 61.1 | 41.9 | -86.19 | 262.9 | -3,456.9 | 2,040.6 | 1,947.8 | 92.73 | 22.006 | |
| 9,400.0 | 7,083.7 | 7,439.6 | 7,002.7 | 63.7 | 41.9 | -86.38 | 262.9 | -3,457.0 | 1,953.5 | 1,858.1 | 95.40 | 20.477 | |
| 9,500.0 | 7,083.5 | 7,442.0 | 7,005.2 | 66.3 | 41.9 | -86.52 | 262.9 | -3,457.1 | 1,867.8 | 1,769.7 | 98.08 | 19.044 | |
| 9,600.0 | 7,083.3 | 7,445.8 | 7,009.0 | 69.0 | 41.9 | -86.74 | 262.9 | -3,457.2 | 1,783.5 | 1,682.7 | 100.78 | 17.697 | |
| 9,700.0 | 7,083.1 | 7,448.9 | 7,012.1 | 71.7 | 41.9 | -86.92 | 262.8 | -3,457.3 | 1,700.9 | 1,597.5 | 103.48 | 16.437 | |
| 9,800.0 | 7,082.9 | 7,452.0 | 7,015.2 | 74.4 | 41.9 | -87.10 | 262.8 | -3,457.4 | 1,620.3 | 1,514.1 | 106.20 | 15.258 | |
| 9,900.0 | 7,082.7 | 7,455.0 | 7,018.2 | 77.1 | 41.9 | -87.28 | 262.8 | -3,457.5 | 1,542.0 | 1,433.1 | 108.92 | 14.157 | |
| 10,000.0 | 7,082.5 | 7,458.0 | 7,021.2 | 79.7 | 41.9 | -87.45 | 262.7 | -3,457.6 | 1,466.3 | 1,354.7 | 111.65 | 13.133 | |
| 10,100.0 | 7,082.3 | 7,461.1 | 7,024.2 | 82.5 | 41.9 | -87.63 | 262.7 | -3,457.7 | 1,393.7 | 1,279.3 | 114.38 | 12.184 | |
| 10,200.0 | 7,082.1 | 7,464.0 | 7,027.2 | 85.2 | 41.9 | -87.80 | 262.7 | -3,457.8 | 1,324.6 | 1,207.4 | 117.12 | 11.309 | |
| 10,300.0 | 7,081.9 | 7,467.0 | 7,030.2 | 87.9 | 41.9 | -87.98 | 262.7 | -3,457.9 | 1,259.6 | 1,139.8 | 119.87 | 10.509 | |
| 10,400.0 | 7,081.7 | 7,470.0 | 7,033.2 | 90.6 | 42.0 | -88.15 | 262.6 | -3,458.0 | 1,199.5 | 1,076.9 | 122.62 | 9.783 | |
| 10,500.0 | 7,081.5 | 7,472.9 | 7,036.1 | 93.3 | 42.0 | -88.32 | 262.6 | -3,458.1 | 1,145.0 | 1,019.6 | 125.37 | 9.133 | |
| 10,600.0 | 7,081.3 | 7,475.9 | 7,039.0 | 96.1 | 42.0 | -88.49 | 262.6 | -3,458.2 | 1,096.9 | 968.8 | 128.13 | 8.561 | |
| 10,700.0 | 7,081.1 | 7,478.8 | 7,041.9 | 98.8 | 42.0 | -88.66 | 262.5 | -3,458.3 | 1,056.1 | 925.2 | 130.88 | 8.069 | |
| 10,800.0 | 7,080.9 | 7,481.7 | 7,044.8 | 101.5 | 42.0 | -88.83 | 262.5 | -3,458.4 | 1,023.4 | 889.8 | 133.65 | 7.658 | |
| 10,900.0 | 7,080.7 | 7,484.6 | 7,047.7 | 104.3 | 42.0 | -89.00 | 262.5 | -3,458.5 | 999.7 | 863.3 | 136.41 | 7.329 | |
| 11,000.0 | 7,080.5 | 7,487.4 | 7,050.6 | 107.0 | 42.0 | -89.17 | 262.4 | -3,458.6 | 985.7 | 846.5 | 139.18 | 7.082 | |
| 11,089.8 | 7,080.3 | 7,490.0 | 7,053.2 | 109.5 | 42.0 | -89.32 | 262.4 | -3,458.6 | 981.6 | 839.9 | 141.66 | 6.929 | CC |
| 11,100.0 | 7,080.3 | 7,490.3 | 7,053.5 | 109.8 | 42.0 | -89.34 | 262.4 | -3,458.7 | 981.6 | 839.7 | 141.94 | 6.916 | ES |
| 11,200.0 | 7,080.1 | 7,493.1 | 7,056.3 | 112.5 | 42.0 | -89.50 | 262.4 | -3,458.8 | 987.7 | 843.0 | 144.71 | 6.825 | |
| 11,300.0 | 7,079.9 | 7,496.0 | 7,059.1 | 115.3 | 42.0 | -89.67 | 262.3 | -3,458.8 | 1,003.8 | 856.3 | 147.48 | 6.806 | SF |
| 11,400.0 | 7,079.7 | 7,498.8 | 7,061.9 | 118.0 | 42.0 | -89.83 | 262.3 | -3,458.9 | 1,029.4 | 879.1 | 150.25 | 6.851 | |
| 11,500.0 | 7,079.5 | 7,501.6 | 7,064.7 | 120.8 | 42.0 | -90.00 | 262.3 | -3,459.0 | 1,063.8 | 910.7 | 153.03 | 6.951 | |
| 11,600.0 | 7,079.3 | 7,504.4 | 7,067.5 | 123.6 | 42.0 | -90.16 | 262.2 | -3,459.1 | 1,106.1 | 950.3 | 155.80 | 7.100 | |
| 11,700.0 | 7,079.1 | 7,507.2 | 7,070.3 | 126.3 | 42.0 | -90.32 | 262.2 | -3,459.2 | 1,155.6 | 997.1 | 158.57 | 7.288 | |
| 11,800.0 | 7,078.9 | 7,509.9 | 7,073.1 | 129.1 | 42.0 | -90.48 | 262.2 | -3,459.3 | 1,211.4 | 1,050.0 | 161.35 | 7.508 | |
| 11,900.0 | 7,078.7 | 7,512.7 | 7,075.8 | 131.9 | 42.0 | -90.64 | 262.1 | -3,459.4 | 1,272.5 | 1,108.4 | 164.12 | 7.754 | |
| 12,000.0 | 7,078.5 | 7,515.4 | 7,078.5 | 134.6 | 42.0 | -90.80 | 262.1 | -3,459.5 | 1,338.4 | 1,171.5 | 166.90 | 8.019 | |
| 12,100.0 | 7,078.3 | 7,518.1 | 7,081.2 | 137.4 | 42.0 | -90.96 | 262.0 | -3,459.6 | 1,408.2 | 1,238.6 | 169.67 | 8.300 | |
| 12,200.0 | 7,078.1 | 7,520.8 | 7,083.9 | 140.2 | 42.0 | -91.12 | 262.0 | -3,459.6 | 1,481.5 | 1,309.1 | 172.45 | 8.591 | |
| 12,300.0 | 7,077.9 | 7,523.5 | 7,086.6 | 142.9 | 42.0 | -91.27 | 262.0 | -3,459.7 | 1,557.8 | 1,382.6 | 175.22 | 8.891 | |
| 12,400.0 | 7,077.7 | 7,526.2 | 7,089.3 | 145.7 | 42.0 | -91.43 | 261.9 | -3,459.8 | 1,636.7 | 1,458.7 | 177.99 | 9.195 | |
| 12,500.0 | 7,077.5 | 7,528.8 | 7,092.0 | 148.5 | 42.0 | -91.58 | 261.9 | -3,459.9 | 1,717.7 | 1,536.9 | 180.77 | 9.502 | |
| 12,600.0 | 7,077.3 | 7,535.0 | 7,098.1 | 151.3 | 42.0 | -91.94 | 261.8 | -3,460.1 | 1,800.6 | 1,617.1 | 183.53 | 9.811 | |
| 12,700.0 | 7,077.1 | 7,535.0 | 7,098.1 | 154.0 | 42.0 | -91.94 | 261.8 | -3,460.1 | 1,885.2 | 1,698.9 | 186.31 | 10.119 | |
| 12,800.0 | 7,076.9 | 7,537.0 | 7,100.2 | 156.8 | 42.0 | -92.06 | 261.8 | -3,460.2 | 1,971.3 | 1,782.2 | 189.08 | 10.425 | |
| 12,900.0 | 7,076.7 | 7,540.2 | 7,103.3 | 159.6 | 42.0 | -92.24 | 261.7 | -3,460.3 | 2,058.5 | 1,866.7 | 191.85 | 10.730 | |
| 13,000.0 | 7,076.5 | 7,543.4 | 7,106.6 | 162.4 | 42.0 | -92.43 | 261.7 | -3,460.4 | 2,146.9 | 1,952.3 | 194.61 | 11.032 | |
| 13,100.0 | 7,076.3 | 7,546.8 | 7,109.9 | 165.2 | 42.0 | -92.63 | 261.6 | -3,460.5 | 2,236.3 | 2,038.9 | 197.38 | 11.330 | |
| 13,200.0 | 7,076.1 | 7,550.3 | 7,113.4 | 168.0 | 42.1 | -92.83 | 261.5 | -3,460.6 | 2,326.5 | 2,126.4 | 200.14 | 11.625 | |
| 13,300.0 | 7,075.9 | 7,553.9 | 7,117.0 | 170.7 | 42.1 | -93.04 | 261.5 | -3,460.7 | 2,417.5 | 2,214.6 | 202.89 | 11.915 | |
| 13,400.0 | 7,075.7 | 7,557.6 | 7,120.7 | 173.5 | 42.1 | -93.25 | 261.4 | -3,460.8 | 2,509.2 | 2,303.5 | 205.65 | 12.201 | |
| 13,500.0 | 7,075.5 | 7,561.5 | 7,124.6 | 176.3 | 42.1 | -93.48 | 261.3 | -3,461.0 | 2,601.5 | 2,393.1 | 208.40 | 12.483 | |
| 13,600.0 | 7,075.3 | 7,565.5 | 7,128.6 | 179.1 | 42.1 | -93.71 | 261.2 | -3,461.1 | 2,694.3 | 2,483.2 | 211.14 | 12.761 | |
| 13,700.0 | 7,075.1 | 7,569.6 | 7,132.7 | 181.9 | 42.1 | -93.95 | 261.1 | -3,461.3 | 2,787.6 | 2,573.7 | 213.88 | 13.034 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 20SD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 155-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.0 | 7,074.9 | 7,574.0 | 7,137.1 | 184.7 | 42.1 | -94.20 | 261.0 | -3,461.4 | 2,881.4 | 2,664.8 | 216.61 | 13.302 | |
| 13,900.0 | 7,074.7 | 7,578.5 | 7,141.6 | 187.5 | 42.1 | -94.46 | 260.9 | -3,461.6 | 2,975.5 | 2,756.2 | 219.33 | 13.567 | |
| 14,000.0 | 7,074.5 | 7,583.2 | 7,146.3 | 190.2 | 42.1 | -94.73 | 260.8 | -3,461.8 | 3,070.1 | 2,848.0 | 222.05 | 13.826 | |
| 14,100.0 | 7,074.2 | 7,588.0 | 7,151.1 | 193.0 | 42.1 | -95.01 | 260.7 | -3,462.0 | 3,164.9 | 2,940.2 | 224.75 | 14.082 | |
| 14,200.0 | 7,074.0 | 7,593.1 | 7,156.2 | 195.8 | 42.1 | -95.30 | 260.5 | -3,462.2 | 3,260.1 | 3,032.6 | 227.45 | 14.333 | |
| 14,221.4 | 7,074.0 | 7,594.2 | 7,157.3 | 196.4 | 42.1 | -95.37 | 260.5 | -3,462.2 | 3,280.5 | 3,052.4 | 228.02 | 14.387 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 20VD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 672-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -46.22 | 1,901.8 | -1,984.5 | 2,748.7 | | | | |
| 100.0 | 100.0 | 82.4 | 82.4 | 0.1 | 0.1 | -46.22 | 1,901.7 | -1,984.6 | 2,748.7 | 2,748.5 | 0.17 | N/A | |
| 200.0 | 200.0 | 180.0 | 180.0 | 0.3 | 0.2 | -46.23 | 1,901.6 | -1,984.8 | 2,748.8 | 2,748.3 | 0.48 | 5,675.131 | |
| 300.0 | 300.0 | 277.6 | 277.6 | 0.5 | 0.3 | -46.24 | 1,901.5 | -1,985.3 | 2,749.0 | 2,748.2 | 0.80 | 3,448.611 | |
| 400.0 | 400.0 | 375.1 | 375.1 | 0.8 | 0.3 | -46.25 | 1,901.2 | -1,985.9 | 2,749.3 | 2,748.2 | 1.11 | 2,477.055 | |
| 500.0 | 500.0 | 472.7 | 472.6 | 1.0 | 0.4 | -74.64 | 1,900.9 | -1,986.7 | 2,749.2 | 2,747.8 | 1.42 | 1,933.167 | |
| 600.0 | 599.8 | 570.0 | 570.0 | 1.2 | 0.5 | -74.78 | 1,900.6 | -1,987.7 | 2,748.3 | 2,746.6 | 1.74 | 1,582.088 | |
| 700.0 | 699.5 | 672.0 | 672.0 | 1.5 | 0.6 | -75.02 | 1,900.1 | -1,988.9 | 2,746.6 | 2,744.5 | 2.07 | 1,326.005 | |
| 800.0 | 798.7 | 769.9 | 769.9 | 1.7 | 0.8 | -75.34 | 1,899.5 | -1,990.2 | 2,744.0 | 2,741.5 | 2.55 | 1,074.565 | |
| 900.0 | 897.5 | 872.0 | 872.0 | 2.0 | 1.0 | -75.76 | 1,898.8 | -1,991.4 | 2,740.4 | 2,737.4 | 3.06 | 896.173 | |
| 1,000.0 | 995.6 | 953.5 | 953.4 | 2.4 | 1.2 | -76.18 | 1,898.3 | -1,992.6 | 2,736.4 | 2,732.9 | 3.57 | 766.732 | |
| 1,100.0 | 1,093.1 | 1,051.6 | 1,051.6 | 2.8 | 1.4 | -76.75 | 1,897.7 | -1,994.4 | 2,732.0 | 2,727.8 | 4.18 | 653.835 | |
| 1,164.2 | 1,155.2 | 1,113.8 | 1,113.7 | 3.1 | 1.5 | -77.15 | 1,897.3 | -1,995.6 | 2,728.9 | 2,724.3 | 4.60 | 593.594 | |
| 1,200.0 | 1,189.7 | 1,147.9 | 1,147.8 | 3.2 | 1.6 | -77.35 | 1,897.1 | -1,996.2 | 2,727.1 | 2,722.2 | 4.84 | 563.674 | |
| 1,300.0 | 1,286.2 | 1,242.5 | 1,242.4 | 3.7 | 1.8 | -77.90 | 1,896.5 | -1,998.1 | 2,722.3 | 2,716.8 | 5.53 | 492.694 | |
| 1,400.0 | 1,382.6 | 1,374.8 | 1,374.7 | 4.2 | 2.1 | -78.65 | 1,895.2 | -1,999.5 | 2,716.9 | 2,710.6 | 6.29 | 431.637 | |
| 1,500.0 | 1,479.1 | 1,472.4 | 1,472.2 | 4.7 | 2.3 | -79.21 | 1,894.3 | -1,999.8 | 2,711.3 | 2,704.3 | 6.99 | 387.635 | |
| 1,600.0 | 1,575.6 | 1,567.3 | 1,567.2 | 5.3 | 2.5 | -79.75 | 1,893.5 | -2,000.2 | 2,706.1 | 2,698.4 | 7.70 | 351.492 | |
| 1,700.0 | 1,672.0 | 1,662.4 | 1,662.3 | 5.8 | 2.7 | -80.28 | 1,892.8 | -2,000.4 | 2,701.1 | 2,692.7 | 8.41 | 321.119 | |
| 1,800.0 | 1,768.5 | 1,752.6 | 1,752.4 | 6.3 | 2.9 | -80.80 | 1,892.2 | -2,000.7 | 2,696.5 | 2,687.3 | 9.12 | 295.705 | |
| 1,900.0 | 1,864.9 | 1,840.7 | 1,840.6 | 6.8 | 3.0 | -81.30 | 1,891.8 | -2,001.2 | 2,692.4 | 2,682.6 | 9.83 | 273.978 | |
| 2,000.0 | 1,961.4 | 1,930.4 | 1,930.3 | 7.4 | 3.2 | -81.80 | 1,891.7 | -2,001.9 | 2,688.9 | 2,678.3 | 10.54 | 255.005 | |
| 2,100.0 | 2,057.9 | 2,013.7 | 2,013.6 | 7.9 | 3.4 | -82.29 | 1,891.3 | -2,002.9 | 2,685.9 | 2,674.6 | 11.25 | 238.654 | |
| 2,200.0 | 2,154.3 | 2,089.6 | 2,089.4 | 8.4 | 3.6 | -82.76 | 1,890.2 | -2,005.1 | 2,683.9 | 2,671.9 | 11.95 | 224.509 | |
| 2,300.0 | 2,250.8 | 2,169.0 | 2,168.7 | 9.0 | 3.7 | -83.29 | 1,887.3 | -2,009.0 | 2,682.6 | 2,669.9 | 12.67 | 211.734 | |
| 2,376.1 | 2,324.2 | 2,231.1 | 2,230.5 | 9.4 | 3.9 | -83.74 | 1,884.1 | -2,013.0 | 2,682.2 | 2,669.0 | 13.22 | 202.816 | |
| 2,400.0 | 2,347.3 | 2,247.5 | 2,246.8 | 9.5 | 3.9 | -83.86 | 1,883.2 | -2,014.2 | 2,682.3 | 2,668.9 | 13.39 | 200.288 | |
| 2,500.0 | 2,443.7 | 2,356.0 | 2,354.7 | 10.0 | 4.2 | -84.70 | 1,875.7 | -2,023.2 | 2,682.7 | 2,668.5 | 14.20 | 188.927 | |
| 2,600.0 | 2,540.2 | 2,422.1 | 2,420.2 | 10.6 | 4.4 | -85.25 | 1,869.5 | -2,029.8 | 2,683.7 | 2,668.8 | 14.91 | 179.943 | |
| 2,700.0 | 2,636.7 | 2,479.8 | 2,477.1 | 11.1 | 4.6 | -85.75 | 1,863.5 | -2,036.7 | 2,686.3 | 2,670.7 | 15.62 | 172.014 | |
| 2,800.0 | 2,733.1 | 2,543.0 | 2,539.1 | 11.6 | 4.7 | -86.34 | 1,855.4 | -2,046.3 | 2,690.8 | 2,674.5 | 16.35 | 164.604 | |
| 2,900.0 | 2,829.6 | 2,596.1 | 2,590.9 | 12.2 | 4.9 | -86.86 | 1,847.9 | -2,055.4 | 2,697.1 | 2,680.1 | 17.06 | 158.077 | |
| 3,000.0 | 2,926.0 | 2,691.9 | 2,684.2 | 12.7 | 5.3 | -87.80 | 1,834.7 | -2,072.3 | 2,704.8 | 2,686.9 | 17.91 | 151.018 | |
| 3,100.0 | 3,022.5 | 2,781.3 | 2,771.6 | 13.2 | 5.5 | -88.64 | 1,823.0 | -2,087.0 | 2,712.5 | 2,693.8 | 18.72 | 144.898 | |
| 3,200.0 | 3,119.0 | 2,851.7 | 2,840.6 | 13.8 | 5.8 | -89.29 | 1,814.6 | -2,098.6 | 2,721.5 | 2,702.1 | 19.48 | 139.734 | |
| 3,300.0 | 3,215.4 | 2,928.3 | 2,915.4 | 14.3 | 6.0 | -90.01 | 1,805.1 | -2,112.1 | 2,731.9 | 2,711.6 | 20.27 | 134.779 | |
| 3,400.0 | 3,311.9 | 3,078.4 | 3,062.0 | 14.9 | 6.6 | -91.43 | 1,784.9 | -2,137.3 | 2,741.8 | 2,720.5 | 21.30 | 128.728 | |
| 3,500.0 | 3,408.4 | 3,165.3 | 3,147.2 | 15.4 | 6.9 | -92.21 | 1,774.1 | -2,150.5 | 2,751.6 | 2,729.5 | 22.10 | 124.492 | |
| 3,600.0 | 3,504.8 | 3,240.0 | 3,220.6 | 15.9 | 7.1 | -92.86 | 1,765.9 | -2,161.7 | 2,762.5 | 2,739.6 | 22.87 | 120.797 | |
| 3,700.0 | 3,601.3 | 3,310.4 | 3,289.7 | 16.5 | 7.4 | -93.47 | 1,758.4 | -2,172.6 | 2,774.5 | 2,750.9 | 23.63 | 117.437 | |
| 3,800.0 | 3,697.7 | 3,386.0 | 3,363.9 | 17.0 | 7.7 | -94.12 | 1,750.6 | -2,185.0 | 2,788.0 | 2,763.6 | 24.40 | 114.241 | |
| 3,900.0 | 3,794.2 | 3,479.0 | 3,455.0 | 17.5 | 8.0 | -94.93 | 1,740.3 | -2,200.7 | 2,802.2 | 2,777.0 | 25.24 | 111.034 | |
| 4,000.0 | 3,890.7 | 3,557.2 | 3,531.5 | 18.1 | 8.3 | -95.61 | 1,731.5 | -2,213.9 | 2,817.0 | 2,791.0 | 26.01 | 108.289 | |
| 4,100.0 | 3,987.1 | 3,717.1 | 3,688.3 | 18.6 | 9.0 | -96.99 | 1,712.1 | -2,239.0 | 2,830.9 | 2,803.9 | 27.03 | 104.717 | |
| 4,200.0 | 4,083.6 | 3,802.0 | 3,771.2 | 19.2 | 9.3 | -97.76 | 1,699.5 | -2,252.5 | 2,845.0 | 2,817.2 | 27.84 | 102.200 | |
| 4,300.0 | 4,180.1 | 3,959.1 | 3,925.0 | 19.7 | 9.9 | -99.13 | 1,677.8 | -2,275.4 | 2,859.2 | 2,830.4 | 28.83 | 99.162 | |
| 4,400.0 | 4,276.5 | 4,134.9 | 4,098.7 | 20.2 | 10.5 | -100.51 | 1,658.4 | -2,294.6 | 2,871.6 | 2,841.8 | 29.81 | 96.346 | |
| 4,500.0 | 4,373.0 | 4,341.1 | 4,303.9 | 20.8 | 11.0 | -101.91 | 1,643.7 | -2,307.1 | 2,880.9 | 2,850.2 | 30.74 | 93.729 | |
| 4,600.0 | 4,469.5 | 4,480.4 | 4,443.1 | 21.3 | 11.3 | -102.70 | 1,640.3 | -2,309.4 | 2,887.7 | 2,856.2 | 31.46 | 91.780 | |
| 4,700.0 | 4,565.9 | 4,618.9 | 4,581.6 | 21.9 | 11.5 | -103.44 | 1,638.5 | -2,309.4 | 2,893.5 | 2,861.3 | 32.17 | 89.946 | |
| 4,800.0 | 4,662.4 | 4,717.5 | 4,680.2 | 22.4 | 11.7 | -103.96 | 1,637.0 | -2,308.6 | 2,898.8 | 2,865.9 | 32.82 | 88.320 | |
| 4,900.0 | 4,758.8 | 4,811.8 | 4,774.4 | 22.9 | 11.8 | -104.46 | 1,635.8 | -2,307.8 | 2,904.3 | 2,870.9 | 33.47 | 86.784 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 20VD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 672-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,000.0 | 4,855.3 | 4,904.3 | 4,867.0 | 23.5 | 12.0 | -104.94 | 1,634.8 | -2,307.1 | 2,910.2 | 2,876.1 | 34.11 | 85.326 | |
| 5,100.0 | 4,951.8 | 4,991.1 | 4,953.8 | 24.0 | 12.1 | -105.39 | 1,633.9 | -2,306.6 | 2,916.5 | 2,881.8 | 34.74 | 83.955 | |
| 5,200.0 | 5,048.2 | 5,081.6 | 5,044.3 | 24.6 | 12.3 | -105.85 | 1,633.2 | -2,306.3 | 2,923.4 | 2,888.0 | 35.38 | 82.639 | |
| 5,300.0 | 5,144.7 | 5,178.8 | 5,141.5 | 25.1 | 12.4 | -106.35 | 1,632.6 | -2,306.0 | 2,930.5 | 2,894.5 | 36.02 | 81.366 | |
| 5,400.0 | 5,241.2 | 5,271.6 | 5,234.2 | 25.6 | 12.6 | -106.81 | 1,632.1 | -2,305.8 | 2,937.9 | 2,901.3 | 36.65 | 80.161 | |
| 5,500.0 | 5,337.6 | 5,365.7 | 5,328.4 | 26.2 | 12.7 | -107.28 | 1,631.8 | -2,305.6 | 2,945.6 | 2,908.3 | 37.28 | 79.004 | |
| 5,600.0 | 5,434.1 | 5,462.2 | 5,424.9 | 26.7 | 12.9 | -107.76 | 1,631.7 | -2,305.4 | 2,953.6 | 2,915.7 | 37.92 | 77.893 | |
| 5,700.0 | 5,530.5 | 5,563.0 | 5,525.6 | 27.3 | 13.1 | -108.24 | 1,632.1 | -2,305.0 | 2,961.7 | 2,923.2 | 38.55 | 76.818 | |
| 5,757.1 | 5,585.6 | 5,614.5 | 5,577.1 | 27.6 | 13.2 | -108.48 | 1,632.4 | -2,304.8 | 2,966.4 | 2,927.5 | 38.91 | 76.240 | |
| 5,800.0 | 5,627.1 | 5,650.1 | 5,612.7 | 27.8 | 13.2 | -108.71 | 1,632.6 | -2,304.7 | 2,970.0 | 2,930.8 | 39.14 | 75.882 | |
| 5,900.0 | 5,724.4 | 5,725.0 | 5,687.6 | 28.2 | 13.4 | -109.18 | 1,633.1 | -2,304.8 | 2,978.0 | 2,938.4 | 39.59 | 75.226 | |
| 6,000.0 | 5,822.4 | 5,819.0 | 5,781.6 | 28.5 | 13.5 | -109.64 | 1,633.9 | -2,305.4 | 2,985.4 | 2,945.4 | 40.03 | 74.582 | |
| 6,100.0 | 5,921.0 | 5,912.0 | 5,874.6 | 28.8 | 13.7 | -110.02 | 1,635.2 | -2,306.2 | 2,992.1 | 2,951.6 | 40.44 | 73.993 | |
| 6,200.0 | 6,020.2 | 6,006.0 | 5,968.6 | 29.0 | 13.8 | -110.32 | 1,636.7 | -2,307.1 | 2,997.8 | 2,956.9 | 40.81 | 73.451 | |
| 6,300.0 | 6,119.7 | 6,112.2 | 6,074.8 | 29.3 | 14.0 | -110.56 | 1,638.0 | -2,308.1 | 3,002.2 | 2,961.0 | 41.18 | 72.912 | |
| 6,400.0 | 6,219.5 | 6,207.2 | 6,169.8 | 29.4 | 14.2 | -110.71 | 1,638.8 | -2,309.0 | 3,005.4 | 2,963.9 | 41.49 | 72.432 | |
| 6,500.0 | 6,319.5 | 6,308.7 | 6,271.3 | 29.5 | 14.4 | -110.77 | 1,639.7 | -2,310.0 | 3,007.3 | 2,965.5 | 41.79 | 71.963 | |
| 6,521.3 | 6,340.8 | 6,328.8 | 6,291.4 | 29.6 | 14.4 | -82.43 | 1,639.8 | -2,310.2 | 3,007.6 | 2,975.1 | 32.53 | 92.469 | |
| 6,551.3 | 6,370.8 | 6,357.1 | 6,319.7 | 29.6 | 14.5 | -82.43 | 1,640.1 | -2,310.5 | 3,007.9 | 2,975.3 | 32.62 | 92.203 | |
| 6,600.0 | 6,419.5 | 6,405.9 | 6,368.5 | 29.6 | 14.6 | 7.59 | 1,640.4 | -2,311.1 | 3,006.9 | 2,964.9 | 41.97 | 71.638 | |
| 6,650.0 | 6,469.2 | 6,458.9 | 6,421.4 | 29.6 | 14.7 | 7.66 | 1,640.7 | -2,311.6 | 3,002.4 | 2,960.5 | 41.85 | 71.736 | |
| 6,700.0 | 6,518.4 | 6,511.5 | 6,474.1 | 29.6 | 14.8 | 7.77 | 1,640.8 | -2,312.2 | 2,994.3 | 2,952.8 | 41.56 | 72.044 | |
| 6,750.0 | 6,567.0 | 6,563.5 | 6,526.0 | 29.6 | 14.9 | 7.93 | 1,640.8 | -2,312.6 | 2,982.9 | 2,941.8 | 41.11 | 72.567 | |
| 6,800.0 | 6,614.5 | 6,608.2 | 6,570.8 | 29.6 | 14.9 | 8.14 | 1,640.7 | -2,313.1 | 2,968.1 | 2,927.6 | 40.48 | 73.329 | |
| 6,850.0 | 6,660.9 | 6,651.5 | 6,614.1 | 29.5 | 15.0 | 8.40 | 1,640.6 | -2,313.5 | 2,950.1 | 2,910.4 | 39.69 | 74.324 | |
| 6,900.0 | 6,705.9 | 6,699.2 | 6,661.8 | 29.4 | 15.1 | 8.74 | 1,640.4 | -2,314.0 | 2,928.9 | 2,890.1 | 38.78 | 75.533 | |
| 6,950.0 | 6,749.2 | 6,746.8 | 6,709.3 | 29.3 | 15.2 | 9.16 | 1,640.0 | -2,314.5 | 2,904.6 | 2,866.9 | 37.73 | 76.981 | |
| 7,000.0 | 6,790.7 | 6,789.3 | 6,751.9 | 29.2 | 15.3 | 9.67 | 1,639.7 | -2,314.9 | 2,877.3 | 2,840.8 | 36.56 | 78.693 | |
| 7,050.0 | 6,830.2 | 6,829.2 | 6,791.8 | 29.1 | 15.4 | 10.29 | 1,639.3 | -2,315.3 | 2,847.3 | 2,812.0 | 35.30 | 80.664 | |
| 7,100.0 | 6,867.4 | 6,868.2 | 6,830.7 | 29.0 | 15.4 | 11.05 | 1,638.9 | -2,315.7 | 2,814.5 | 2,780.5 | 33.96 | 82.871 | |
| 7,150.0 | 6,902.2 | 6,905.7 | 6,868.3 | 28.9 | 15.5 | 11.99 | 1,638.5 | -2,316.0 | 2,779.2 | 2,746.6 | 32.59 | 85.277 | |
| 7,200.0 | 6,934.4 | 6,940.5 | 6,903.0 | 28.7 | 15.6 | 13.16 | 1,638.1 | -2,316.3 | 2,741.6 | 2,710.3 | 31.22 | 87.810 | |
| 7,250.0 | 6,963.8 | 6,970.3 | 6,932.8 | 28.6 | 15.6 | 14.61 | 1,637.8 | -2,316.5 | 2,701.8 | 2,671.9 | 29.91 | 90.334 | |
| 7,300.0 | 6,990.4 | 6,997.2 | 6,959.7 | 28.5 | 15.7 | 16.45 | 1,637.4 | -2,316.7 | 2,660.0 | 2,631.3 | 28.74 | 92.561 | |
| 7,350.0 | 7,013.9 | 7,021.1 | 6,983.6 | 28.4 | 15.7 | 18.86 | 1,637.2 | -2,316.9 | 2,616.6 | 2,588.7 | 27.83 | 94.036 | |
| 7,400.0 | 7,034.4 | 7,042.3 | 7,004.8 | 28.2 | 15.8 | 22.07 | 1,636.9 | -2,317.0 | 2,571.6 | 2,544.2 | 27.34 | 94.065 | |
| 7,450.0 | 7,051.5 | 7,060.9 | 7,023.4 | 28.1 | 15.8 | 26.52 | 1,636.7 | -2,317.2 | 2,525.3 | 2,497.8 | 27.52 | 91.763 | |
| 7,500.0 | 7,065.4 | 7,075.9 | 7,038.4 | 28.0 | 15.8 | 32.88 | 1,636.5 | -2,317.3 | 2,477.9 | 2,449.2 | 28.69 | 86.376 | |
| 7,550.0 | 7,075.9 | 7,087.3 | 7,049.8 | 27.9 | 15.9 | 42.32 | 1,636.4 | -2,317.3 | 2,429.7 | 2,398.5 | 31.18 | 77.925 | |
| 7,600.0 | 7,082.9 | 7,095.1 | 7,057.6 | 27.8 | 15.9 | 56.52 | 1,636.3 | -2,317.4 | 2,380.9 | 2,346.0 | 34.93 | 68.172 | |
| 7,650.0 | 7,086.5 | 7,099.1 | 7,061.6 | 27.7 | 15.9 | 76.56 | 1,636.3 | -2,317.4 | 2,331.8 | 2,293.6 | 38.21 | 61.022 | |
| 7,677.7 | 7,087.0 | 7,099.8 | 7,062.3 | 27.6 | 15.9 | 89.30 | 1,636.3 | -2,317.4 | 2,304.5 | 2,265.9 | 38.58 | 59.737 | |
| 7,700.0 | 7,087.0 | 7,099.9 | 7,062.4 | 27.6 | 15.9 | 89.31 | 1,636.3 | -2,317.4 | 2,282.5 | 2,243.6 | 38.89 | 58.697 | |
| 7,800.0 | 7,086.8 | 7,100.3 | 7,062.8 | 27.5 | 15.9 | 89.37 | 1,636.3 | -2,317.4 | 2,184.1 | 2,143.7 | 40.42 | 54.038 | |
| 7,900.0 | 7,086.6 | 7,100.7 | 7,063.2 | 27.9 | 15.9 | 89.43 | 1,636.3 | -2,317.4 | 2,085.8 | 2,043.6 | 42.16 | 49.478 | |
| 8,000.0 | 7,086.4 | 7,101.1 | 7,063.6 | 29.5 | 15.9 | 89.49 | 1,636.3 | -2,317.4 | 1,987.6 | 1,943.6 | 44.06 | 45.110 | |
| 8,100.0 | 7,086.2 | 7,101.5 | 7,064.0 | 31.5 | 15.9 | 89.55 | 1,636.3 | -2,317.4 | 1,889.7 | 1,843.6 | 46.11 | 40.986 | |
| 8,200.0 | 7,086.0 | 7,101.9 | 7,064.4 | 33.7 | 15.9 | 89.60 | 1,636.3 | -2,317.4 | 1,792.0 | 1,743.8 | 48.26 | 37.130 | |
| 8,300.0 | 7,085.8 | 7,102.3 | 7,064.8 | 36.0 | 15.9 | 89.66 | 1,636.3 | -2,317.4 | 1,694.6 | 1,644.1 | 50.51 | 33.548 | |
| 8,400.0 | 7,085.6 | 7,102.7 | 7,065.2 | 38.3 | 15.9 | 89.72 | 1,636.3 | -2,317.4 | 1,597.5 | 1,544.6 | 52.84 | 30.235 | |
| 8,500.0 | 7,085.4 | 7,103.0 | 7,065.6 | 40.7 | 15.9 | 89.78 | 1,636.3 | -2,317.4 | 1,500.7 | 1,445.5 | 55.22 | 27.177 | |
| 8,600.0 | 7,085.2 | 7,103.4 | 7,065.9 | 43.1 | 15.9 | 89.83 | 1,636.3 | -2,317.4 | 1,404.5 | 1,346.8 | 57.66 | 24.358 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 20VD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 672-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.0 | 7,085.0 | 7,103.8 | 7,066.3 | 45.6 | 15.9 | 89.89 | 1,636.3 | -2,317.4 | 1,308.7 | 1,248.6 | 60.14 | 21.761 | |
| 8,800.0 | 7,084.8 | 7,104.2 | 7,066.7 | 48.1 | 15.9 | 89.94 | 1,636.3 | -2,317.4 | 1,213.7 | 1,151.1 | 62.66 | 19.371 | |
| 8,900.0 | 7,084.6 | 7,104.6 | 7,067.1 | 50.7 | 15.9 | 90.00 | 1,636.3 | -2,317.4 | 1,119.5 | 1,054.3 | 65.21 | 17.170 | |
| 9,000.0 | 7,084.4 | 7,104.9 | 7,067.5 | 53.2 | 15.9 | 90.05 | 1,636.2 | -2,317.4 | 1,026.5 | 958.7 | 67.78 | 15.144 | |
| 9,100.0 | 7,084.2 | 7,105.3 | 7,067.8 | 55.8 | 15.9 | 90.11 | 1,636.2 | -2,317.4 | 934.9 | 864.5 | 70.38 | 13.284 | |
| 9,200.0 | 7,084.0 | 7,105.7 | 7,068.2 | 58.4 | 15.9 | 90.16 | 1,636.2 | -2,317.4 | 845.1 | 772.1 | 72.99 | 11.578 | |
| 9,300.0 | 7,083.8 | 7,106.1 | 7,068.6 | 61.1 | 15.9 | 90.22 | 1,636.2 | -2,317.4 | 758.0 | 682.4 | 75.63 | 10.023 | |
| 9,400.0 | 7,083.7 | 7,106.4 | 7,068.9 | 63.7 | 15.9 | 90.27 | 1,636.2 | -2,317.4 | 674.4 | 596.1 | 78.28 | 8.616 | |
| 9,500.0 | 7,083.5 | 7,106.8 | 7,069.3 | 66.3 | 15.9 | 90.32 | 1,636.2 | -2,317.4 | 595.9 | 515.0 | 80.94 | 7.363 | |
| 9,600.0 | 7,083.3 | 7,107.1 | 7,069.7 | 69.0 | 15.9 | 90.38 | 1,636.2 | -2,317.4 | 524.8 | 441.2 | 83.61 | 6.277 | |
| 9,700.0 | 7,083.1 | 7,107.5 | 7,070.0 | 71.7 | 15.9 | 90.43 | 1,636.2 | -2,317.4 | 464.4 | 378.1 | 86.30 | 5.382 | |
| 9,800.0 | 7,082.9 | 7,107.9 | 7,070.4 | 74.4 | 15.9 | 90.48 | 1,636.2 | -2,317.4 | 419.5 | 330.5 | 88.99 | 4.714 | |
| 9,900.0 | 7,082.7 | 7,108.2 | 7,070.7 | 77.1 | 15.9 | 90.53 | 1,636.2 | -2,317.5 | 395.3 | 303.6 | 91.69 | 4.312 | |
| 9,948.6 | 7,082.6 | 7,108.4 | 7,070.9 | 78.4 | 15.9 | 90.56 | 1,636.2 | -2,317.5 | 392.3 | 299.3 | 93.00 | 4.218 | CC, ES |
| 10,000.0 | 7,082.5 | 7,108.6 | 7,071.1 | 79.7 | 15.9 | 90.58 | 1,636.2 | -2,317.5 | 395.7 | 301.3 | 94.40 | 4.192 | SF |
| 10,100.0 | 7,082.3 | 7,108.9 | 7,071.4 | 82.5 | 15.9 | 90.64 | 1,636.2 | -2,317.5 | 420.5 | 323.4 | 97.11 | 4.331 | |
| 10,200.0 | 7,082.1 | 7,109.3 | 7,071.8 | 85.2 | 15.9 | 90.69 | 1,636.2 | -2,317.5 | 466.0 | 366.2 | 99.83 | 4.668 | |
| 10,300.0 | 7,081.9 | 7,109.6 | 7,072.1 | 87.9 | 15.9 | 90.74 | 1,636.2 | -2,317.5 | 526.7 | 424.2 | 102.56 | 5.136 | |
| 10,400.0 | 7,081.7 | 7,110.0 | 7,072.5 | 90.6 | 15.9 | 90.79 | 1,636.2 | -2,317.5 | 598.1 | 492.8 | 105.29 | 5.681 | |
| 10,500.0 | 7,081.5 | 7,110.3 | 7,072.8 | 93.3 | 15.9 | 90.84 | 1,636.2 | -2,317.5 | 676.8 | 568.7 | 108.02 | 6.265 | |
| 10,600.0 | 7,081.3 | 7,110.6 | 7,073.2 | 96.1 | 15.9 | 90.89 | 1,636.2 | -2,317.5 | 760.5 | 649.7 | 110.76 | 6.866 | |
| 10,700.0 | 7,081.1 | 7,111.0 | 7,073.5 | 98.8 | 15.9 | 90.94 | 1,636.2 | -2,317.5 | 847.7 | 734.2 | 113.50 | 7.468 | |
| 10,800.0 | 7,080.9 | 7,111.3 | 7,073.8 | 101.5 | 15.9 | 90.99 | 1,636.2 | -2,317.5 | 937.5 | 821.2 | 116.25 | 8.064 | |
| 10,900.0 | 7,080.7 | 7,111.7 | 7,074.2 | 104.3 | 15.9 | 91.03 | 1,636.2 | -2,317.5 | 1,029.2 | 910.2 | 119.00 | 8.648 | |
| 11,000.0 | 7,080.5 | 7,112.0 | 7,074.5 | 107.0 | 15.9 | 91.08 | 1,636.2 | -2,317.5 | 1,122.2 | 1,000.5 | 121.75 | 9.218 | |
| 11,100.0 | 7,080.3 | 7,112.3 | 7,074.8 | 109.8 | 15.9 | 91.13 | 1,636.2 | -2,317.5 | 1,216.4 | 1,091.9 | 124.51 | 9.770 | |
| 11,200.0 | 7,080.1 | 7,112.7 | 7,075.2 | 112.5 | 15.9 | 91.18 | 1,636.2 | -2,317.5 | 1,311.5 | 1,184.2 | 127.26 | 10.305 | |
| 11,300.0 | 7,079.9 | 7,113.0 | 7,075.5 | 115.3 | 15.9 | 91.23 | 1,636.2 | -2,317.5 | 1,407.2 | 1,277.2 | 130.02 | 10.823 | |
| 11,400.0 | 7,079.7 | 7,113.3 | 7,075.8 | 118.0 | 15.9 | 91.27 | 1,636.2 | -2,317.5 | 1,503.5 | 1,370.7 | 132.78 | 11.323 | |
| 11,500.0 | 7,079.5 | 7,113.6 | 7,076.1 | 120.8 | 15.9 | 91.32 | 1,636.2 | -2,317.5 | 1,600.3 | 1,464.7 | 135.54 | 11.806 | |
| 11,600.0 | 7,079.3 | 7,114.0 | 7,076.5 | 123.6 | 15.9 | 91.37 | 1,636.2 | -2,317.5 | 1,697.4 | 1,559.1 | 138.31 | 12.272 | |
| 11,700.0 | 7,079.1 | 7,114.3 | 7,076.8 | 126.3 | 15.9 | 91.41 | 1,636.2 | -2,317.5 | 1,794.8 | 1,653.8 | 141.08 | 12.723 | |
| 11,800.0 | 7,078.9 | 7,114.6 | 7,077.1 | 129.1 | 15.9 | 91.46 | 1,636.2 | -2,317.5 | 1,892.5 | 1,748.7 | 143.84 | 13.157 | |
| 11,900.0 | 7,078.7 | 7,114.9 | 7,077.4 | 131.9 | 15.9 | 91.51 | 1,636.2 | -2,317.5 | 1,990.5 | 1,843.9 | 146.61 | 13.577 | |
| 12,000.0 | 7,078.5 | 7,115.2 | 7,077.7 | 134.6 | 15.9 | 91.55 | 1,636.1 | -2,317.5 | 2,088.6 | 1,939.2 | 149.38 | 13.982 | |
| 12,100.0 | 7,078.3 | 7,115.5 | 7,078.0 | 137.4 | 15.9 | 91.60 | 1,636.1 | -2,317.5 | 2,186.9 | 2,034.8 | 152.15 | 14.373 | |
| 12,200.0 | 7,078.1 | 7,115.8 | 7,078.4 | 140.2 | 15.9 | 91.64 | 1,636.1 | -2,317.5 | 2,285.4 | 2,130.4 | 154.93 | 14.751 | |
| 12,300.0 | 7,077.9 | 7,116.2 | 7,078.7 | 142.9 | 15.9 | 91.69 | 1,636.1 | -2,317.5 | 2,383.9 | 2,226.2 | 157.70 | 15.117 | |
| 12,400.0 | 7,077.7 | 7,116.5 | 7,079.0 | 145.7 | 15.9 | 91.73 | 1,636.1 | -2,317.5 | 2,482.6 | 2,322.2 | 160.47 | 15.471 | |
| 12,500.0 | 7,077.5 | 7,116.8 | 7,079.3 | 148.5 | 15.9 | 91.77 | 1,636.1 | -2,317.5 | 2,581.4 | 2,418.2 | 163.25 | 15.813 | |
| 12,600.0 | 7,077.3 | 7,117.1 | 7,079.6 | 151.3 | 15.9 | 91.82 | 1,636.1 | -2,317.5 | 2,680.3 | 2,514.3 | 166.03 | 16.144 | |
| 12,700.0 | 7,077.1 | 7,117.4 | 7,079.9 | 154.0 | 15.9 | 91.86 | 1,636.1 | -2,317.5 | 2,779.3 | 2,610.5 | 168.80 | 16.465 | |
| 12,800.0 | 7,076.9 | 7,117.7 | 7,080.2 | 156.8 | 15.9 | 91.90 | 1,636.1 | -2,317.5 | 2,878.3 | 2,706.7 | 171.58 | 16.775 | |
| 12,900.0 | 7,076.7 | 7,118.0 | 7,080.5 | 159.6 | 15.9 | 91.95 | 1,636.1 | -2,317.5 | 2,977.4 | 2,803.0 | 174.36 | 17.076 | |
| 13,000.0 | 7,076.5 | 7,118.3 | 7,080.8 | 162.4 | 15.9 | 91.99 | 1,636.1 | -2,317.5 | 3,076.5 | 2,899.4 | 177.14 | 17.368 | |
| 13,100.0 | 7,076.3 | 7,118.6 | 7,081.1 | 165.2 | 15.9 | 92.03 | 1,636.1 | -2,317.5 | 3,175.8 | 2,995.8 | 179.92 | 17.651 | |
| 13,200.0 | 7,076.1 | 7,118.9 | 7,081.4 | 168.0 | 15.9 | 92.07 | 1,636.1 | -2,317.5 | 3,275.0 | 3,092.3 | 182.70 | 17.926 | |
| 13,300.0 | 7,075.9 | 7,119.2 | 7,081.7 | 170.7 | 15.9 | 92.12 | 1,636.1 | -2,317.5 | 3,374.3 | 3,188.8 | 185.48 | 18.193 | |
| 13,400.0 | 7,075.7 | 7,119.5 | 7,082.0 | 173.5 | 15.9 | 92.16 | 1,636.1 | -2,317.5 | 3,473.7 | 3,285.4 | 188.26 | 18.451 | |
| 13,500.0 | 7,075.5 | 7,119.7 | 7,082.3 | 176.3 | 15.9 | 92.20 | 1,636.1 | -2,317.5 | 3,573.0 | 3,382.0 | 191.04 | 18.703 | |
| 13,600.0 | 7,075.3 | 7,120.0 | 7,082.5 | 179.1 | 15.9 | 92.24 | 1,636.1 | -2,317.5 | 3,672.4 | 3,478.6 | 193.82 | 18.947 | |
| 13,700.0 | 7,075.1 | 7,120.3 | 7,082.8 | 181.9 | 15.9 | 92.28 | 1,636.1 | -2,317.5 | 3,771.9 | 3,575.3 | 196.60 | 19.185 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 20VD - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 672-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.0 | 7,074.9 | 7,120.6 | 7,083.1 | 184.7 | 15.9 | 92.32 | 1,636.1 | -2,317.5 | 3,871.4 | 3,672.0 | 199.39 | 19.416 | |
| 13,900.0 | 7,074.7 | 7,120.9 | 7,083.4 | 187.5 | 15.9 | 92.36 | 1,636.1 | -2,317.5 | 3,970.9 | 3,768.7 | 202.17 | 19.641 | |
| 14,000.0 | 7,074.5 | 7,121.2 | 7,083.7 | 190.2 | 15.9 | 92.40 | 1,636.1 | -2,317.5 | 4,070.4 | 3,865.4 | 204.95 | 19.860 | |
| 14,100.0 | 7,074.2 | 7,121.5 | 7,084.0 | 193.0 | 15.9 | 92.44 | 1,636.1 | -2,317.5 | 4,169.9 | 3,962.2 | 207.74 | 20.073 | |
| 14,200.0 | 7,074.0 | 7,121.7 | 7,084.2 | 195.8 | 15.9 | 92.48 | 1,636.1 | -2,317.5 | 4,269.5 | 4,059.0 | 210.52 | 20.281 | |
| 14,221.4 | 7,074.0 | 7,121.8 | 7,084.3 | 196.4 | 15.9 | 92.49 | 1,636.1 | -2,317.5 | 4,290.8 | 4,079.7 | 211.12 | 20.324 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 31-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 546-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -72.06 | 1,587.8 | -4,904.9 | 5,155.6 | | | | |
| 100.0 | 100.0 | 62.6 | 62.6 | 0.1 | 0.1 | -72.06 | 1,587.8 | -4,904.9 | 5,155.5 | 5,155.3 | 0.15 | N/A | |
| 200.0 | 200.0 | 162.8 | 162.8 | 0.3 | 0.1 | -72.06 | 1,587.7 | -4,904.9 | 5,155.5 | 5,155.0 | 0.47 | N/A | |
| 300.0 | 300.0 | 263.0 | 263.0 | 0.5 | 0.2 | -72.07 | 1,587.5 | -4,905.0 | 5,155.5 | 5,154.7 | 0.78 | 6,602.029 | |
| 400.0 | 400.0 | 363.2 | 363.2 | 0.8 | 0.3 | -72.07 | 1,587.4 | -4,905.0 | 5,155.5 | 5,154.4 | 1.09 | 4,708.797 | |
| 402.1 | 402.1 | 365.3 | 365.3 | 0.8 | 0.3 | -100.41 | 1,587.4 | -4,905.0 | 5,155.5 | 5,154.4 | 1.10 | 4,680.758 | |
| 500.0 | 500.0 | 463.3 | 463.3 | 1.0 | 0.4 | -100.43 | 1,587.1 | -4,905.1 | 5,155.8 | 5,154.4 | 1.41 | 3,664.349 | |
| 600.0 | 599.8 | 558.9 | 558.9 | 1.2 | 0.5 | -100.47 | 1,586.8 | -4,905.2 | 5,156.7 | 5,155.0 | 1.73 | 2,973.571 | |
| 700.0 | 699.5 | 855.4 | 855.2 | 1.5 | 1.1 | -100.68 | 1,592.2 | -4,899.1 | 5,157.8 | 5,155.2 | 2.58 | 2,001.336 | |
| 800.0 | 798.7 | 1,132.1 | 1,129.7 | 1.7 | 1.9 | -100.77 | 1,616.2 | -4,874.7 | 5,153.8 | 5,150.2 | 3.55 | 1,450.919 | |
| 900.0 | 897.5 | 1,238.2 | 1,234.0 | 2.0 | 2.2 | -100.84 | 1,630.6 | -4,862.3 | 5,149.6 | 5,145.4 | 4.20 | 1,227.083 | |
| 1,000.0 | 995.6 | 1,792.3 | 1,770.0 | 2.4 | 4.8 | -100.79 | 1,726.6 | -4,762.5 | 5,139.8 | 5,132.9 | 6.91 | 743.815 | |
| 1,100.0 | 1,093.1 | 1,897.0 | 1,869.9 | 2.8 | 5.4 | -100.99 | 1,746.6 | -4,738.7 | 5,128.2 | 5,120.3 | 7.80 | 657.264 | |
| 1,164.2 | 1,155.2 | 1,984.1 | 1,953.0 | 3.1 | 5.9 | -101.13 | 1,763.3 | -4,718.4 | 5,120.5 | 5,112.0 | 8.51 | 601.487 | |
| 1,200.0 | 1,189.7 | 2,013.3 | 1,980.7 | 3.2 | 6.0 | -101.13 | 1,769.1 | -4,711.5 | 5,116.4 | 5,107.5 | 8.83 | 579.330 | |
| 1,300.0 | 1,286.2 | 2,075.9 | 2,040.3 | 3.7 | 6.4 | -101.12 | 1,781.9 | -4,696.8 | 5,105.1 | 5,095.5 | 9.63 | 530.215 | |
| 1,400.0 | 1,382.6 | 2,136.0 | 2,097.5 | 4.2 | 6.7 | -101.12 | 1,794.3 | -4,683.3 | 5,094.7 | 5,084.3 | 10.42 | 489.024 | |
| 1,500.0 | 1,479.1 | 2,225.0 | 2,182.5 | 4.7 | 7.2 | -101.12 | 1,812.3 | -4,663.9 | 5,084.9 | 5,073.6 | 11.34 | 448.377 | |
| 1,600.0 | 1,575.6 | 2,354.3 | 2,305.7 | 5.3 | 7.9 | -101.11 | 1,838.5 | -4,635.2 | 5,074.7 | 5,062.2 | 12.51 | 405.802 | |
| 1,700.0 | 1,672.0 | 2,511.0 | 2,455.2 | 5.8 | 8.8 | -101.11 | 1,869.5 | -4,599.4 | 5,063.9 | 5,050.1 | 13.82 | 366.426 | |
| 1,800.0 | 1,768.5 | 2,587.0 | 2,527.3 | 6.3 | 9.3 | -101.10 | 1,885.3 | -4,581.4 | 5,052.5 | 5,037.7 | 14.75 | 342.574 | |
| 1,900.0 | 1,864.9 | 2,645.6 | 2,582.8 | 6.8 | 9.6 | -101.09 | 1,898.1 | -4,567.8 | 5,041.7 | 5,026.2 | 15.58 | 323.515 | |
| 2,000.0 | 1,961.4 | 2,702.6 | 2,636.9 | 7.4 | 10.0 | -101.07 | 1,910.9 | -4,554.9 | 5,031.9 | 5,015.5 | 16.41 | 306.595 | |
| 2,100.0 | 2,057.9 | 2,908.9 | 2,833.6 | 7.9 | 11.1 | -101.07 | 1,952.6 | -4,509.3 | 5,022.2 | 5,004.3 | 17.98 | 279.315 | |
| 2,200.0 | 2,154.3 | 3,019.5 | 2,939.2 | 8.4 | 11.8 | -101.08 | 1,973.1 | -4,483.3 | 5,010.3 | 4,991.2 | 19.06 | 262.909 | |
| 2,300.0 | 2,250.8 | 3,093.4 | 3,009.9 | 9.0 | 12.2 | -101.09 | 1,986.6 | -4,466.3 | 4,998.8 | 4,978.9 | 19.94 | 250.712 | |
| 2,400.0 | 2,347.3 | 3,186.1 | 3,098.6 | 9.5 | 12.7 | -101.11 | 2,003.3 | -4,445.4 | 4,987.6 | 4,966.7 | 20.91 | 238.567 | |
| 2,500.0 | 2,443.7 | 3,407.9 | 3,310.3 | 10.0 | 14.0 | -101.15 | 2,043.1 | -4,392.8 | 4,975.4 | 4,952.9 | 22.55 | 220.667 | |
| 2,600.0 | 2,540.2 | 3,447.0 | 3,347.6 | 10.6 | 14.2 | -101.15 | 2,050.1 | -4,383.0 | 4,962.2 | 4,938.9 | 23.28 | 213.188 | |
| 2,700.0 | 2,636.7 | 3,508.2 | 3,405.9 | 11.1 | 14.6 | -101.16 | 2,061.2 | -4,368.2 | 4,949.8 | 4,925.6 | 24.11 | 205.318 | |
| 2,800.0 | 2,733.1 | 3,554.4 | 3,450.1 | 11.6 | 14.8 | -101.17 | 2,069.7 | -4,357.9 | 4,938.7 | 4,913.9 | 24.86 | 198.633 | |
| 2,900.0 | 2,829.6 | 3,647.1 | 3,538.9 | 12.2 | 15.3 | -101.19 | 2,086.8 | -4,337.5 | 4,928.2 | 4,902.4 | 25.84 | 190.731 | |
| 3,000.0 | 2,926.0 | 3,728.0 | 3,616.5 | 12.7 | 15.8 | -101.20 | 2,101.5 | -4,319.9 | 4,917.9 | 4,891.1 | 26.75 | 183.816 | |
| 3,100.0 | 3,022.5 | 3,798.4 | 3,684.0 | 13.2 | 16.2 | -101.22 | 2,114.6 | -4,304.8 | 4,908.0 | 4,880.4 | 27.63 | 177.660 | |
| 3,200.0 | 3,119.0 | 3,871.8 | 3,754.3 | 13.8 | 16.6 | -101.22 | 2,129.0 | -4,289.4 | 4,898.9 | 4,870.3 | 28.53 | 171.728 | |
| 3,300.0 | 3,215.4 | 3,944.8 | 3,824.1 | 14.3 | 17.0 | -101.22 | 2,144.1 | -4,274.2 | 4,890.2 | 4,860.7 | 29.43 | 166.134 | |
| 3,400.0 | 3,311.9 | 4,008.0 | 3,884.5 | 14.9 | 17.3 | -101.22 | 2,157.5 | -4,261.4 | 4,882.1 | 4,851.8 | 30.29 | 161.154 | |
| 3,500.0 | 3,408.4 | 4,102.0 | 3,974.6 | 15.4 | 17.8 | -101.22 | 2,176.7 | -4,242.9 | 4,874.5 | 4,843.2 | 31.29 | 155.765 | |
| 3,600.0 | 3,504.8 | 4,354.3 | 4,217.7 | 15.9 | 19.2 | -101.31 | 2,221.0 | -4,192.0 | 4,865.6 | 4,832.6 | 32.99 | 147.482 | |
| 3,700.0 | 3,601.3 | 4,448.1 | 4,307.6 | 16.5 | 19.7 | -101.33 | 2,238.0 | -4,171.1 | 4,854.8 | 4,820.8 | 33.98 | 142.887 | |
| 3,800.0 | 3,697.7 | 4,511.0 | 4,368.0 | 17.0 | 20.0 | -101.35 | 2,249.1 | -4,157.6 | 4,844.6 | 4,809.8 | 34.80 | 139.202 | |
| 3,900.0 | 3,794.2 | 4,570.0 | 4,424.8 | 17.5 | 20.3 | -101.38 | 2,259.4 | -4,145.5 | 4,835.3 | 4,799.7 | 35.60 | 135.810 | |
| 4,000.0 | 3,890.7 | 4,607.4 | 4,461.0 | 18.1 | 20.5 | -101.39 | 2,265.7 | -4,138.4 | 4,827.0 | 4,790.7 | 36.29 | 133.008 | |
| 4,100.0 | 3,987.1 | 4,663.0 | 4,515.1 | 18.6 | 20.8 | -101.43 | 2,274.4 | -4,128.7 | 4,820.0 | 4,782.9 | 37.05 | 130.084 | |
| 4,200.0 | 4,083.6 | 4,663.0 | 4,515.1 | 19.2 | 20.8 | -101.43 | 2,274.4 | -4,128.7 | 4,814.3 | 4,776.7 | 37.58 | 128.093 | |
| 4,300.0 | 4,180.1 | 4,757.0 | 4,607.1 | 19.7 | 21.1 | -101.52 | 2,287.9 | -4,115.0 | 4,809.7 | 4,771.2 | 38.46 | 125.059 | |
| 4,400.0 | 4,276.5 | 4,757.0 | 4,607.1 | 20.2 | 21.1 | -101.52 | 2,287.9 | -4,115.0 | 4,806.1 | 4,767.1 | 38.99 | 123.265 | |
| 4,500.0 | 4,373.0 | 4,828.4 | 4,677.2 | 20.8 | 21.4 | -101.60 | 2,297.6 | -4,106.2 | 4,803.7 | 4,763.9 | 39.76 | 120.814 | |
| 4,600.0 | 4,469.5 | 4,895.0 | 4,742.9 | 21.3 | 21.7 | -101.68 | 2,306.3 | -4,098.8 | 4,802.2 | 4,761.7 | 40.51 | 118.557 | |
| 4,700.0 | 4,565.9 | 4,975.5 | 4,822.4 | 21.9 | 21.9 | -101.79 | 2,316.1 | -4,090.6 | 4,801.3 | 4,760.0 | 41.27 | 116.329 | |
| 4,800.0 | 4,662.4 | 5,038.0 | 4,884.3 | 22.4 | 22.1 | -101.90 | 2,321.9 | -4,084.9 | 4,800.7 | 4,758.8 | 41.97 | 114.393 | |
| 4,803.2 | 4,665.4 | 5,056.2 | 4,902.4 | 22.4 | 22.2 | -101.94 | 2,323.3 | -4,083.4 | 4,800.7 | 4,758.7 | 42.02 | 114.245 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 31-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 546-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.0 | 4,758.8 | 5,131.0 | 4,976.8 | 22.9 | 22.3 | -102.09 | 2,328.4 | -4,077.8 | 4,800.9 | 4,758.2 | 42.69 | 112.471 | |
| 5,000.0 | 4,855.3 | 5,172.5 | 5,018.2 | 23.5 | 22.4 | -102.18 | 2,330.8 | -4,075.1 | 4,801.8 | 4,758.5 | 43.29 | 110.933 | |
| 5,100.0 | 4,951.8 | 5,225.0 | 5,070.5 | 24.0 | 22.5 | -102.31 | 2,333.6 | -4,072.2 | 4,803.7 | 4,759.8 | 43.90 | 109.416 | |
| 5,200.0 | 5,048.2 | 5,302.7 | 5,148.0 | 24.6 | 22.7 | -102.49 | 2,337.1 | -4,068.7 | 4,806.3 | 4,761.8 | 44.54 | 107.900 | |
| 5,300.0 | 5,144.7 | 5,349.3 | 5,194.6 | 25.1 | 22.8 | -102.61 | 2,338.9 | -4,067.0 | 4,809.8 | 4,764.7 | 45.13 | 106.575 | |
| 5,400.0 | 5,241.2 | 5,412.0 | 5,257.2 | 25.6 | 22.9 | -102.78 | 2,340.6 | -4,066.0 | 4,814.7 | 4,768.9 | 45.73 | 105.295 | |
| 5,500.0 | 5,337.6 | 5,439.2 | 5,284.5 | 26.2 | 22.9 | -102.86 | 2,341.1 | -4,065.9 | 4,820.5 | 4,774.2 | 46.27 | 104.171 | |
| 5,600.0 | 5,434.1 | 5,506.0 | 5,351.2 | 26.7 | 23.0 | -103.05 | 2,342.1 | -4,066.0 | 4,827.2 | 4,780.4 | 46.85 | 103.036 | |
| 5,700.0 | 5,530.5 | 5,599.0 | 5,444.2 | 27.3 | 23.1 | -103.33 | 2,343.3 | -4,066.7 | 4,834.5 | 4,787.0 | 47.44 | 101.915 | |
| 5,757.1 | 5,585.6 | 5,651.9 | 5,497.1 | 27.6 | 23.1 | -103.48 | 2,344.0 | -4,067.1 | 4,838.7 | 4,790.9 | 47.77 | 101.290 | |
| 5,800.0 | 5,627.1 | 5,697.9 | 5,543.1 | 27.8 | 23.2 | -103.67 | 2,344.6 | -4,067.4 | 4,841.8 | 4,793.9 | 47.98 | 100.914 | |
| 5,900.0 | 5,724.4 | 5,817.9 | 5,663.1 | 28.2 | 23.3 | -104.11 | 2,345.7 | -4,068.0 | 4,848.2 | 4,799.9 | 48.39 | 100.188 | |
| 6,000.0 | 5,822.4 | 5,921.4 | 5,766.6 | 28.5 | 23.4 | -104.44 | 2,346.1 | -4,068.4 | 4,853.7 | 4,804.9 | 48.76 | 99.542 | |
| 6,100.0 | 5,921.0 | 6,029.1 | 5,874.3 | 28.8 | 23.5 | -104.73 | 2,346.1 | -4,068.7 | 4,858.2 | 4,809.1 | 49.10 | 98.947 | |
| 6,200.0 | 6,020.2 | 6,138.7 | 5,983.9 | 29.0 | 23.6 | -104.96 | 2,346.1 | -4,068.8 | 4,861.6 | 4,812.1 | 49.41 | 98.392 | |
| 6,300.0 | 6,119.7 | 6,269.0 | 6,114.2 | 29.3 | 23.8 | -105.14 | 2,346.2 | -4,068.3 | 4,863.7 | 4,814.0 | 49.72 | 97.821 | |
| 6,400.0 | 6,219.5 | 6,369.6 | 6,214.8 | 29.4 | 23.9 | -105.22 | 2,346.5 | -4,067.5 | 4,864.6 | 4,814.6 | 49.98 | 97.334 | |
| 6,500.0 | 6,319.5 | 6,462.7 | 6,307.9 | 29.5 | 24.0 | -105.24 | 2,346.8 | -4,066.9 | 4,864.7 | 4,814.5 | 50.20 | 96.905 | |
| 6,521.3 | 6,340.8 | 6,487.3 | 6,332.5 | 29.6 | 24.0 | -76.89 | 2,347.0 | -4,066.8 | 4,864.6 | 4,828.2 | 36.38 | 133.699 | |
| 6,551.3 | 6,370.8 | 6,522.0 | 6,367.1 | 29.6 | 24.1 | -76.89 | 2,347.2 | -4,066.5 | 4,864.4 | 4,827.9 | 36.48 | 133.343 | |
| 6,600.0 | 6,419.5 | 6,563.4 | 6,408.6 | 29.6 | 24.1 | 13.15 | 2,347.5 | -4,066.1 | 4,862.4 | 4,812.2 | 50.24 | 96.787 | |
| 6,650.0 | 6,469.2 | 6,601.3 | 6,446.4 | 29.6 | 24.2 | 13.26 | 2,347.9 | -4,065.9 | 4,857.2 | 4,807.3 | 49.95 | 97.237 | |
| 6,700.0 | 6,518.4 | 6,659.7 | 6,504.9 | 29.6 | 24.2 | 13.46 | 2,348.5 | -4,065.5 | 4,848.7 | 4,799.2 | 49.51 | 97.929 | |
| 6,750.0 | 6,567.0 | 6,744.1 | 6,589.3 | 29.6 | 24.4 | 13.77 | 2,349.4 | -4,064.5 | 4,836.5 | 4,787.6 | 48.94 | 98.825 | |
| 6,800.0 | 6,614.5 | 6,790.9 | 6,636.0 | 29.6 | 24.4 | 14.13 | 2,349.8 | -4,063.8 | 4,821.0 | 4,772.9 | 48.14 | 100.139 | |
| 6,850.0 | 6,660.9 | 6,838.6 | 6,683.8 | 29.5 | 24.5 | 14.60 | 2,350.2 | -4,063.1 | 4,802.3 | 4,755.1 | 47.19 | 101.754 | |
| 6,900.0 | 6,705.9 | 6,887.4 | 6,732.5 | 29.4 | 24.6 | 15.18 | 2,350.6 | -4,062.4 | 4,780.5 | 4,734.4 | 46.11 | 103.667 | |
| 6,950.0 | 6,749.2 | 6,928.2 | 6,773.4 | 29.3 | 24.6 | 15.87 | 2,350.9 | -4,061.7 | 4,755.7 | 4,710.7 | 44.91 | 105.904 | |
| 7,000.0 | 6,790.7 | 6,962.4 | 6,807.5 | 29.2 | 24.7 | 16.70 | 2,351.3 | -4,061.2 | 4,728.0 | 4,684.4 | 43.60 | 108.450 | |
| 7,050.0 | 6,830.2 | 6,994.9 | 6,840.0 | 29.1 | 24.7 | 17.70 | 2,351.7 | -4,060.8 | 4,697.8 | 4,655.5 | 42.23 | 111.242 | |
| 7,100.0 | 6,867.4 | 7,022.5 | 6,867.7 | 29.0 | 24.7 | 18.89 | 2,352.1 | -4,060.4 | 4,665.0 | 4,624.2 | 40.84 | 114.227 | |
| 7,150.0 | 6,902.2 | 7,047.4 | 6,892.5 | 28.9 | 24.8 | 20.32 | 2,352.4 | -4,060.1 | 4,629.9 | 4,590.4 | 39.48 | 117.269 | |
| 7,200.0 | 6,934.4 | 7,070.5 | 6,915.6 | 28.7 | 24.8 | 22.07 | 2,352.8 | -4,059.9 | 4,592.6 | 4,554.4 | 38.22 | 120.155 | |
| 7,250.0 | 6,963.8 | 7,096.0 | 6,941.1 | 28.6 | 24.8 | 24.24 | 2,353.3 | -4,059.7 | 4,553.3 | 4,516.2 | 37.16 | 122.520 | |
| 7,300.0 | 6,990.4 | 7,112.9 | 6,958.0 | 28.5 | 24.9 | 26.88 | 2,353.6 | -4,059.6 | 4,512.2 | 4,475.9 | 36.37 | 124.054 | |
| 7,350.0 | 7,013.9 | 7,132.2 | 6,977.3 | 28.4 | 24.9 | 30.24 | 2,353.9 | -4,059.5 | 4,469.5 | 4,433.5 | 36.02 | 124.067 | |
| 7,400.0 | 7,034.4 | 7,149.0 | 6,994.0 | 28.2 | 24.9 | 34.52 | 2,354.3 | -4,059.4 | 4,425.3 | 4,389.1 | 36.25 | 122.084 | |
| 7,450.0 | 7,051.5 | 7,163.1 | 7,008.2 | 28.1 | 24.9 | 40.03 | 2,354.5 | -4,059.4 | 4,379.9 | 4,342.7 | 37.18 | 117.801 | |
| 7,500.0 | 7,065.4 | 7,174.5 | 7,019.6 | 28.0 | 25.0 | 47.19 | 2,354.8 | -4,059.3 | 4,333.5 | 4,294.6 | 38.88 | 111.462 | |
| 7,550.0 | 7,075.9 | 7,190.0 | 7,035.1 | 27.9 | 25.0 | 56.71 | 2,355.1 | -4,059.3 | 4,286.3 | 4,245.0 | 41.24 | 103.923 | |
| 7,600.0 | 7,082.9 | 7,190.0 | 7,035.1 | 27.8 | 25.0 | 68.16 | 2,355.1 | -4,059.3 | 4,238.5 | 4,195.0 | 43.49 | 97.450 | |
| 7,650.0 | 7,086.5 | 7,190.0 | 7,035.1 | 27.7 | 25.0 | 81.69 | 2,355.1 | -4,059.3 | 4,190.4 | 4,145.6 | 44.79 | 93.559 | |
| 7,677.7 | 7,087.0 | 7,190.0 | 7,035.1 | 27.6 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 4,163.7 | 4,119.0 | 44.75 | 93.049 | |
| 7,700.0 | 7,087.0 | 7,190.0 | 7,035.1 | 27.6 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 4,142.3 | 4,097.2 | 45.06 | 91.933 | |
| 7,800.0 | 7,086.8 | 7,190.0 | 7,035.1 | 27.5 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 4,046.0 | 3,999.4 | 46.59 | 86.841 | |
| 7,900.0 | 7,086.6 | 7,190.0 | 7,035.1 | 27.9 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 3,949.9 | 3,901.6 | 48.33 | 81.726 | |
| 8,000.0 | 7,086.4 | 7,190.0 | 7,035.1 | 29.5 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 3,854.1 | 3,803.8 | 50.24 | 76.712 | |
| 8,100.0 | 7,086.2 | 7,190.0 | 7,035.1 | 31.5 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 3,758.4 | 3,706.2 | 52.29 | 71.879 | |
| 8,200.0 | 7,086.0 | 7,190.0 | 7,035.1 | 33.7 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 3,663.0 | 3,608.6 | 54.45 | 67.276 | |
| 8,300.0 | 7,085.8 | 7,190.0 | 7,035.1 | 36.0 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 3,567.9 | 3,511.2 | 56.70 | 62.927 | |
| 8,400.0 | 7,085.6 | 7,190.0 | 7,035.1 | 38.3 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 3,473.0 | 3,414.0 | 59.02 | 58.839 | |
| 8,500.0 | 7,085.4 | 7,190.0 | 7,035.1 | 40.7 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 3,378.4 | 3,317.0 | 61.41 | 55.011 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 31-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 546-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,600.0 | 7,085.2 | 7,190.0 | 7,035.1 | 43.1 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 3,284.1 | 3,220.3 | 63.85 | 51.433 | |
| 8,700.0 | 7,085.0 | 7,190.0 | 7,035.1 | 45.6 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 3,190.2 | 3,123.9 | 66.34 | 48.092 | |
| 8,800.0 | 7,084.8 | 7,190.0 | 7,035.1 | 48.1 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 3,096.7 | 3,027.8 | 68.86 | 44.974 | |
| 8,900.0 | 7,084.6 | 7,190.0 | 7,035.1 | 50.7 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 3,003.5 | 2,932.1 | 71.41 | 42.063 | |
| 9,000.0 | 7,084.4 | 7,190.0 | 7,035.1 | 53.2 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 2,910.9 | 2,836.9 | 73.98 | 39.346 | |
| 9,100.0 | 7,084.2 | 7,190.0 | 7,035.1 | 55.8 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 2,818.7 | 2,742.1 | 76.58 | 36.807 | |
| 9,200.0 | 7,084.0 | 7,190.0 | 7,035.1 | 58.4 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 2,727.1 | 2,647.9 | 79.20 | 34.433 | |
| 9,300.0 | 7,083.8 | 7,190.0 | 7,035.1 | 61.1 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 2,636.1 | 2,554.2 | 81.84 | 32.212 | |
| 9,400.0 | 7,083.7 | 7,190.0 | 7,035.1 | 63.7 | 25.0 | 89.66 | 2,355.1 | -4,059.3 | 2,545.7 | 2,461.3 | 84.49 | 30.132 | |
| 9,500.0 | 7,083.5 | 7,184.5 | 7,029.6 | 66.3 | 25.0 | 89.38 | 2,355.0 | -4,059.3 | 2,456.2 | 2,369.0 | 87.16 | 28.179 | |
| 9,600.0 | 7,083.3 | 7,184.1 | 7,029.2 | 69.0 | 25.0 | 89.36 | 2,355.0 | -4,059.3 | 2,367.4 | 2,277.6 | 89.84 | 26.352 | |
| 9,700.0 | 7,083.1 | 7,183.6 | 7,028.7 | 71.7 | 25.0 | 89.33 | 2,354.9 | -4,059.3 | 2,279.6 | 2,187.1 | 92.52 | 24.638 | |
| 9,800.0 | 7,082.9 | 7,183.2 | 7,028.3 | 74.4 | 25.0 | 89.31 | 2,354.9 | -4,059.3 | 2,192.8 | 2,097.6 | 95.22 | 23.029 | |
| 9,900.0 | 7,082.7 | 7,182.7 | 7,027.8 | 77.1 | 25.0 | 89.29 | 2,354.9 | -4,059.3 | 2,107.2 | 2,009.3 | 97.92 | 21.519 | |
| 10,000.0 | 7,082.5 | 7,182.3 | 7,027.4 | 79.7 | 25.0 | 89.26 | 2,354.9 | -4,059.3 | 2,022.9 | 1,922.3 | 100.63 | 20.102 | |
| 10,100.0 | 7,082.3 | 7,181.8 | 7,026.9 | 82.5 | 25.0 | 89.24 | 2,354.9 | -4,059.3 | 1,940.1 | 1,836.8 | 103.35 | 18.772 | |
| 10,200.0 | 7,082.1 | 7,181.4 | 7,026.4 | 85.2 | 25.0 | 89.22 | 2,354.9 | -4,059.3 | 1,859.0 | 1,753.0 | 106.08 | 17.526 | |
| 10,300.0 | 7,081.9 | 7,180.9 | 7,026.0 | 87.9 | 25.0 | 89.19 | 2,354.9 | -4,059.3 | 1,779.9 | 1,671.1 | 108.80 | 16.359 | |
| 10,400.0 | 7,081.7 | 7,180.4 | 7,025.5 | 90.6 | 25.0 | 89.17 | 2,354.9 | -4,059.3 | 1,702.9 | 1,591.4 | 111.54 | 15.267 | |
| 10,500.0 | 7,081.5 | 7,179.9 | 7,025.0 | 93.3 | 25.0 | 89.14 | 2,354.9 | -4,059.3 | 1,628.4 | 1,514.1 | 114.28 | 14.250 | |
| 10,600.0 | 7,081.3 | 7,179.5 | 7,024.5 | 96.1 | 25.0 | 89.12 | 2,354.9 | -4,059.3 | 1,556.8 | 1,439.8 | 117.02 | 13.304 | |
| 10,700.0 | 7,081.1 | 7,179.0 | 7,024.1 | 98.8 | 25.0 | 89.09 | 2,354.9 | -4,059.3 | 1,488.5 | 1,368.7 | 119.76 | 12.428 | |
| 10,800.0 | 7,080.9 | 7,178.5 | 7,023.6 | 101.5 | 25.0 | 89.07 | 2,354.8 | -4,059.3 | 1,423.9 | 1,301.4 | 122.51 | 11.622 | |
| 10,900.0 | 7,080.7 | 7,178.0 | 7,023.1 | 104.3 | 25.0 | 89.04 | 2,354.8 | -4,059.3 | 1,363.6 | 1,238.3 | 125.27 | 10.886 | |
| 11,000.0 | 7,080.5 | 7,177.5 | 7,022.6 | 107.0 | 25.0 | 89.02 | 2,354.8 | -4,059.3 | 1,308.2 | 1,180.1 | 128.02 | 10.218 | |
| 11,100.0 | 7,080.3 | 7,177.0 | 7,022.1 | 109.8 | 25.0 | 88.99 | 2,354.8 | -4,059.3 | 1,258.2 | 1,127.5 | 130.78 | 9.621 | |
| 11,200.0 | 7,080.1 | 7,176.5 | 7,021.6 | 112.5 | 25.0 | 88.97 | 2,354.8 | -4,059.3 | 1,214.5 | 1,081.0 | 133.54 | 9.095 | |
| 11,300.0 | 7,079.9 | 7,176.0 | 7,021.1 | 115.3 | 25.0 | 88.94 | 2,354.8 | -4,059.3 | 1,177.7 | 1,041.4 | 136.30 | 8.640 | |
| 11,400.0 | 7,079.7 | 7,175.5 | 7,020.6 | 118.0 | 25.0 | 88.91 | 2,354.8 | -4,059.3 | 1,148.4 | 1,009.4 | 139.07 | 8.258 | |
| 11,500.0 | 7,079.5 | 7,175.0 | 7,020.1 | 120.8 | 25.0 | 88.89 | 2,354.8 | -4,059.3 | 1,127.3 | 985.5 | 141.83 | 7.948 | |
| 11,600.0 | 7,079.3 | 7,174.5 | 7,019.5 | 123.6 | 25.0 | 88.86 | 2,354.8 | -4,059.3 | 1,114.8 | 970.2 | 144.60 | 7.709 | |
| 11,690.5 | 7,079.1 | 7,174.0 | 7,019.1 | 126.1 | 25.0 | 88.84 | 2,354.8 | -4,059.3 | 1,111.1 | 964.0 | 147.11 | 7.553 | CC |
| 11,700.0 | 7,079.1 | 7,173.9 | 7,019.0 | 126.3 | 25.0 | 88.83 | 2,354.7 | -4,059.3 | 1,111.1 | 963.8 | 147.37 | 7.540 | ES |
| 11,800.0 | 7,078.9 | 7,173.4 | 7,018.5 | 129.1 | 25.0 | 88.81 | 2,354.7 | -4,059.3 | 1,116.5 | 966.3 | 150.14 | 7.436 | |
| 11,900.0 | 7,078.7 | 7,172.9 | 7,018.0 | 131.9 | 25.0 | 88.78 | 2,354.7 | -4,059.3 | 1,130.7 | 977.7 | 152.92 | 7.394 | SF |
| 12,000.0 | 7,078.5 | 7,172.3 | 7,017.4 | 134.6 | 25.0 | 88.75 | 2,354.7 | -4,059.3 | 1,153.4 | 997.7 | 155.69 | 7.408 | |
| 12,100.0 | 7,078.3 | 7,171.8 | 7,016.9 | 137.4 | 25.0 | 88.72 | 2,354.7 | -4,059.4 | 1,184.1 | 1,025.7 | 158.47 | 7.472 | |
| 12,200.0 | 7,078.1 | 7,171.3 | 7,016.3 | 140.2 | 25.0 | 88.70 | 2,354.7 | -4,059.4 | 1,222.3 | 1,061.1 | 161.24 | 7.581 | |
| 12,300.0 | 7,077.9 | 7,170.7 | 7,015.8 | 142.9 | 24.9 | 88.67 | 2,354.7 | -4,059.4 | 1,267.3 | 1,103.2 | 164.02 | 7.726 | |
| 12,400.0 | 7,077.7 | 7,170.1 | 7,015.2 | 145.7 | 24.9 | 88.64 | 2,354.7 | -4,059.4 | 1,318.3 | 1,151.5 | 166.80 | 7.903 | |
| 12,500.0 | 7,077.5 | 7,169.6 | 7,014.7 | 148.5 | 24.9 | 88.61 | 2,354.7 | -4,059.4 | 1,374.7 | 1,205.1 | 169.58 | 8.106 | |
| 12,600.0 | 7,077.3 | 7,169.0 | 7,014.1 | 151.3 | 24.9 | 88.58 | 2,354.7 | -4,059.4 | 1,435.8 | 1,263.5 | 172.36 | 8.330 | |
| 12,700.0 | 7,077.1 | 7,168.5 | 7,013.5 | 154.0 | 24.9 | 88.55 | 2,354.6 | -4,059.4 | 1,501.2 | 1,326.0 | 175.14 | 8.571 | |
| 12,800.0 | 7,076.9 | 7,167.9 | 7,013.0 | 156.8 | 24.9 | 88.52 | 2,354.6 | -4,059.4 | 1,570.2 | 1,392.2 | 177.93 | 8.825 | |
| 12,900.0 | 7,076.7 | 7,167.3 | 7,012.4 | 159.6 | 24.9 | 88.49 | 2,354.6 | -4,059.4 | 1,642.4 | 1,461.6 | 180.71 | 9.088 | |
| 13,000.0 | 7,076.5 | 7,166.7 | 7,011.8 | 162.4 | 24.9 | 88.46 | 2,354.6 | -4,059.4 | 1,717.3 | 1,533.8 | 183.49 | 9.359 | |
| 13,100.0 | 7,076.3 | 7,166.1 | 7,011.2 | 165.2 | 24.9 | 88.43 | 2,354.6 | -4,059.4 | 1,794.7 | 1,608.5 | 186.28 | 9.635 | |
| 13,200.0 | 7,076.1 | 7,165.5 | 7,010.6 | 168.0 | 24.9 | 88.40 | 2,354.6 | -4,059.4 | 1,874.3 | 1,685.2 | 189.06 | 9.914 | |
| 13,300.0 | 7,075.9 | 7,164.9 | 7,010.0 | 170.7 | 24.9 | 88.37 | 2,354.6 | -4,059.4 | 1,955.7 | 1,763.9 | 191.85 | 10.194 | |
| 13,400.0 | 7,075.7 | 7,164.3 | 7,009.4 | 173.5 | 24.9 | 88.34 | 2,354.6 | -4,059.4 | 2,038.8 | 1,844.2 | 194.64 | 10.475 | |
| 13,500.0 | 7,075.5 | 7,163.7 | 7,008.8 | 176.3 | 24.9 | 88.31 | 2,354.5 | -4,059.4 | 2,123.4 | 1,925.9 | 197.42 | 10.755 | |
| 13,600.0 | 7,075.3 | 7,163.1 | 7,008.2 | 179.1 | 24.9 | 88.28 | 2,354.5 | -4,059.4 | 2,209.2 | 2,009.0 | 200.21 | 11.034 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 31-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 546-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,700.0 | 7,075.1 | 7,162.5 | 7,007.6 | 181.9 | 24.9 | 88.24 | 2,354.5 | -4,059.4 | 2,296.2 | 2,093.2 | 203.00 | 11.311 | |
| 13,800.0 | 7,074.9 | 7,161.9 | 7,007.0 | 184.7 | 24.9 | 88.21 | 2,354.5 | -4,059.4 | 2,384.2 | 2,178.4 | 205.79 | 11.586 | |
| 13,900.0 | 7,074.7 | 7,161.3 | 7,006.3 | 187.5 | 24.9 | 88.18 | 2,354.5 | -4,059.4 | 2,473.1 | 2,264.5 | 208.58 | 11.857 | |
| 14,000.0 | 7,074.5 | 7,160.6 | 7,005.7 | 190.2 | 24.9 | 88.15 | 2,354.5 | -4,059.4 | 2,562.8 | 2,351.5 | 211.36 | 12.125 | |
| 14,100.0 | 7,074.2 | 7,160.0 | 7,005.1 | 193.0 | 24.9 | 88.11 | 2,354.5 | -4,059.4 | 2,653.3 | 2,439.1 | 214.15 | 12.390 | |
| 14,200.0 | 7,074.0 | 7,159.3 | 7,004.4 | 195.8 | 24.9 | 88.08 | 2,354.5 | -4,059.4 | 2,744.4 | 2,527.5 | 216.94 | 12.650 | |
| 14,221.4 | 7,074.0 | 7,159.2 | 7,004.3 | 196.4 | 24.9 | 88.07 | 2,354.5 | -4,059.4 | 2,764.0 | 2,546.4 | 217.54 | 12.706 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 32-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 542-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -72.52 | 1,563.0 | -4,964.3 | 5,204.7 | | | | |
| 100.0 | 100.0 | 53.1 | 53.1 | 0.1 | 0.0 | -72.52 | 1,563.0 | -4,964.4 | 5,204.6 | 5,204.5 | 0.14 | N/A | |
| 200.0 | 200.0 | 138.2 | 138.2 | 0.3 | 0.1 | -72.52 | 1,563.2 | -4,964.6 | 5,204.9 | 5,204.5 | 0.45 | N/A | |
| 300.0 | 300.0 | 223.2 | 223.2 | 0.5 | 0.2 | -72.52 | 1,563.5 | -4,965.0 | 5,205.5 | 5,204.8 | 0.75 | 6,978.874 | |
| 400.0 | 400.0 | 308.2 | 308.2 | 0.8 | 0.3 | -72.52 | 1,564.0 | -4,965.7 | 5,206.4 | 5,205.4 | 1.05 | 4,974.957 | |
| 500.0 | 500.0 | 393.2 | 393.2 | 1.0 | 0.4 | -100.84 | 1,564.6 | -4,966.6 | 5,208.0 | 5,206.6 | 1.35 | 3,869.391 | |
| 600.0 | 599.8 | 2,319.0 | 2,276.4 | 1.2 | 7.2 | -103.09 | 1,408.6 | -4,704.6 | 5,202.8 | 5,196.6 | 6.15 | 846.293 | |
| 700.0 | 699.5 | 2,694.0 | 2,625.3 | 1.5 | 9.8 | -104.65 | 1,332.5 | -4,590.6 | 5,170.7 | 5,162.9 | 7.76 | 666.011 | |
| 800.0 | 798.7 | 2,729.8 | 2,658.2 | 1.7 | 10.1 | -105.47 | 1,325.0 | -4,578.9 | 5,135.9 | 5,127.7 | 8.20 | 626.568 | |
| 900.0 | 897.5 | 2,788.0 | 2,712.2 | 2.0 | 10.5 | -106.33 | 1,313.4 | -4,560.5 | 5,103.3 | 5,094.6 | 8.75 | 583.375 | |
| 1,000.0 | 995.6 | 2,788.0 | 2,712.2 | 2.4 | 10.5 | -106.95 | 1,313.4 | -4,560.5 | 5,072.5 | 5,063.4 | 9.13 | 555.887 | |
| 1,100.0 | 1,093.1 | 2,853.5 | 2,773.3 | 2.8 | 10.9 | -107.77 | 1,300.8 | -4,540.6 | 5,043.8 | 5,034.0 | 9.79 | 515.203 | |
| 1,164.2 | 1,155.2 | 2,892.5 | 2,809.8 | 3.1 | 11.2 | -108.29 | 1,293.1 | -4,529.1 | 5,026.3 | 5,016.1 | 10.23 | 491.092 | |
| 1,200.0 | 1,189.7 | 2,930.5 | 2,845.4 | 3.2 | 11.4 | -108.45 | 1,285.8 | -4,517.9 | 5,016.8 | 5,006.2 | 10.55 | 475.664 | |
| 1,300.0 | 1,286.2 | 3,023.3 | 2,932.3 | 3.7 | 12.0 | -108.85 | 1,268.9 | -4,490.0 | 4,990.2 | 4,978.8 | 11.38 | 438.641 | |
| 1,400.0 | 1,382.6 | 3,068.0 | 2,974.2 | 4.2 | 12.3 | -109.04 | 1,261.3 | -4,476.5 | 4,964.1 | 4,952.0 | 12.03 | 412.640 | |
| 1,500.0 | 1,479.1 | 3,123.5 | 3,026.4 | 4.7 | 12.7 | -109.27 | 1,252.3 | -4,459.9 | 4,938.9 | 4,926.1 | 12.72 | 388.232 | |
| 1,600.0 | 1,575.6 | 3,163.4 | 3,064.1 | 5.3 | 12.9 | -109.43 | 1,246.4 | -4,448.4 | 4,914.9 | 4,901.6 | 13.36 | 367.846 | |
| 1,700.0 | 1,672.0 | 3,255.0 | 3,150.9 | 5.8 | 13.5 | -109.81 | 1,232.6 | -4,422.5 | 4,891.7 | 4,877.5 | 14.19 | 344.633 | |
| 1,800.0 | 1,768.5 | 3,306.7 | 3,199.9 | 6.3 | 13.8 | -110.02 | 1,224.6 | -4,408.1 | 4,869.0 | 4,854.1 | 14.89 | 327.086 | |
| 1,900.0 | 1,864.9 | 3,363.1 | 3,253.5 | 6.8 | 14.2 | -110.26 | 1,216.0 | -4,392.9 | 4,847.4 | 4,831.8 | 15.60 | 310.773 | |
| 2,000.0 | 1,961.4 | 3,442.0 | 3,328.6 | 7.4 | 14.6 | -110.59 | 1,204.4 | -4,371.7 | 4,826.2 | 4,809.8 | 16.39 | 294.425 | |
| 2,100.0 | 2,057.9 | 3,498.8 | 3,382.8 | 7.9 | 15.0 | -110.83 | 1,196.2 | -4,356.7 | 4,805.8 | 4,788.7 | 17.11 | 280.942 | |
| 2,200.0 | 2,154.3 | 3,572.6 | 3,453.3 | 8.4 | 15.4 | -111.14 | 1,185.2 | -4,338.0 | 4,786.4 | 4,768.5 | 17.89 | 267.560 | |
| 2,300.0 | 2,250.8 | 3,655.4 | 3,532.3 | 9.0 | 15.9 | -111.50 | 1,172.5 | -4,316.8 | 4,767.1 | 4,748.4 | 18.71 | 254.765 | |
| 2,400.0 | 2,347.3 | 3,696.8 | 3,572.0 | 9.5 | 16.1 | -111.68 | 1,166.5 | -4,306.5 | 4,748.9 | 4,729.5 | 19.38 | 245.099 | |
| 2,500.0 | 2,443.7 | 3,865.3 | 3,733.2 | 10.0 | 17.1 | -112.42 | 1,140.9 | -4,264.7 | 4,730.9 | 4,710.4 | 20.54 | 230.280 | |
| 2,600.0 | 2,540.2 | 3,955.6 | 3,819.2 | 10.6 | 17.6 | -112.83 | 1,125.7 | -4,241.7 | 4,712.2 | 4,690.8 | 21.43 | 219.921 | |
| 2,700.0 | 2,636.7 | 4,047.2 | 3,906.4 | 11.1 | 18.2 | -113.26 | 1,109.9 | -4,218.6 | 4,693.8 | 4,671.5 | 22.32 | 210.281 | |
| 2,800.0 | 2,733.1 | 4,097.0 | 3,953.8 | 11.6 | 18.5 | -113.50 | 1,101.2 | -4,206.0 | 4,675.9 | 4,652.8 | 23.04 | 202.929 | |
| 2,900.0 | 2,829.6 | 4,156.9 | 4,010.9 | 12.2 | 18.9 | -113.78 | 1,091.0 | -4,191.2 | 4,658.9 | 4,635.1 | 23.80 | 195.782 | |
| 3,000.0 | 2,926.0 | 4,191.0 | 4,043.6 | 12.7 | 19.1 | -113.94 | 1,085.6 | -4,183.1 | 4,643.3 | 4,618.8 | 24.44 | 189.966 | |
| 3,100.0 | 3,022.5 | 4,244.4 | 4,095.0 | 13.2 | 19.3 | -114.18 | 1,077.3 | -4,171.0 | 4,628.9 | 4,603.7 | 25.15 | 184.020 | |
| 3,200.0 | 3,119.0 | 4,284.0 | 4,133.2 | 13.8 | 19.5 | -114.36 | 1,071.3 | -4,162.4 | 4,615.7 | 4,589.9 | 25.81 | 178.820 | |
| 3,300.0 | 3,215.4 | 4,335.5 | 4,183.0 | 14.3 | 19.8 | -114.60 | 1,063.7 | -4,151.7 | 4,603.8 | 4,577.3 | 26.51 | 173.675 | |
| 3,400.0 | 3,311.9 | 4,378.0 | 4,224.2 | 14.9 | 20.0 | -114.79 | 1,057.8 | -4,143.3 | 4,593.1 | 4,565.9 | 27.17 | 169.054 | |
| 3,500.0 | 3,408.4 | 4,435.0 | 4,279.7 | 15.4 | 20.3 | -115.04 | 1,050.7 | -4,132.4 | 4,583.5 | 4,555.6 | 27.87 | 164.469 | |
| 3,600.0 | 3,504.8 | 4,494.4 | 4,337.7 | 15.9 | 20.5 | -115.29 | 1,044.0 | -4,121.5 | 4,575.0 | 4,546.4 | 28.57 | 160.127 | |
| 3,700.0 | 3,601.3 | 4,565.0 | 4,406.8 | 16.5 | 20.8 | -115.58 | 1,036.7 | -4,108.9 | 4,567.3 | 4,538.0 | 29.30 | 155.871 | |
| 3,800.0 | 3,697.7 | 4,601.7 | 4,442.8 | 17.0 | 21.0 | -115.73 | 1,033.1 | -4,102.7 | 4,560.6 | 4,530.7 | 29.91 | 152.458 | |
| 3,900.0 | 3,794.2 | 4,658.0 | 4,498.2 | 17.5 | 21.2 | -115.95 | 1,028.1 | -4,093.9 | 4,555.5 | 4,524.9 | 30.58 | 148.946 | |
| 4,000.0 | 3,890.7 | 4,658.0 | 4,498.2 | 18.1 | 21.2 | -115.95 | 1,028.1 | -4,093.9 | 4,551.6 | 4,520.5 | 31.08 | 146.428 | |
| 4,100.0 | 3,987.1 | 4,718.2 | 4,557.6 | 18.6 | 21.4 | -116.18 | 1,023.4 | -4,085.6 | 4,549.0 | 4,517.3 | 31.75 | 143.273 | |
| 4,200.0 | 4,083.6 | 4,752.0 | 4,591.0 | 19.2 | 21.5 | -116.31 | 1,020.9 | -4,081.4 | 4,547.9 | 4,515.6 | 32.34 | 140.614 | |
| 4,226.6 | 4,109.3 | 4,752.0 | 4,591.0 | 19.3 | 21.5 | -116.31 | 1,020.9 | -4,081.4 | 4,547.9 | 4,515.4 | 32.48 | 140.038 | |
| 4,300.0 | 4,180.1 | 4,797.0 | 4,635.7 | 19.7 | 21.6 | -116.48 | 1,017.7 | -4,076.3 | 4,548.2 | 4,515.2 | 32.96 | 137.998 | |
| 4,400.0 | 4,276.5 | 4,845.0 | 4,683.3 | 20.2 | 21.7 | -116.66 | 1,014.5 | -4,071.7 | 4,549.8 | 4,516.2 | 33.58 | 135.492 | |
| 4,500.0 | 4,373.0 | 4,845.0 | 4,683.3 | 20.8 | 21.7 | -116.66 | 1,014.5 | -4,071.7 | 4,553.1 | 4,519.0 | 34.08 | 133.606 | |
| 4,600.0 | 4,469.5 | 4,905.5 | 4,743.4 | 21.3 | 21.9 | -116.89 | 1,010.6 | -4,066.9 | 4,557.4 | 4,522.6 | 34.72 | 131.255 | |
| 4,700.0 | 4,565.9 | 4,939.0 | 4,776.9 | 21.9 | 22.0 | -117.01 | 1,008.5 | -4,064.9 | 4,563.3 | 4,528.0 | 35.30 | 129.277 | |
| 4,800.0 | 4,662.4 | 5,006.8 | 4,844.5 | 22.4 | 22.1 | -117.25 | 1,005.0 | -4,061.5 | 4,570.5 | 4,534.5 | 35.94 | 127.164 | |
| 4,900.0 | 4,758.8 | 5,069.8 | 4,907.4 | 22.9 | 22.2 | -117.46 | 1,002.8 | -4,058.7 | 4,578.4 | 4,541.8 | 36.56 | 125.228 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 32-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 542-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,000.0 | 4,855.3 | 5,126.0 | 4,963.5 | 23.5 | 22.3 | -117.64 | 1,001.8 | -4,056.6 | 4,587.2 | 4,550.0 | 37.16 | 123.453 | |
| 5,100.0 | 4,951.8 | 5,166.1 | 5,003.6 | 24.0 | 22.3 | -117.76 | 1,001.6 | -4,055.6 | 4,597.1 | 4,559.4 | 37.71 | 121.900 | |
| 5,200.0 | 5,048.2 | 5,220.0 | 5,057.5 | 24.6 | 22.4 | -117.92 | 1,001.7 | -4,055.0 | 4,608.5 | 4,570.2 | 38.29 | 120.369 | |
| 5,300.0 | 5,144.7 | 5,270.6 | 5,108.1 | 25.1 | 22.4 | -118.06 | 1,002.2 | -4,055.0 | 4,620.9 | 4,582.1 | 38.85 | 118.951 | |
| 5,400.0 | 5,241.2 | 5,349.2 | 5,186.7 | 25.6 | 22.5 | -118.28 | 1,003.0 | -4,055.1 | 4,633.8 | 4,594.4 | 39.44 | 117.481 | |
| 5,500.0 | 5,337.6 | 5,424.9 | 5,262.4 | 26.2 | 22.6 | -118.49 | 1,003.4 | -4,055.6 | 4,647.4 | 4,607.4 | 40.04 | 116.081 | |
| 5,600.0 | 5,434.1 | 5,548.8 | 5,386.3 | 26.7 | 22.7 | -118.85 | 1,003.4 | -4,056.3 | 4,660.9 | 4,620.2 | 40.70 | 114.529 | |
| 5,700.0 | 5,530.5 | 5,668.1 | 5,505.6 | 27.3 | 22.8 | -119.19 | 1,003.5 | -4,056.2 | 4,674.0 | 4,632.7 | 41.35 | 113.027 | |
| 5,757.1 | 5,585.6 | 5,721.7 | 5,559.2 | 27.6 | 22.9 | -119.34 | 1,003.1 | -4,056.1 | 4,681.4 | 4,639.7 | 41.71 | 112.234 | |
| 5,800.0 | 5,627.1 | 5,758.2 | 5,595.7 | 27.8 | 22.9 | -119.54 | 1,002.8 | -4,056.0 | 4,686.9 | 4,644.9 | 41.97 | 111.682 | |
| 5,900.0 | 5,724.4 | 5,842.1 | 5,679.5 | 28.2 | 23.0 | -119.97 | 1,001.9 | -4,055.9 | 4,698.7 | 4,656.2 | 42.47 | 110.622 | |
| 6,000.0 | 5,822.4 | 5,926.1 | 5,763.6 | 28.5 | 23.1 | -120.33 | 1,001.2 | -4,056.2 | 4,709.1 | 4,666.1 | 42.93 | 109.684 | |
| 6,100.0 | 5,921.0 | 6,023.8 | 5,861.3 | 28.8 | 23.2 | -120.66 | 1,000.7 | -4,056.7 | 4,718.0 | 4,674.6 | 43.36 | 108.813 | |
| 6,200.0 | 6,020.2 | 6,176.1 | 6,013.6 | 29.0 | 23.4 | -121.00 | 999.3 | -4,056.4 | 4,724.5 | 4,680.7 | 43.82 | 107.818 | |
| 6,300.0 | 6,119.7 | 6,248.0 | 6,085.5 | 29.3 | 23.4 | -121.15 | 998.6 | -4,056.1 | 4,729.0 | 4,684.9 | 44.11 | 107.204 | |
| 6,400.0 | 6,219.5 | 6,330.8 | 6,168.3 | 29.4 | 23.5 | -121.27 | 998.1 | -4,056.1 | 4,732.2 | 4,687.8 | 44.37 | 106.659 | |
| 6,500.0 | 6,319.5 | 6,399.8 | 6,237.3 | 29.5 | 23.6 | -121.32 | 997.8 | -4,056.5 | 4,734.1 | 4,689.6 | 44.55 | 106.267 | |
| 6,521.3 | 6,340.8 | 6,414.1 | 6,251.6 | 29.6 | 23.6 | -92.98 | 997.7 | -4,056.7 | 4,734.4 | 4,692.2 | 42.16 | 112.294 | |
| 6,551.3 | 6,370.8 | 6,436.0 | 6,273.5 | 29.6 | 23.6 | -92.98 | 997.6 | -4,056.9 | 4,734.7 | 4,692.5 | 42.22 | 112.134 | |
| 6,600.0 | 6,419.5 | 6,485.9 | 6,323.3 | 29.6 | 23.7 | -2.99 | 997.4 | -4,057.6 | 4,733.7 | 4,689.2 | 44.48 | 106.423 | |
| 6,650.0 | 6,469.2 | 6,529.0 | 6,366.5 | 29.6 | 23.7 | -3.01 | 997.2 | -4,058.1 | 4,729.2 | 4,685.1 | 44.11 | 107.222 | |
| 6,700.0 | 6,518.4 | 6,569.3 | 6,406.7 | 29.6 | 23.8 | -3.05 | 997.0 | -4,058.6 | 4,721.3 | 4,677.7 | 43.54 | 108.438 | |
| 6,750.0 | 6,567.0 | 6,602.4 | 6,439.8 | 29.6 | 23.8 | -3.11 | 996.7 | -4,059.2 | 4,710.1 | 4,667.4 | 42.77 | 110.115 | |
| 6,800.0 | 6,614.5 | 6,637.0 | 6,474.4 | 29.6 | 23.8 | -3.19 | 996.4 | -4,059.9 | 4,695.8 | 4,653.9 | 41.83 | 112.250 | |
| 6,850.0 | 6,660.9 | 6,674.3 | 6,511.7 | 29.5 | 23.9 | -3.29 | 996.1 | -4,060.7 | 4,678.2 | 4,637.5 | 40.72 | 114.874 | |
| 6,900.0 | 6,705.9 | 6,716.0 | 6,553.4 | 29.4 | 23.9 | -3.41 | 996.0 | -4,061.8 | 4,657.6 | 4,618.1 | 39.46 | 118.027 | |
| 6,950.0 | 6,749.2 | 6,749.7 | 6,587.1 | 29.3 | 23.9 | -3.55 | 995.8 | -4,062.6 | 4,633.8 | 4,595.8 | 38.04 | 121.817 | |
| 7,000.0 | 6,790.7 | 6,788.0 | 6,625.4 | 29.2 | 24.0 | -3.74 | 995.6 | -4,063.7 | 4,607.1 | 4,570.6 | 36.49 | 126.257 | |
| 7,050.0 | 6,830.2 | 6,810.0 | 6,647.4 | 29.1 | 24.0 | -3.95 | 995.4 | -4,064.3 | 4,577.6 | 4,542.8 | 34.80 | 131.536 | |
| 7,100.0 | 6,867.4 | 6,849.0 | 6,686.3 | 29.0 | 24.0 | -4.23 | 995.0 | -4,065.4 | 4,545.4 | 4,512.4 | 33.04 | 137.563 | |
| 7,150.0 | 6,902.2 | 6,874.9 | 6,712.2 | 28.9 | 24.1 | -4.55 | 994.7 | -4,066.3 | 4,510.7 | 4,479.5 | 31.19 | 144.603 | |
| 7,200.0 | 6,934.4 | 6,903.0 | 6,740.3 | 28.7 | 24.1 | -4.95 | 994.5 | -4,067.2 | 4,473.7 | 4,444.4 | 29.31 | 152.645 | |
| 7,250.0 | 6,963.8 | 6,932.7 | 6,770.0 | 28.6 | 24.1 | -5.46 | 994.3 | -4,068.3 | 4,434.5 | 4,407.0 | 27.42 | 161.724 | |
| 7,300.0 | 6,990.4 | 6,965.5 | 6,802.8 | 28.5 | 24.1 | -6.12 | 994.1 | -4,069.4 | 4,393.1 | 4,367.5 | 25.58 | 171.748 | |
| 7,350.0 | 7,013.9 | 6,994.7 | 6,831.9 | 28.4 | 24.2 | -6.98 | 994.0 | -4,070.4 | 4,349.9 | 4,326.1 | 23.83 | 182.506 | |
| 7,400.0 | 7,034.4 | 7,013.1 | 6,850.4 | 28.2 | 24.2 | -8.12 | 994.0 | -4,071.0 | 4,305.1 | 4,282.8 | 22.25 | 193.452 | |
| 7,450.0 | 7,051.5 | 7,028.4 | 6,865.6 | 28.1 | 24.2 | -9.71 | 993.9 | -4,071.5 | 4,258.8 | 4,237.9 | 20.96 | 203.155 | |
| 7,500.0 | 7,065.4 | 7,041.0 | 6,878.2 | 28.0 | 24.2 | -12.07 | 993.9 | -4,072.0 | 4,211.4 | 4,191.2 | 20.15 | 208.962 | |
| 7,550.0 | 7,075.9 | 7,050.9 | 6,888.2 | 27.9 | 24.2 | -15.92 | 993.8 | -4,072.3 | 4,163.0 | 4,142.8 | 20.22 | 205.890 | |
| 7,600.0 | 7,082.9 | 7,058.1 | 6,895.3 | 27.8 | 24.2 | -23.12 | 993.8 | -4,072.6 | 4,113.9 | 4,091.7 | 22.25 | 184.871 | |
| 7,650.0 | 7,086.5 | 7,062.5 | 6,899.8 | 27.7 | 24.2 | -40.00 | 993.8 | -4,072.7 | 4,064.3 | 4,034.4 | 29.91 | 135.875 | |
| 7,677.7 | 7,087.0 | 7,063.7 | 6,901.0 | 27.6 | 24.2 | -60.63 | 993.8 | -4,072.8 | 4,036.7 | 3,997.8 | 38.95 | 103.631 | |
| 7,700.0 | 7,087.0 | 7,064.4 | 6,901.6 | 27.6 | 24.2 | -60.74 | 993.8 | -4,072.8 | 4,014.5 | 3,975.2 | 39.26 | 102.244 | |
| 7,800.0 | 7,086.8 | 7,067.2 | 6,904.5 | 27.5 | 24.2 | -61.24 | 993.8 | -4,072.9 | 3,914.7 | 3,873.9 | 40.80 | 95.940 | |
| 7,900.0 | 7,086.6 | 7,070.1 | 6,907.3 | 27.9 | 24.2 | -61.75 | 993.8 | -4,073.0 | 3,815.0 | 3,772.4 | 42.55 | 89.651 | |
| 8,000.0 | 7,086.4 | 7,073.0 | 6,910.2 | 29.5 | 24.2 | -62.28 | 993.7 | -4,073.1 | 3,715.3 | 3,670.8 | 44.48 | 83.532 | |
| 8,100.0 | 7,086.2 | 7,076.0 | 6,913.2 | 31.5 | 24.2 | -62.81 | 993.7 | -4,073.2 | 3,615.6 | 3,569.0 | 46.54 | 77.681 | |
| 8,200.0 | 7,086.0 | 7,078.9 | 6,916.1 | 33.7 | 24.2 | -63.35 | 993.7 | -4,073.4 | 3,515.9 | 3,467.1 | 48.73 | 72.150 | |
| 8,300.0 | 7,085.8 | 7,081.9 | 6,919.1 | 36.0 | 24.2 | -63.90 | 993.7 | -4,073.5 | 3,416.2 | 3,365.2 | 51.02 | 66.962 | |
| 8,400.0 | 7,085.6 | 7,091.0 | 6,928.2 | 38.3 | 24.2 | -65.61 | 993.7 | -4,073.8 | 3,316.6 | 3,262.7 | 53.87 | 61.563 | |
| 8,500.0 | 7,085.4 | 7,091.0 | 6,928.2 | 40.7 | 24.2 | -65.61 | 993.7 | -4,073.8 | 3,216.9 | 3,160.8 | 56.08 | 57.358 | |
| 8,600.0 | 7,085.2 | 7,091.0 | 6,928.2 | 43.1 | 24.2 | -65.61 | 993.7 | -4,073.8 | 3,117.3 | 3,058.9 | 58.34 | 53.431 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 32-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 542-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.0 | 7,085.0 | 7,091.0 | 6,928.2 | 45.6 | 24.2 | -65.61 | 993.7 | -4,073.8 | 3,017.7 | 2,957.0 | 60.64 | 49.765 | |
| 8,800.0 | 7,084.8 | 7,097.6 | 6,934.8 | 48.1 | 24.2 | -66.88 | 993.6 | -4,074.1 | 2,918.1 | 2,854.5 | 63.56 | 45.911 | |
| 8,900.0 | 7,084.6 | 7,100.9 | 6,938.1 | 50.7 | 24.2 | -67.53 | 993.6 | -4,074.2 | 2,818.6 | 2,752.3 | 66.24 | 42.552 | |
| 9,000.0 | 7,084.4 | 7,104.2 | 6,941.4 | 53.2 | 24.2 | -68.18 | 993.6 | -4,074.3 | 2,719.0 | 2,650.1 | 68.96 | 39.431 | |
| 9,100.0 | 7,084.2 | 7,107.6 | 6,944.8 | 55.8 | 24.3 | -68.85 | 993.6 | -4,074.4 | 2,619.5 | 2,547.8 | 71.71 | 36.529 | |
| 9,200.0 | 7,084.0 | 7,111.0 | 6,948.2 | 58.4 | 24.3 | -69.52 | 993.5 | -4,074.6 | 2,520.1 | 2,445.6 | 74.50 | 33.827 | |
| 9,300.0 | 7,083.8 | 7,114.4 | 6,951.5 | 61.1 | 24.3 | -70.21 | 993.5 | -4,074.7 | 2,420.7 | 2,343.4 | 77.32 | 31.308 | |
| 9,400.0 | 7,083.7 | 7,117.8 | 6,954.9 | 63.7 | 24.3 | -70.90 | 993.5 | -4,074.8 | 2,321.3 | 2,241.1 | 80.17 | 28.956 | |
| 9,500.0 | 7,083.5 | 7,121.2 | 6,958.4 | 66.3 | 24.3 | -71.61 | 993.5 | -4,075.0 | 2,222.0 | 2,138.9 | 83.04 | 26.759 | |
| 9,600.0 | 7,083.3 | 7,124.6 | 6,961.8 | 69.0 | 24.3 | -72.32 | 993.5 | -4,075.1 | 2,122.7 | 2,036.8 | 85.93 | 24.702 | |
| 9,700.0 | 7,083.1 | 7,128.1 | 6,965.3 | 71.7 | 24.3 | -73.05 | 993.4 | -4,075.2 | 2,023.5 | 1,934.7 | 88.85 | 22.775 | |
| 9,800.0 | 7,082.9 | 7,131.6 | 6,968.7 | 74.4 | 24.3 | -73.78 | 993.4 | -4,075.4 | 1,924.4 | 1,832.6 | 91.78 | 20.967 | |
| 9,900.0 | 7,082.7 | 7,135.1 | 6,972.2 | 77.1 | 24.3 | -74.52 | 993.4 | -4,075.5 | 1,825.4 | 1,730.6 | 94.73 | 19.269 | |
| 10,000.0 | 7,082.5 | 7,138.6 | 6,975.8 | 79.7 | 24.3 | -75.27 | 993.4 | -4,075.7 | 1,726.4 | 1,628.8 | 97.70 | 17.672 | |
| 10,100.0 | 7,082.3 | 7,142.1 | 6,979.3 | 82.5 | 24.3 | -76.03 | 993.3 | -4,075.8 | 1,627.6 | 1,527.0 | 100.67 | 16.168 | |
| 10,200.0 | 7,082.1 | 7,145.7 | 6,982.8 | 85.2 | 24.3 | -76.80 | 993.3 | -4,075.9 | 1,529.0 | 1,425.3 | 103.66 | 14.750 | |
| 10,300.0 | 7,081.9 | 7,149.3 | 6,986.4 | 87.9 | 24.3 | -77.58 | 993.3 | -4,076.1 | 1,430.5 | 1,323.9 | 106.65 | 13.413 | |
| 10,400.0 | 7,081.7 | 7,152.8 | 6,990.0 | 90.6 | 24.3 | -78.37 | 993.2 | -4,076.2 | 1,332.2 | 1,222.6 | 109.65 | 12.150 | |
| 10,500.0 | 7,081.5 | 7,156.5 | 6,993.6 | 93.3 | 24.3 | -79.17 | 993.2 | -4,076.4 | 1,234.3 | 1,121.6 | 112.65 | 10.957 | |
| 10,600.0 | 7,081.3 | 7,160.1 | 6,997.3 | 96.1 | 24.3 | -79.97 | 993.2 | -4,076.5 | 1,136.6 | 1,020.9 | 115.65 | 9.828 | |
| 10,700.0 | 7,081.1 | 7,163.8 | 7,000.9 | 98.8 | 24.3 | -80.78 | 993.1 | -4,076.7 | 1,039.4 | 920.7 | 118.65 | 8.760 | |
| 10,800.0 | 7,080.9 | 7,167.4 | 7,004.6 | 101.5 | 24.3 | -81.61 | 993.1 | -4,076.8 | 942.7 | 821.1 | 121.65 | 7.750 | |
| 10,900.0 | 7,080.7 | 7,171.1 | 7,008.3 | 104.3 | 24.3 | -82.43 | 993.1 | -4,077.0 | 846.8 | 722.2 | 124.63 | 6.794 | |
| 11,000.0 | 7,080.5 | 7,174.9 | 7,012.0 | 107.0 | 24.3 | -83.27 | 993.1 | -4,077.1 | 752.0 | 624.4 | 127.61 | 5.893 | |
| 11,100.0 | 7,080.3 | 7,178.6 | 7,015.7 | 109.8 | 24.3 | -84.12 | 993.0 | -4,077.3 | 658.6 | 528.0 | 130.58 | 5.044 | |
| 11,200.0 | 7,080.1 | 7,182.4 | 7,019.5 | 112.5 | 24.3 | -84.97 | 993.0 | -4,077.4 | 567.5 | 434.0 | 133.54 | 4.250 | |
| 11,300.0 | 7,079.9 | 7,184.0 | 7,021.1 | 115.3 | 24.3 | -85.34 | 993.0 | -4,077.5 | 480.0 | 343.6 | 136.38 | 3.519 | |
| 11,400.0 | 7,079.7 | 7,189.8 | 7,026.9 | 118.0 | 24.3 | -86.66 | 992.9 | -4,077.7 | 398.3 | 258.9 | 139.39 | 2.857 | |
| 11,500.0 | 7,079.5 | 7,193.6 | 7,030.7 | 120.8 | 24.3 | -87.52 | 992.9 | -4,077.9 | 326.8 | 184.5 | 142.29 | 2.297 | |
| 11,600.0 | 7,079.3 | 7,197.4 | 7,034.5 | 123.6 | 24.3 | -88.40 | 992.8 | -4,078.0 | 273.9 | 128.7 | 145.16 | 1.887 | |
| 11,700.0 | 7,079.1 | 7,201.4 | 7,038.5 | 126.3 | 24.3 | -89.29 | 992.8 | -4,078.2 | 251.3 | 103.3 | 148.01 | 1.698 | |
| 11,709.3 | 7,079.1 | 7,201.7 | 7,038.8 | 126.6 | 24.3 | -89.37 | 992.8 | -4,078.2 | 251.1 | 102.9 | 148.28 | 1.694 | CC, ES, SF |
| 11,800.0 | 7,078.9 | 7,205.3 | 7,042.5 | 129.1 | 24.3 | -90.20 | 992.7 | -4,078.4 | 267.0 | 116.1 | 150.83 | 1.770 | |
| 11,900.0 | 7,078.7 | 7,209.4 | 7,046.5 | 131.9 | 24.3 | -91.13 | 992.7 | -4,078.5 | 315.2 | 161.6 | 153.62 | 2.052 | |
| 12,000.0 | 7,078.5 | 7,213.6 | 7,050.7 | 134.6 | 24.3 | -92.07 | 992.6 | -4,078.7 | 383.9 | 227.6 | 156.37 | 2.455 | |
| 12,100.0 | 7,078.3 | 7,217.8 | 7,054.9 | 137.4 | 24.3 | -93.03 | 992.6 | -4,078.9 | 464.1 | 305.1 | 159.07 | 2.918 | |
| 12,200.0 | 7,078.1 | 7,222.1 | 7,059.2 | 140.2 | 24.3 | -94.01 | 992.5 | -4,079.1 | 550.8 | 389.1 | 161.74 | 3.406 | |
| 12,300.0 | 7,077.9 | 7,226.5 | 7,063.6 | 142.9 | 24.3 | -95.00 | 992.5 | -4,079.3 | 641.4 | 477.0 | 164.35 | 3.903 | |
| 12,400.0 | 7,077.7 | 7,231.0 | 7,068.1 | 145.7 | 24.4 | -96.01 | 992.4 | -4,079.5 | 734.3 | 567.4 | 166.90 | 4.400 | |
| 12,500.0 | 7,077.5 | 7,235.5 | 7,072.6 | 148.5 | 24.4 | -97.03 | 992.4 | -4,079.7 | 828.9 | 659.5 | 169.40 | 4.894 | |
| 12,600.0 | 7,077.3 | 7,240.2 | 7,077.3 | 151.3 | 24.4 | -98.07 | 992.3 | -4,079.9 | 924.6 | 752.8 | 171.83 | 5.381 | |
| 12,700.0 | 7,077.1 | 7,244.9 | 7,082.0 | 154.0 | 24.4 | -99.13 | 992.2 | -4,080.1 | 1,021.2 | 847.0 | 174.19 | 5.862 | |
| 12,800.0 | 7,076.9 | 7,249.8 | 7,086.9 | 156.8 | 24.4 | -100.20 | 992.2 | -4,080.4 | 1,118.3 | 941.8 | 176.47 | 6.337 | |
| 12,900.0 | 7,076.7 | 7,254.7 | 7,091.8 | 159.6 | 24.4 | -101.28 | 992.1 | -4,080.6 | 1,215.8 | 1,037.1 | 178.68 | 6.804 | |
| 13,000.0 | 7,076.5 | 7,259.8 | 7,096.8 | 162.4 | 24.4 | -102.37 | 992.0 | -4,080.8 | 1,313.7 | 1,132.9 | 180.80 | 7.266 | |
| 13,100.0 | 7,076.3 | 7,265.0 | 7,102.0 | 165.2 | 24.4 | -103.48 | 991.9 | -4,081.1 | 1,411.9 | 1,229.1 | 182.84 | 7.722 | |
| 13,200.0 | 7,076.1 | 7,270.2 | 7,107.3 | 168.0 | 24.4 | -104.60 | 991.9 | -4,081.3 | 1,510.3 | 1,325.5 | 184.78 | 8.173 | |
| 13,300.0 | 7,075.9 | 7,275.6 | 7,112.6 | 170.7 | 24.4 | -105.73 | 991.8 | -4,081.6 | 1,608.9 | 1,422.3 | 186.63 | 8.621 | |
| 13,400.0 | 7,075.7 | 7,280.8 | 7,117.8 | 173.5 | 24.4 | -106.82 | 991.7 | -4,081.9 | 1,707.6 | 1,519.2 | 188.42 | 9.063 | |
| 13,500.0 | 7,075.5 | 7,285.9 | 7,122.9 | 176.3 | 24.4 | -107.86 | 991.6 | -4,082.1 | 1,806.5 | 1,616.3 | 190.16 | 9.500 | |
| 13,600.0 | 7,075.3 | 7,291.0 | 7,128.1 | 179.1 | 24.4 | -108.91 | 991.5 | -4,082.4 | 1,905.5 | 1,713.6 | 191.82 | 9.934 | |
| 13,700.0 | 7,075.1 | 7,296.2 | 7,133.2 | 181.9 | 24.4 | -109.95 | 991.4 | -4,082.6 | 2,004.5 | 1,811.1 | 193.39 | 10.365 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 32-20D - Wellbore #1 - Wellbore #1

**Offset Site Error:** 0.0 usft

**Survey Program:** 542-MWD

**Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.0 | 7,074.9 | 7,301.5 | 7,138.5 | 184.7 | 24.4 | -110.99 | 991.3 | -4,082.9 | 2,103.6 | 1,908.8 | 194.88 | 10.794 | |
| 13,900.0 | 7,074.7 | 7,306.8 | 7,143.8 | 187.5 | 24.4 | -112.02 | 991.2 | -4,083.2 | 2,202.8 | 2,006.6 | 196.28 | 11.223 | |
| 14,000.0 | 7,074.5 | 7,312.2 | 7,149.2 | 190.2 | 24.4 | -113.05 | 991.1 | -4,083.5 | 2,302.1 | 2,104.5 | 197.60 | 11.650 | |
| 14,100.0 | 7,074.2 | 7,317.7 | 7,154.7 | 193.0 | 24.4 | -114.08 | 990.9 | -4,083.7 | 2,401.4 | 2,202.6 | 198.83 | 12.078 | |
| 14,200.0 | 7,074.0 | 7,323.2 | 7,160.2 | 195.8 | 24.4 | -115.10 | 990.8 | -4,084.0 | 2,500.8 | 2,300.8 | 199.98 | 12.505 | |
| 14,221.4 | 7,074.0 | 7,324.4 | 7,161.4 | 196.4 | 24.4 | -115.32 | 990.8 | -4,084.1 | 2,522.0 | 2,321.8 | 200.21 | 12.597 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 42-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 705-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -46.54 | 1,881.0 | -1,985.1 | 2,734.8 | | | | |
| 100.0 | 100.0 | 88.7 | 88.7 | 0.1 | 0.1 | -46.54 | 1,880.9 | -1,985.1 | 2,734.7 | 2,734.5 | 0.18 | N/A | |
| 200.0 | 200.0 | 193.7 | 193.7 | 0.3 | 0.2 | -46.55 | 1,880.6 | -1,985.0 | 2,734.4 | 2,733.9 | 0.50 | 5,471.319 | |
| 300.0 | 300.0 | 298.6 | 298.6 | 0.5 | 0.3 | -46.56 | 1,880.0 | -1,985.0 | 2,734.0 | 2,733.2 | 0.82 | 3,330.467 | |
| 400.0 | 400.0 | 403.6 | 403.6 | 0.8 | 0.4 | -46.57 | 1,879.2 | -1,984.9 | 2,733.4 | 2,732.2 | 1.14 | 2,393.442 | |
| 500.0 | 500.0 | 508.5 | 508.5 | 1.0 | 0.5 | -74.99 | 1,878.1 | -1,984.7 | 2,732.1 | 2,730.7 | 1.46 | 1,871.036 | |
| 600.0 | 599.8 | 613.2 | 613.2 | 1.2 | 0.6 | -75.16 | 1,876.8 | -1,984.5 | 2,729.8 | 2,728.0 | 1.78 | 1,530.061 | |
| 700.0 | 699.5 | 705.0 | 705.0 | 1.5 | 0.6 | -75.40 | 1,875.5 | -1,984.4 | 2,726.5 | 2,724.4 | 2.11 | 1,291.331 | |
| 800.0 | 798.7 | 771.0 | 771.0 | 1.7 | 0.8 | -75.65 | 1,874.4 | -1,985.0 | 2,723.1 | 2,720.6 | 2.52 | 1,081.516 | |
| 900.0 | 897.5 | 836.3 | 836.2 | 2.0 | 0.9 | -75.97 | 1,873.1 | -1,987.3 | 2,720.4 | 2,717.4 | 2.96 | 919.244 | |
| 1,000.0 | 995.6 | 908.8 | 908.5 | 2.4 | 1.1 | -76.39 | 1,870.7 | -1,991.6 | 2,717.9 | 2,714.5 | 3.47 | 783.307 | |
| 1,100.0 | 1,093.1 | 1,001.1 | 1,000.4 | 2.8 | 1.3 | -77.04 | 1,866.1 | -1,999.3 | 2,715.7 | 2,711.6 | 4.11 | 661.537 | |
| 1,164.2 | 1,155.2 | 1,131.6 | 1,129.7 | 3.1 | 1.7 | -78.11 | 1,854.5 | -2,011.4 | 2,712.6 | 2,707.8 | 4.78 | 567.412 | |
| 1,200.0 | 1,189.7 | 1,168.7 | 1,166.5 | 3.2 | 1.8 | -78.43 | 1,850.1 | -2,015.3 | 2,710.7 | 2,705.6 | 5.07 | 534.787 | |
| 1,300.0 | 1,286.2 | 1,282.9 | 1,278.9 | 3.7 | 2.2 | -79.46 | 1,834.6 | -2,028.0 | 2,705.3 | 2,699.3 | 5.97 | 453.482 | |
| 1,400.0 | 1,382.6 | 1,360.0 | 1,354.4 | 4.2 | 2.5 | -80.18 | 1,822.9 | -2,037.8 | 2,700.7 | 2,694.0 | 6.76 | 399.435 | |
| 1,500.0 | 1,479.1 | 1,421.3 | 1,414.3 | 4.7 | 2.8 | -80.78 | 1,813.2 | -2,046.4 | 2,697.6 | 2,690.1 | 7.52 | 358.488 | |
| 1,600.0 | 1,575.6 | 1,499.8 | 1,490.7 | 5.3 | 3.2 | -81.57 | 1,800.0 | -2,058.6 | 2,695.7 | 2,687.3 | 8.40 | 321.012 | |
| 1,700.0 | 1,672.0 | 1,577.7 | 1,565.9 | 5.8 | 3.6 | -82.41 | 1,784.8 | -2,072.5 | 2,695.0 | 2,685.6 | 9.31 | 289.530 | |
| 1,709.3 | 1,681.0 | 1,584.7 | 1,572.6 | 5.8 | 3.6 | -82.49 | 1,783.3 | -2,073.8 | 2,694.9 | 2,685.6 | 9.39 | 286.885 | |
| 1,800.0 | 1,768.5 | 1,641.0 | 1,626.7 | 6.3 | 3.9 | -83.10 | 1,771.9 | -2,084.4 | 2,695.5 | 2,685.4 | 10.17 | 265.106 | |
| 1,900.0 | 1,864.9 | 1,700.0 | 1,683.2 | 6.8 | 4.2 | -83.76 | 1,759.9 | -2,096.1 | 2,697.9 | 2,686.9 | 11.01 | 245.046 | |
| 2,000.0 | 1,961.4 | 1,762.7 | 1,743.2 | 7.4 | 4.6 | -84.46 | 1,747.2 | -2,109.5 | 2,702.3 | 2,690.4 | 11.88 | 227.434 | |
| 2,100.0 | 2,057.9 | 1,889.7 | 1,864.2 | 7.9 | 5.3 | -85.90 | 1,720.4 | -2,137.1 | 2,707.8 | 2,694.7 | 13.10 | 206.643 | |
| 2,200.0 | 2,154.3 | 1,980.9 | 1,951.2 | 8.4 | 5.8 | -86.94 | 1,700.3 | -2,155.7 | 2,712.8 | 2,698.6 | 14.12 | 192.068 | |
| 2,300.0 | 2,250.8 | 2,048.3 | 2,015.3 | 9.0 | 6.1 | -87.71 | 1,685.0 | -2,170.0 | 2,719.3 | 2,704.2 | 15.02 | 181.065 | |
| 2,400.0 | 2,347.3 | 2,124.6 | 2,087.9 | 9.5 | 6.6 | -88.58 | 1,668.3 | -2,186.5 | 2,727.3 | 2,711.4 | 15.95 | 171.008 | |
| 2,500.0 | 2,443.7 | 2,239.6 | 2,197.6 | 10.0 | 7.1 | -89.86 | 1,643.5 | -2,210.2 | 2,735.8 | 2,718.8 | 17.03 | 160.688 | |
| 2,600.0 | 2,540.2 | 2,319.1 | 2,273.7 | 10.6 | 7.6 | -90.74 | 1,626.6 | -2,226.1 | 2,745.0 | 2,727.0 | 17.94 | 153.023 | |
| 2,700.0 | 2,636.7 | 2,389.0 | 2,340.5 | 11.1 | 7.9 | -91.50 | 1,611.9 | -2,240.4 | 2,755.6 | 2,736.8 | 18.81 | 146.457 | |
| 2,800.0 | 2,733.1 | 2,520.5 | 2,466.6 | 11.6 | 8.6 | -92.91 | 1,584.9 | -2,265.9 | 2,766.4 | 2,746.4 | 19.98 | 138.448 | |
| 2,900.0 | 2,829.6 | 2,609.8 | 2,552.0 | 12.2 | 9.1 | -93.89 | 1,565.0 | -2,283.2 | 2,777.6 | 2,756.7 | 20.96 | 132.501 | |
| 3,000.0 | 2,926.0 | 2,711.5 | 2,648.8 | 12.7 | 9.7 | -95.01 | 1,541.2 | -2,302.8 | 2,789.5 | 2,767.5 | 22.02 | 126.695 | |
| 3,100.0 | 3,022.5 | 2,800.2 | 2,733.4 | 13.2 | 10.2 | -95.98 | 1,520.4 | -2,319.5 | 2,801.9 | 2,778.9 | 22.97 | 121.973 | |
| 3,200.0 | 3,119.0 | 2,872.6 | 2,802.6 | 13.8 | 10.6 | -96.76 | 1,503.8 | -2,333.1 | 2,815.5 | 2,791.6 | 23.83 | 118.136 | |
| 3,300.0 | 3,215.4 | 2,931.0 | 2,858.4 | 14.3 | 10.9 | -97.38 | 1,490.7 | -2,344.4 | 2,830.6 | 2,806.0 | 24.63 | 114.915 | |
| 3,400.0 | 3,311.9 | 3,066.5 | 2,988.0 | 14.9 | 11.6 | -98.80 | 1,460.4 | -2,370.0 | 2,846.2 | 2,820.4 | 25.77 | 110.465 | |
| 3,500.0 | 3,408.4 | 3,137.0 | 3,055.7 | 15.4 | 12.0 | -99.52 | 1,445.6 | -2,382.8 | 2,862.4 | 2,835.8 | 26.59 | 107.661 | |
| 3,600.0 | 3,504.8 | 3,192.5 | 3,109.0 | 15.9 | 12.3 | -100.08 | 1,434.1 | -2,393.3 | 2,880.0 | 2,852.7 | 27.35 | 105.289 | |
| 3,700.0 | 3,601.3 | 3,259.3 | 3,172.9 | 16.5 | 12.7 | -100.75 | 1,420.1 | -2,406.4 | 2,899.1 | 2,871.0 | 28.16 | 102.948 | |
| 3,800.0 | 3,697.7 | 3,329.8 | 3,240.5 | 17.0 | 13.1 | -101.44 | 1,406.0 | -2,420.5 | 2,919.5 | 2,890.6 | 28.98 | 100.752 | |
| 3,900.0 | 3,794.2 | 3,427.2 | 3,334.1 | 17.5 | 13.6 | -102.39 | 1,386.7 | -2,439.9 | 2,940.7 | 2,910.8 | 29.87 | 98.438 | |
| 4,000.0 | 3,890.7 | 3,516.0 | 3,419.7 | 18.1 | 14.0 | -103.21 | 1,370.7 | -2,457.0 | 2,962.4 | 2,931.7 | 30.71 | 96.464 | |
| 4,100.0 | 3,987.1 | 3,605.0 | 3,505.6 | 18.6 | 14.5 | -104.01 | 1,355.1 | -2,474.1 | 2,984.8 | 2,953.2 | 31.53 | 94.657 | |
| 4,200.0 | 4,083.6 | 3,688.3 | 3,585.9 | 19.2 | 14.9 | -104.77 | 1,339.5 | -2,490.2 | 3,007.8 | 2,975.4 | 32.34 | 92.992 | |
| 4,300.0 | 4,180.1 | 3,744.0 | 3,639.4 | 19.7 | 15.2 | -105.28 | 1,329.2 | -2,501.2 | 3,031.9 | 2,998.8 | 33.06 | 91.717 | |
| 4,400.0 | 4,276.5 | 3,798.2 | 3,691.6 | 20.2 | 15.5 | -105.76 | 1,319.3 | -2,512.6 | 3,057.6 | 3,023.9 | 33.76 | 90.564 | |
| 4,500.0 | 4,373.0 | 3,885.4 | 3,775.1 | 20.8 | 16.0 | -106.54 | 1,303.0 | -2,531.2 | 3,084.4 | 3,049.8 | 34.58 | 89.200 | |
| 4,600.0 | 4,469.5 | 4,009.7 | 3,894.0 | 21.3 | 16.7 | -107.67 | 1,277.7 | -2,557.2 | 3,111.2 | 3,075.7 | 35.51 | 87.602 | |
| 4,700.0 | 4,565.9 | 4,110.0 | 3,989.9 | 21.9 | 17.3 | -108.58 | 1,256.3 | -2,577.3 | 3,137.9 | 3,101.6 | 36.35 | 86.318 | |
| 4,800.0 | 4,662.4 | 4,213.7 | 4,089.4 | 22.4 | 17.8 | -109.49 | 1,234.9 | -2,597.7 | 3,165.0 | 3,127.8 | 37.17 | 85.145 | |
| 4,900.0 | 4,758.8 | 4,295.1 | 4,167.5 | 22.9 | 18.3 | -110.19 | 1,218.4 | -2,613.2 | 3,192.2 | 3,154.2 | 37.92 | 84.190 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 42-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 705-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,000.0 | 4,855.3 | 4,353.0 | 4,223.0 | 23.5 | 18.6 | -110.68 | 1,206.3 | -2,624.7 | 3,220.6 | 3,182.0 | 38.60 | 83.443 | |
| 5,100.0 | 4,951.8 | 4,447.0 | 4,312.9 | 24.0 | 19.1 | -111.49 | 1,186.4 | -2,643.4 | 3,249.7 | 3,210.3 | 39.38 | 82.528 | |
| 5,200.0 | 5,048.2 | 4,509.5 | 4,372.6 | 24.6 | 19.5 | -112.02 | 1,172.9 | -2,655.9 | 3,279.6 | 3,239.5 | 40.07 | 81.852 | |
| 5,300.0 | 5,144.7 | 4,580.0 | 4,439.8 | 25.1 | 19.9 | -112.62 | 1,157.2 | -2,670.7 | 3,310.8 | 3,270.0 | 40.77 | 81.206 | |
| 5,400.0 | 5,241.2 | 4,759.9 | 4,611.7 | 25.6 | 20.9 | -114.10 | 1,118.1 | -2,706.2 | 3,341.6 | 3,299.9 | 41.74 | 80.065 | |
| 5,500.0 | 5,337.6 | 4,837.0 | 4,685.5 | 26.2 | 21.3 | -114.74 | 1,100.6 | -2,720.3 | 3,371.6 | 3,329.2 | 42.43 | 79.457 | |
| 5,600.0 | 5,434.1 | 4,898.6 | 4,744.3 | 26.7 | 21.6 | -115.24 | 1,086.5 | -2,731.8 | 3,402.7 | 3,359.6 | 43.09 | 78.962 | |
| 5,700.0 | 5,530.5 | 5,331.4 | 5,165.7 | 27.3 | 23.5 | -118.22 | 1,013.9 | -2,794.7 | 3,430.7 | 3,386.4 | 44.26 | 77.514 | |
| 5,757.1 | 5,585.6 | 5,572.3 | 5,404.9 | 27.6 | 24.2 | -119.51 | 992.3 | -2,811.9 | 3,442.6 | 3,398.0 | 44.68 | 77.044 | |
| 5,800.0 | 5,627.1 | 5,685.4 | 5,517.8 | 27.8 | 24.4 | -120.17 | 985.6 | -2,815.9 | 3,449.9 | 3,405.0 | 44.87 | 76.894 | |
| 5,900.0 | 5,724.4 | 5,839.9 | 5,672.1 | 28.2 | 24.6 | -121.02 | 980.1 | -2,818.0 | 3,463.4 | 3,418.2 | 45.19 | 76.639 | |
| 6,000.0 | 5,822.4 | 5,940.9 | 5,773.1 | 28.5 | 24.8 | -121.52 | 978.4 | -2,818.9 | 3,474.9 | 3,429.4 | 45.49 | 76.392 | |
| 6,100.0 | 5,921.0 | 6,033.8 | 5,866.0 | 28.8 | 24.9 | -121.92 | 977.4 | -2,819.8 | 3,484.6 | 3,438.8 | 45.77 | 76.140 | |
| 6,200.0 | 6,020.2 | 6,120.9 | 5,953.1 | 29.0 | 25.0 | -122.23 | 976.8 | -2,820.9 | 3,492.8 | 3,446.8 | 46.03 | 75.886 | |
| 6,300.0 | 6,119.7 | 6,228.4 | 6,060.6 | 29.3 | 25.1 | -122.49 | 976.1 | -2,822.4 | 3,499.3 | 3,453.0 | 46.29 | 75.592 | |
| 6,400.0 | 6,219.5 | 6,318.0 | 6,150.2 | 29.4 | 25.2 | -122.65 | 975.5 | -2,823.6 | 3,503.9 | 3,457.4 | 46.53 | 75.305 | |
| 6,500.0 | 6,319.5 | 6,411.0 | 6,243.2 | 29.5 | 25.3 | -122.73 | 975.1 | -2,825.1 | 3,506.9 | 3,460.1 | 46.75 | 75.005 | |
| 6,521.3 | 6,340.8 | 6,429.6 | 6,261.8 | 29.6 | 25.3 | -94.40 | 975.1 | -2,825.4 | 3,507.3 | 3,464.7 | 42.61 | 82.315 | |
| 6,551.3 | 6,370.8 | 6,456.2 | 6,288.3 | 29.6 | 25.4 | -94.40 | 975.1 | -2,825.9 | 3,507.8 | 3,465.2 | 42.68 | 82.180 | |
| 6,600.0 | 6,419.5 | 6,499.2 | 6,331.4 | 29.6 | 25.4 | -4.40 | 975.0 | -2,826.7 | 3,507.2 | 3,460.3 | 46.90 | 74.784 | |
| 6,650.0 | 6,469.2 | 6,541.4 | 6,373.5 | 29.6 | 25.5 | -4.43 | 975.0 | -2,827.7 | 3,503.1 | 3,456.4 | 46.71 | 75.001 | |
| 6,700.0 | 6,518.4 | 6,583.0 | 6,415.1 | 29.6 | 25.5 | -4.49 | 975.0 | -2,828.7 | 3,495.7 | 3,449.4 | 46.30 | 75.507 | |
| 6,750.0 | 6,567.0 | 6,629.2 | 6,461.3 | 29.6 | 25.6 | -4.57 | 975.2 | -2,829.9 | 3,485.0 | 3,439.3 | 45.67 | 76.302 | |
| 6,800.0 | 6,614.5 | 6,677.5 | 6,509.5 | 29.6 | 25.6 | -4.67 | 975.4 | -2,831.1 | 3,470.9 | 3,426.1 | 44.84 | 77.403 | |
| 6,850.0 | 6,660.9 | 6,726.9 | 6,559.0 | 29.5 | 25.7 | -4.81 | 975.9 | -2,832.4 | 3,453.5 | 3,409.7 | 43.81 | 78.838 | |
| 6,900.0 | 6,705.9 | 6,775.9 | 6,607.9 | 29.4 | 25.8 | -4.99 | 976.4 | -2,833.7 | 3,432.9 | 3,390.3 | 42.57 | 80.640 | |
| 6,950.0 | 6,749.2 | 6,820.6 | 6,652.7 | 29.3 | 25.8 | -5.21 | 976.9 | -2,834.8 | 3,409.1 | 3,367.9 | 41.15 | 82.855 | |
| 7,000.0 | 6,790.7 | 6,862.9 | 6,695.0 | 29.2 | 25.9 | -5.48 | 977.3 | -2,835.8 | 3,382.3 | 3,342.7 | 39.54 | 85.537 | |
| 7,050.0 | 6,830.2 | 6,919.7 | 6,751.7 | 29.1 | 25.9 | -5.84 | 977.3 | -2,837.1 | 3,352.6 | 3,314.8 | 37.79 | 88.707 | |
| 7,100.0 | 6,867.4 | 6,979.5 | 6,811.5 | 29.0 | 26.0 | -6.32 | 976.8 | -2,837.9 | 3,319.9 | 3,284.0 | 35.90 | 92.470 | |
| 7,150.0 | 6,902.2 | 7,018.5 | 6,850.4 | 28.9 | 26.1 | -6.87 | 976.1 | -2,838.3 | 3,284.5 | 3,250.6 | 33.87 | 96.968 | |
| 7,200.0 | 6,934.4 | 7,054.4 | 6,886.4 | 28.7 | 26.1 | -7.57 | 975.3 | -2,838.7 | 3,246.7 | 3,215.0 | 31.74 | 102.275 | |
| 7,250.0 | 6,963.8 | 7,089.4 | 6,921.4 | 28.6 | 26.2 | -8.45 | 974.4 | -2,838.9 | 3,206.7 | 3,177.2 | 29.56 | 108.472 | |
| 7,300.0 | 6,990.4 | 7,122.0 | 6,954.0 | 28.5 | 26.2 | -9.59 | 973.6 | -2,839.1 | 3,164.8 | 3,137.4 | 27.38 | 115.586 | |
| 7,350.0 | 7,013.9 | 7,150.7 | 6,982.7 | 28.4 | 26.3 | -11.10 | 972.8 | -2,839.2 | 3,121.0 | 3,095.7 | 25.28 | 123.446 | |
| 7,400.0 | 7,034.4 | 7,171.0 | 7,002.9 | 28.2 | 26.3 | -13.09 | 972.4 | -2,839.2 | 3,075.6 | 3,052.2 | 23.41 | 131.381 | |
| 7,450.0 | 7,051.5 | 7,185.7 | 7,017.7 | 28.1 | 26.3 | -15.89 | 972.0 | -2,839.3 | 3,028.9 | 3,006.9 | 22.02 | 137.540 | |
| 7,500.0 | 7,065.4 | 7,197.7 | 7,029.7 | 28.0 | 26.3 | -20.12 | 971.7 | -2,839.3 | 2,981.2 | 2,959.6 | 21.63 | 137.830 | |
| 7,550.0 | 7,075.9 | 7,206.9 | 7,038.9 | 27.9 | 26.3 | -27.05 | 971.5 | -2,839.4 | 2,932.6 | 2,909.3 | 23.27 | 125.999 | |
| 7,600.0 | 7,082.9 | 7,213.2 | 7,045.1 | 27.8 | 26.4 | -39.77 | 971.4 | -2,839.4 | 2,883.4 | 2,854.5 | 28.92 | 99.688 | |
| 7,650.0 | 7,086.5 | 7,216.5 | 7,048.5 | 27.7 | 26.4 | -65.17 | 971.3 | -2,839.4 | 2,833.8 | 2,793.9 | 39.88 | 71.064 | |
| 7,677.7 | 7,087.0 | 7,217.1 | 7,049.0 | 27.6 | 26.4 | -86.41 | 971.3 | -2,839.4 | 2,806.2 | 2,761.6 | 44.63 | 62.882 | |
| 7,700.0 | 7,087.0 | 7,217.2 | 7,049.1 | 27.6 | 26.4 | -86.43 | 971.3 | -2,839.5 | 2,784.0 | 2,739.1 | 44.94 | 61.954 | |
| 7,800.0 | 7,086.8 | 7,217.5 | 7,049.4 | 27.5 | 26.4 | -86.50 | 971.3 | -2,839.5 | 2,684.5 | 2,638.1 | 46.47 | 57.765 | |
| 7,900.0 | 7,086.6 | 7,217.9 | 7,049.8 | 27.9 | 26.4 | -86.57 | 971.3 | -2,839.5 | 2,585.1 | 2,536.9 | 48.22 | 53.612 | |
| 8,000.0 | 7,086.4 | 7,218.2 | 7,050.1 | 29.5 | 26.4 | -86.65 | 971.3 | -2,839.5 | 2,485.7 | 2,435.5 | 50.13 | 49.580 | |
| 8,100.0 | 7,086.2 | 7,218.6 | 7,050.5 | 31.5 | 26.4 | -86.72 | 971.3 | -2,839.5 | 2,386.3 | 2,334.1 | 52.19 | 45.725 | |
| 8,200.0 | 7,086.0 | 7,218.9 | 7,050.8 | 33.7 | 26.4 | -86.80 | 971.2 | -2,839.5 | 2,287.0 | 2,232.6 | 54.35 | 42.075 | |
| 8,300.0 | 7,085.8 | 7,219.3 | 7,051.2 | 36.0 | 26.4 | -86.87 | 971.2 | -2,839.5 | 2,187.7 | 2,131.1 | 56.61 | 38.643 | |
| 8,400.0 | 7,085.6 | 7,219.6 | 7,051.6 | 38.3 | 26.4 | -86.95 | 971.2 | -2,839.5 | 2,088.5 | 2,029.6 | 58.95 | 35.431 | |
| 8,500.0 | 7,085.4 | 7,220.0 | 7,051.9 | 40.7 | 26.4 | -87.03 | 971.2 | -2,839.5 | 1,989.4 | 1,928.1 | 61.34 | 32.432 | |
| 8,600.0 | 7,085.2 | 7,220.4 | 7,052.3 | 43.1 | 26.4 | -87.11 | 971.2 | -2,839.5 | 1,890.4 | 1,826.6 | 63.79 | 29.635 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 42-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 705-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.0 | 7,085.0 | 7,220.7 | 7,052.7 | 45.6 | 26.4 | -87.19 | 971.2 | -2,839.5 | 1,791.5 | 1,725.3 | 66.28 | 27.030 | |
| 8,800.0 | 7,084.8 | 7,221.1 | 7,053.0 | 48.1 | 26.4 | -87.27 | 971.2 | -2,839.5 | 1,692.8 | 1,624.0 | 68.81 | 24.602 | |
| 8,900.0 | 7,084.6 | 7,221.5 | 7,053.4 | 50.7 | 26.4 | -87.35 | 971.2 | -2,839.5 | 1,594.2 | 1,522.8 | 71.36 | 22.339 | |
| 9,000.0 | 7,084.4 | 7,221.9 | 7,053.8 | 53.2 | 26.4 | -87.43 | 971.2 | -2,839.5 | 1,495.7 | 1,421.8 | 73.95 | 20.227 | |
| 9,100.0 | 7,084.2 | 7,222.3 | 7,054.2 | 55.8 | 26.4 | -87.51 | 971.2 | -2,839.5 | 1,397.5 | 1,321.0 | 76.55 | 18.256 | |
| 9,200.0 | 7,084.0 | 7,222.7 | 7,054.6 | 58.4 | 26.4 | -87.59 | 971.2 | -2,839.5 | 1,299.6 | 1,220.4 | 79.18 | 16.413 | |
| 9,300.0 | 7,083.8 | 7,223.1 | 7,055.0 | 61.1 | 26.4 | -87.68 | 971.2 | -2,839.5 | 1,202.0 | 1,120.2 | 81.82 | 14.691 | |
| 9,400.0 | 7,083.7 | 7,223.5 | 7,055.4 | 63.7 | 26.4 | -87.76 | 971.1 | -2,839.5 | 1,104.9 | 1,020.4 | 84.48 | 13.078 | |
| 9,500.0 | 7,083.5 | 7,223.9 | 7,055.8 | 66.3 | 26.4 | -87.85 | 971.1 | -2,839.5 | 1,008.3 | 921.1 | 87.15 | 11.569 | |
| 9,600.0 | 7,083.3 | 7,224.3 | 7,056.2 | 69.0 | 26.4 | -87.94 | 971.1 | -2,839.5 | 912.4 | 822.6 | 89.83 | 10.157 | |
| 9,700.0 | 7,083.1 | 7,224.7 | 7,056.6 | 71.7 | 26.4 | -88.03 | 971.1 | -2,839.5 | 817.5 | 725.0 | 92.53 | 8.836 | |
| 9,800.0 | 7,082.9 | 7,225.1 | 7,057.1 | 74.4 | 26.4 | -88.11 | 971.1 | -2,839.5 | 724.0 | 628.8 | 95.23 | 7.603 | |
| 9,900.0 | 7,082.7 | 7,225.6 | 7,057.5 | 77.1 | 26.4 | -88.20 | 971.1 | -2,839.5 | 632.5 | 534.6 | 97.94 | 6.459 | |
| 10,000.0 | 7,082.5 | 7,226.0 | 7,057.9 | 79.7 | 26.4 | -88.29 | 971.1 | -2,839.5 | 544.0 | 443.4 | 100.66 | 5.405 | |
| 10,100.0 | 7,082.3 | 7,226.4 | 7,058.4 | 82.5 | 26.4 | -88.39 | 971.1 | -2,839.5 | 460.3 | 356.9 | 103.38 | 4.452 | |
| 10,200.0 | 7,082.1 | 7,226.9 | 7,058.8 | 85.2 | 26.4 | -88.48 | 971.1 | -2,839.5 | 384.4 | 278.3 | 106.11 | 3.622 | |
| 10,300.0 | 7,081.9 | 7,227.3 | 7,059.3 | 87.9 | 26.4 | -88.57 | 971.1 | -2,839.5 | 321.9 | 213.0 | 108.85 | 2.957 | |
| 10,400.0 | 7,081.7 | 7,227.8 | 7,059.7 | 90.6 | 26.4 | -88.67 | 971.0 | -2,839.5 | 281.9 | 170.3 | 111.59 | 2.526 | |
| 10,470.6 | 7,081.5 | 7,228.1 | 7,060.0 | 92.5 | 26.4 | -88.74 | 971.0 | -2,839.5 | 272.9 | 159.4 | 113.53 | 2.404 | CC, ES |
| 10,500.0 | 7,081.5 | 7,228.2 | 7,060.2 | 93.3 | 26.4 | -88.76 | 971.0 | -2,839.5 | 274.5 | 160.2 | 114.33 | 2.401 | SF |
| 10,600.0 | 7,081.3 | 7,228.7 | 7,060.6 | 96.1 | 26.4 | -88.86 | 971.0 | -2,839.5 | 302.0 | 184.9 | 117.08 | 2.580 | |
| 10,700.0 | 7,081.1 | 7,229.2 | 7,061.1 | 98.8 | 26.4 | -88.96 | 971.0 | -2,839.5 | 356.5 | 236.7 | 119.83 | 2.975 | |
| 10,800.0 | 7,080.9 | 7,229.6 | 7,061.6 | 101.5 | 26.4 | -89.06 | 971.0 | -2,839.5 | 427.7 | 305.1 | 122.59 | 3.489 | |
| 10,900.0 | 7,080.7 | 7,230.1 | 7,062.0 | 104.3 | 26.4 | -89.16 | 971.0 | -2,839.5 | 508.8 | 383.4 | 125.35 | 4.059 | |
| 11,000.0 | 7,080.5 | 7,230.6 | 7,062.5 | 107.0 | 26.4 | -89.26 | 971.0 | -2,839.5 | 595.6 | 467.5 | 128.11 | 4.649 | |
| 11,100.0 | 7,080.3 | 7,231.1 | 7,063.0 | 109.8 | 26.4 | -89.37 | 971.0 | -2,839.5 | 686.0 | 555.1 | 130.87 | 5.242 | |
| 11,200.0 | 7,080.1 | 7,231.6 | 7,063.5 | 112.5 | 26.4 | -89.47 | 971.0 | -2,839.5 | 778.7 | 645.1 | 133.64 | 5.827 | |
| 11,300.0 | 7,079.9 | 7,232.1 | 7,064.0 | 115.3 | 26.4 | -89.58 | 971.0 | -2,839.5 | 873.1 | 736.7 | 136.41 | 6.401 | |
| 11,400.0 | 7,079.7 | 7,232.6 | 7,064.5 | 118.0 | 26.4 | -89.68 | 970.9 | -2,839.5 | 968.6 | 829.4 | 139.18 | 6.959 | |
| 11,500.0 | 7,079.5 | 7,233.1 | 7,065.1 | 120.8 | 26.4 | -89.79 | 970.9 | -2,839.6 | 1,064.9 | 923.0 | 141.95 | 7.502 | |
| 11,600.0 | 7,079.3 | 7,233.7 | 7,065.6 | 123.6 | 26.4 | -89.90 | 970.9 | -2,839.6 | 1,161.9 | 1,017.1 | 144.72 | 8.028 | |
| 11,700.0 | 7,079.1 | 7,234.2 | 7,066.1 | 126.3 | 26.4 | -90.01 | 970.9 | -2,839.6 | 1,259.3 | 1,111.8 | 147.50 | 8.538 | |
| 11,800.0 | 7,078.9 | 7,234.7 | 7,066.6 | 129.1 | 26.4 | -90.12 | 970.9 | -2,839.6 | 1,357.1 | 1,206.8 | 150.27 | 9.031 | |
| 11,900.0 | 7,078.7 | 7,235.3 | 7,067.2 | 131.9 | 26.4 | -90.24 | 970.9 | -2,839.6 | 1,455.2 | 1,302.1 | 153.05 | 9.508 | |
| 12,000.0 | 7,078.5 | 7,235.8 | 7,067.7 | 134.6 | 26.4 | -90.35 | 970.9 | -2,839.6 | 1,553.5 | 1,397.7 | 155.83 | 9.969 | |
| 12,100.0 | 7,078.3 | 7,236.4 | 7,068.3 | 137.4 | 26.4 | -90.47 | 970.9 | -2,839.6 | 1,652.0 | 1,493.4 | 158.61 | 10.416 | |
| 12,200.0 | 7,078.1 | 7,236.9 | 7,068.9 | 140.2 | 26.4 | -90.58 | 970.8 | -2,839.6 | 1,750.7 | 1,589.4 | 161.39 | 10.848 | |
| 12,300.0 | 7,077.9 | 7,237.5 | 7,069.4 | 142.9 | 26.4 | -90.70 | 970.8 | -2,839.6 | 1,849.6 | 1,685.4 | 164.17 | 11.267 | |
| 12,400.0 | 7,077.7 | 7,238.1 | 7,070.0 | 145.7 | 26.4 | -90.83 | 970.8 | -2,839.6 | 1,948.5 | 1,781.6 | 166.95 | 11.672 | |
| 12,500.0 | 7,077.5 | 7,238.7 | 7,070.6 | 148.5 | 26.4 | -90.95 | 970.8 | -2,839.6 | 2,047.6 | 1,877.9 | 169.73 | 12.064 | |
| 12,600.0 | 7,077.3 | 7,239.3 | 7,071.2 | 151.3 | 26.4 | -91.07 | 970.8 | -2,839.6 | 2,146.7 | 1,974.2 | 172.51 | 12.445 | |
| 12,700.0 | 7,077.1 | 7,239.9 | 7,071.8 | 154.0 | 26.4 | -91.20 | 970.8 | -2,839.6 | 2,246.0 | 2,070.7 | 175.29 | 12.813 | |
| 12,800.0 | 7,076.9 | 7,240.5 | 7,072.4 | 156.8 | 26.4 | -91.33 | 970.8 | -2,839.6 | 2,345.3 | 2,167.2 | 178.07 | 13.171 | |
| 12,900.0 | 7,076.7 | 7,241.1 | 7,073.0 | 159.6 | 26.4 | -91.45 | 970.8 | -2,839.6 | 2,444.6 | 2,263.8 | 180.85 | 13.518 | |
| 13,000.0 | 7,076.5 | 7,241.7 | 7,073.7 | 162.4 | 26.4 | -91.59 | 970.7 | -2,839.6 | 2,544.0 | 2,360.4 | 183.62 | 13.854 | |
| 13,100.0 | 7,076.3 | 7,242.4 | 7,074.3 | 165.2 | 26.4 | -91.72 | 970.7 | -2,839.6 | 2,643.4 | 2,457.0 | 186.40 | 14.181 | |
| 13,200.0 | 7,076.1 | 7,243.0 | 7,075.0 | 168.0 | 26.4 | -91.85 | 970.7 | -2,839.6 | 2,742.9 | 2,553.8 | 189.18 | 14.499 | |
| 13,300.0 | 7,075.9 | 7,243.7 | 7,075.6 | 170.7 | 26.4 | -91.99 | 970.7 | -2,839.6 | 2,842.5 | 2,650.5 | 191.96 | 14.808 | |
| 13,400.0 | 7,075.7 | 7,244.4 | 7,076.3 | 173.5 | 26.4 | -92.13 | 970.7 | -2,839.6 | 2,942.0 | 2,747.3 | 194.73 | 15.108 | |
| 13,500.0 | 7,075.5 | 7,245.0 | 7,077.0 | 176.3 | 26.4 | -92.27 | 970.7 | -2,839.6 | 3,041.6 | 2,844.1 | 197.51 | 15.400 | |
| 13,600.0 | 7,075.3 | 7,245.7 | 7,077.6 | 179.1 | 26.4 | -92.41 | 970.7 | -2,839.6 | 3,141.2 | 2,940.9 | 200.28 | 15.684 | |
| 13,700.0 | 7,075.1 | 7,246.4 | 7,078.3 | 181.9 | 26.4 | -92.55 | 970.6 | -2,839.6 | 3,240.8 | 3,037.8 | 203.06 | 15.960 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 42-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 705-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.0 | 7,074.9 | 7,247.1 | 7,079.0 | 184.7 | 26.4 | -92.70 | 970.6 | -2,839.7 | 3,340.5 | 3,134.7 | 205.83 | 16.229 | |
| 13,900.0 | 7,074.7 | 7,247.8 | 7,079.8 | 187.5 | 26.4 | -92.85 | 970.6 | -2,839.7 | 3,440.2 | 3,231.6 | 208.60 | 16.492 | |
| 14,000.0 | 7,074.5 | 7,248.6 | 7,080.5 | 190.2 | 26.4 | -93.00 | 970.6 | -2,839.7 | 3,539.8 | 3,328.5 | 211.37 | 16.747 | |
| 14,100.0 | 7,074.2 | 7,249.3 | 7,081.2 | 193.0 | 26.4 | -93.15 | 970.6 | -2,839.7 | 3,639.6 | 3,425.4 | 214.13 | 16.997 | |
| 14,200.0 | 7,074.0 | 7,250.1 | 7,082.0 | 195.8 | 26.4 | -93.31 | 970.6 | -2,839.7 | 3,739.3 | 3,522.4 | 216.90 | 17.240 | |
| 14,221.4 | 7,074.0 | 7,250.2 | 7,082.1 | 196.4 | 26.4 | -93.34 | 970.6 | -2,839.7 | 3,760.6 | 3,543.1 | 217.49 | 17.291 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT BROWN 20-1 - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-INC — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -69.09 | 2,459.5 | -6,436.8 | 6,890.8 | | | | |
| 100.0 | 100.0 | 61.5 | 61.5 | 0.1 | 0.0 | -69.09 | 2,459.5 | -6,436.8 | 6,890.7 | 6,890.6 | 0.10 | N/A | |
| 200.0 | 200.0 | 161.5 | 161.5 | 0.3 | 0.7 | -69.09 | 2,459.5 | -6,436.8 | 6,890.7 | 6,889.7 | 1.03 | 6,662.062 | |
| 300.0 | 300.0 | 261.5 | 261.5 | 0.5 | 2.6 | -69.09 | 2,459.5 | -6,436.8 | 6,890.7 | 6,887.6 | 3.12 | 2,209.519 | |
| 400.0 | 400.0 | 361.5 | 361.5 | 0.8 | 4.7 | -69.09 | 2,459.5 | -6,436.8 | 6,890.7 | 6,885.2 | 5.51 | 1,251.274 | |
| 500.0 | 500.0 | 461.5 | 461.5 | 1.0 | 6.8 | -97.44 | 2,459.5 | -6,436.8 | 6,890.9 | 6,883.1 | 7.79 | 885.076 | |
| 600.0 | 599.8 | 561.3 | 561.3 | 1.2 | 8.8 | -97.47 | 2,459.5 | -6,436.8 | 6,891.6 | 6,881.6 | 10.04 | 686.245 | |
| 700.0 | 699.5 | 661.0 | 661.0 | 1.5 | 10.8 | -97.52 | 2,459.5 | -6,436.8 | 6,892.8 | 6,880.5 | 12.30 | 560.405 | |
| 800.0 | 798.7 | 760.2 | 760.2 | 1.7 | 12.8 | -97.59 | 2,459.5 | -6,436.8 | 6,894.4 | 6,879.8 | 14.57 | 473.187 | |
| 900.0 | 897.5 | 859.0 | 859.0 | 2.0 | 14.8 | -97.67 | 2,459.5 | -6,436.8 | 6,896.5 | 6,879.6 | 16.86 | 408.945 | |
| 1,000.0 | 995.6 | 957.1 | 957.1 | 2.4 | 16.8 | -97.78 | 2,459.5 | -6,436.8 | 6,899.1 | 6,879.9 | 19.19 | 359.536 | |
| 1,100.0 | 1,093.1 | 1,054.6 | 1,054.6 | 2.8 | 18.8 | -97.89 | 2,459.5 | -6,436.8 | 6,902.2 | 6,880.7 | 21.55 | 320.299 | |
| 1,164.2 | 1,155.2 | 1,116.7 | 1,116.7 | 3.1 | 20.0 | -97.98 | 2,459.5 | -6,436.8 | 6,904.5 | 6,881.5 | 23.08 | 299.098 | |
| 1,200.0 | 1,189.7 | 1,151.2 | 1,151.2 | 3.2 | 20.7 | -98.05 | 2,459.5 | -6,436.8 | 6,905.9 | 6,882.0 | 23.95 | 288.372 | |
| 1,300.0 | 1,286.2 | 1,247.7 | 1,247.7 | 3.7 | 22.7 | -98.26 | 2,459.5 | -6,436.8 | 6,909.8 | 6,883.4 | 26.37 | 262.029 | |
| 1,400.0 | 1,382.6 | 1,344.1 | 1,344.1 | 4.2 | 24.6 | -98.47 | 2,459.5 | -6,436.8 | 6,913.8 | 6,884.9 | 28.80 | 240.022 | |
| 1,500.0 | 1,479.1 | 1,440.6 | 1,440.6 | 4.7 | 26.6 | -98.68 | 2,459.5 | -6,436.8 | 6,917.8 | 6,886.6 | 31.25 | 221.391 | |
| 1,600.0 | 1,575.6 | 1,537.1 | 1,537.1 | 5.3 | 28.5 | -98.89 | 2,459.5 | -6,436.8 | 6,922.0 | 6,888.3 | 33.70 | 205.430 | |
| 1,700.0 | 1,672.0 | 1,633.5 | 1,633.5 | 5.8 | 30.4 | -99.09 | 2,459.5 | -6,436.8 | 6,926.3 | 6,890.1 | 36.15 | 191.615 | |
| 1,800.0 | 1,768.5 | 1,730.0 | 1,730.0 | 6.3 | 32.4 | -99.30 | 2,459.5 | -6,436.8 | 6,930.6 | 6,892.0 | 38.60 | 179.544 | |
| 1,900.0 | 1,864.9 | 1,826.4 | 1,826.4 | 6.8 | 34.3 | -99.51 | 2,459.5 | -6,436.8 | 6,935.1 | 6,894.0 | 41.06 | 168.912 | |
| 2,000.0 | 1,961.4 | 1,922.9 | 1,922.9 | 7.4 | 36.3 | -99.72 | 2,459.5 | -6,436.8 | 6,939.6 | 6,896.1 | 43.52 | 159.477 | |
| 2,100.0 | 2,057.9 | 2,019.4 | 2,019.4 | 7.9 | 38.2 | -99.92 | 2,459.5 | -6,436.8 | 6,944.3 | 6,898.3 | 45.97 | 151.050 | |
| 2,200.0 | 2,154.3 | 2,115.8 | 2,115.8 | 8.4 | 40.1 | -100.13 | 2,459.5 | -6,436.8 | 6,949.1 | 6,900.6 | 48.43 | 143.479 | |
| 2,300.0 | 2,250.8 | 2,212.3 | 2,212.3 | 9.0 | 42.1 | -100.34 | 2,459.5 | -6,436.8 | 6,953.9 | 6,903.0 | 50.89 | 136.641 | |
| 2,400.0 | 2,347.3 | 2,308.8 | 2,308.8 | 9.5 | 44.0 | -100.54 | 2,459.5 | -6,436.8 | 6,958.8 | 6,905.5 | 53.35 | 130.435 | |
| 2,500.0 | 2,443.7 | 2,405.2 | 2,405.2 | 10.0 | 46.0 | -100.75 | 2,459.5 | -6,436.8 | 6,963.9 | 6,908.1 | 55.81 | 124.778 | |
| 2,600.0 | 2,540.2 | 2,501.7 | 2,501.7 | 10.6 | 47.9 | -100.95 | 2,459.5 | -6,436.8 | 6,969.0 | 6,910.8 | 58.27 | 119.600 | |
| 2,700.0 | 2,636.7 | 2,598.2 | 2,598.2 | 11.1 | 49.8 | -101.16 | 2,459.5 | -6,436.8 | 6,974.3 | 6,913.5 | 60.73 | 114.844 | |
| 2,800.0 | 2,733.1 | 2,694.6 | 2,694.6 | 11.6 | 51.8 | -101.37 | 2,459.5 | -6,436.8 | 6,979.6 | 6,916.4 | 63.19 | 110.460 | |
| 2,900.0 | 2,829.6 | 2,791.1 | 2,791.1 | 12.2 | 53.7 | -101.57 | 2,459.5 | -6,436.8 | 6,985.0 | 6,919.4 | 65.64 | 106.406 | |
| 3,000.0 | 2,926.0 | 2,887.5 | 2,887.5 | 12.7 | 55.7 | -101.77 | 2,459.5 | -6,436.8 | 6,990.5 | 6,922.4 | 68.10 | 102.648 | |
| 3,100.0 | 3,022.5 | 2,984.0 | 2,984.0 | 13.2 | 57.6 | -101.98 | 2,459.5 | -6,436.8 | 6,996.2 | 6,925.6 | 70.56 | 99.153 | |
| 3,200.0 | 3,119.0 | 3,080.5 | 3,080.5 | 13.8 | 59.5 | -102.18 | 2,459.5 | -6,436.8 | 7,001.9 | 6,928.8 | 73.02 | 95.896 | |
| 3,300.0 | 3,215.4 | 3,176.9 | 3,176.9 | 14.3 | 61.5 | -102.39 | 2,459.5 | -6,436.8 | 7,007.7 | 6,932.2 | 75.47 | 92.853 | |
| 3,400.0 | 3,311.9 | 3,273.4 | 3,273.4 | 14.9 | 63.4 | -102.59 | 2,459.5 | -6,436.8 | 7,013.6 | 6,935.6 | 77.93 | 90.004 | |
| 3,500.0 | 3,408.4 | 3,369.9 | 3,369.9 | 15.4 | 65.4 | -102.79 | 2,459.5 | -6,436.8 | 7,019.6 | 6,939.2 | 80.38 | 87.330 | |
| 3,600.0 | 3,504.8 | 3,466.3 | 3,466.3 | 15.9 | 67.3 | -103.00 | 2,459.5 | -6,436.8 | 7,025.6 | 6,942.8 | 82.83 | 84.817 | |
| 3,700.0 | 3,601.3 | 3,562.8 | 3,562.8 | 16.5 | 69.2 | -103.20 | 2,459.5 | -6,436.8 | 7,031.8 | 6,946.5 | 85.28 | 82.451 | |
| 3,800.0 | 3,697.7 | 3,659.2 | 3,659.2 | 17.0 | 71.2 | -103.40 | 2,459.5 | -6,436.8 | 7,038.1 | 6,950.4 | 87.74 | 80.219 | |
| 3,900.0 | 3,794.2 | 3,755.7 | 3,755.7 | 17.5 | 73.1 | -103.60 | 2,459.5 | -6,436.8 | 7,044.5 | 6,954.3 | 90.19 | 78.110 | |
| 4,000.0 | 3,890.7 | 3,852.2 | 3,852.2 | 18.1 | 75.1 | -103.80 | 2,459.5 | -6,436.8 | 7,050.9 | 6,958.3 | 92.64 | 76.114 | |
| 4,100.0 | 3,987.1 | 3,948.6 | 3,948.6 | 18.6 | 77.0 | -104.00 | 2,459.5 | -6,436.8 | 7,057.5 | 6,962.4 | 95.09 | 74.223 | |
| 4,200.0 | 4,083.6 | 4,045.1 | 4,045.1 | 19.2 | 78.9 | -104.20 | 2,459.5 | -6,436.8 | 7,064.1 | 6,966.6 | 97.53 | 72.428 | |
| 4,300.0 | 4,180.1 | 4,141.6 | 4,141.6 | 19.7 | 80.9 | -104.40 | 2,459.5 | -6,436.8 | 7,070.9 | 6,970.9 | 99.98 | 70.723 | |
| 4,400.0 | 4,276.5 | 4,238.0 | 4,238.0 | 20.2 | 82.8 | -104.60 | 2,459.5 | -6,436.8 | 7,077.7 | 6,975.3 | 102.43 | 69.101 | |
| 4,500.0 | 4,373.0 | 4,334.5 | 4,334.5 | 20.8 | 84.8 | -104.80 | 2,459.5 | -6,436.8 | 7,084.6 | 6,979.7 | 104.87 | 67.556 | |
| 4,600.0 | 4,469.5 | 4,431.0 | 4,431.0 | 21.3 | 86.7 | -105.00 | 2,459.5 | -6,436.8 | 7,091.6 | 6,984.3 | 107.31 | 66.083 | |
| 4,700.0 | 4,565.9 | 4,527.4 | 4,527.4 | 21.9 | 88.6 | -105.20 | 2,459.5 | -6,436.8 | 7,098.7 | 6,989.0 | 109.76 | 64.677 | |
| 4,800.0 | 4,662.4 | 4,623.9 | 4,623.9 | 22.4 | 90.6 | -105.40 | 2,459.5 | -6,436.8 | 7,105.9 | 6,993.7 | 112.20 | 63.333 | |
| 4,900.0 | 4,758.8 | 4,720.3 | 4,720.3 | 22.9 | 92.5 | -105.60 | 2,459.5 | -6,436.8 | 7,113.2 | 6,998.5 | 114.64 | 62.049 | |
| 5,000.0 | 4,855.3 | 4,816.8 | 4,816.8 | 23.5 | 94.5 | -105.80 | 2,459.5 | -6,436.8 | 7,120.6 | 7,003.5 | 117.08 | 60.819 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT BROWN 20-1 - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-INC — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 4,913.3 | 4,913.3 | 24.0 | 96.4 | -105.99 | 2,459.5 | -6,436.8 | 7,128.0 | 7,008.5 | 119.52 | 59.641 | |
| 5,200.0 | 5,048.2 | 5,009.7 | 5,009.7 | 24.6 | 98.3 | -106.19 | 2,459.5 | -6,436.8 | 7,135.6 | 7,013.6 | 121.95 | 58.511 | |
| 5,300.0 | 5,144.7 | 5,106.2 | 5,106.2 | 25.1 | 100.3 | -106.39 | 2,459.5 | -6,436.8 | 7,143.2 | 7,018.8 | 124.39 | 57.426 | |
| 5,400.0 | 5,241.2 | 5,202.7 | 5,202.7 | 25.6 | 102.2 | -106.58 | 2,459.5 | -6,436.8 | 7,150.9 | 7,024.1 | 126.82 | 56.385 | |
| 5,500.0 | 5,337.6 | 5,299.1 | 5,299.1 | 26.2 | 104.2 | -106.78 | 2,459.5 | -6,436.8 | 7,158.8 | 7,029.5 | 129.26 | 55.384 | |
| 5,600.0 | 5,434.1 | 5,395.6 | 5,395.6 | 26.7 | 106.1 | -106.97 | 2,459.5 | -6,436.8 | 7,166.7 | 7,035.0 | 131.69 | 54.421 | |
| 5,700.0 | 5,530.5 | 5,492.0 | 5,492.0 | 27.3 | 108.0 | -107.17 | 2,459.5 | -6,436.8 | 7,174.7 | 7,040.5 | 134.12 | 53.494 | |
| 5,757.1 | 5,585.6 | 5,547.1 | 5,547.1 | 27.6 | 109.2 | -107.28 | 2,459.5 | -6,436.8 | 7,179.3 | 7,043.8 | 135.51 | 52.980 | |
| 5,800.0 | 5,627.1 | 5,588.6 | 5,588.6 | 27.8 | 110.0 | -107.42 | 2,459.5 | -6,436.8 | 7,182.7 | 7,046.1 | 136.55 | 52.600 | |
| 5,900.0 | 5,724.4 | 5,685.9 | 5,685.9 | 28.2 | 111.9 | -107.73 | 2,459.5 | -6,436.8 | 7,189.8 | 7,050.9 | 138.92 | 51.756 | |
| 6,000.0 | 5,822.4 | 5,783.9 | 5,783.9 | 28.5 | 113.9 | -108.00 | 2,459.5 | -6,436.8 | 7,196.0 | 7,054.8 | 141.25 | 50.944 | |
| 6,100.0 | 5,921.0 | 5,882.5 | 5,882.5 | 28.8 | 115.9 | -108.22 | 2,459.5 | -6,436.8 | 7,201.2 | 7,057.6 | 143.56 | 50.161 | |
| 6,200.0 | 6,020.2 | 5,981.7 | 5,981.7 | 29.0 | 117.9 | -108.39 | 2,459.5 | -6,436.8 | 7,205.3 | 7,059.5 | 145.83 | 49.409 | |
| 6,300.0 | 6,119.7 | 6,081.2 | 6,081.2 | 29.3 | 119.9 | -108.52 | 2,459.5 | -6,436.8 | 7,208.3 | 7,060.2 | 148.06 | 48.685 | |
| 6,400.0 | 6,219.5 | 6,181.0 | 6,181.0 | 29.4 | 121.9 | -108.60 | 2,459.5 | -6,436.8 | 7,210.2 | 7,060.0 | 150.24 | 47.991 | |
| 6,500.0 | 6,319.5 | 6,281.0 | 6,281.0 | 29.5 | 123.9 | -108.64 | 2,459.5 | -6,436.8 | 7,211.0 | 7,058.6 | 152.37 | 47.324 | |
| 6,521.3 | 6,340.8 | 6,302.3 | 6,302.3 | 29.6 | 124.3 | -80.29 | 2,459.5 | -6,436.8 | 7,211.0 | 7,068.1 | 142.96 | 50.440 | |
| 6,551.3 | 6,370.8 | 6,332.3 | 6,332.3 | 29.6 | 124.9 | -80.29 | 2,459.5 | -6,436.8 | 7,211.0 | 7,067.4 | 143.61 | 50.212 | |
| 6,600.0 | 6,419.5 | 6,381.0 | 6,381.0 | 29.6 | 125.9 | 9.73 | 2,459.5 | -6,436.8 | 7,209.4 | 7,055.3 | 154.10 | 46.785 | |
| 6,650.0 | 6,469.2 | 6,430.7 | 6,430.7 | 29.6 | 126.9 | 9.81 | 2,459.5 | -6,436.8 | 7,204.3 | 7,050.3 | 154.04 | 46.770 | |
| 6,700.0 | 6,518.4 | 6,479.9 | 6,479.9 | 29.6 | 127.9 | 9.94 | 2,459.5 | -6,436.8 | 7,195.9 | 7,042.6 | 153.24 | 46.959 | |
| 6,750.0 | 6,567.0 | 6,528.5 | 6,528.5 | 29.6 | 128.9 | 10.12 | 2,459.5 | -6,436.8 | 7,184.0 | 7,032.3 | 151.69 | 47.358 | |
| 6,800.0 | 6,614.5 | 6,576.0 | 6,576.0 | 29.6 | 129.8 | 10.37 | 2,459.5 | -6,436.8 | 7,168.9 | 7,019.5 | 149.41 | 47.980 | |
| 6,850.0 | 6,660.9 | 6,622.4 | 6,622.4 | 29.5 | 130.8 | 10.69 | 2,459.5 | -6,436.8 | 7,150.5 | 7,004.1 | 146.41 | 48.839 | |
| 6,900.0 | 6,705.9 | 6,667.4 | 6,667.4 | 29.4 | 131.7 | 11.08 | 2,459.5 | -6,436.8 | 7,129.0 | 6,986.3 | 142.70 | 49.957 | |
| 6,950.0 | 6,749.2 | 6,710.7 | 6,710.7 | 29.3 | 132.6 | 11.56 | 2,459.5 | -6,436.8 | 7,104.4 | 6,966.1 | 138.33 | 51.357 | |
| 7,000.0 | 6,790.7 | 6,752.2 | 6,752.2 | 29.2 | 133.4 | 12.15 | 2,459.5 | -6,436.8 | 7,077.0 | 6,943.6 | 133.35 | 53.070 | |
| 7,050.0 | 6,830.2 | 6,791.7 | 6,791.7 | 29.1 | 134.2 | 12.86 | 2,459.5 | -6,436.8 | 7,046.7 | 6,918.9 | 127.83 | 55.125 | |
| 7,100.0 | 6,867.4 | 6,828.9 | 6,828.9 | 29.0 | 134.9 | 13.72 | 2,459.5 | -6,436.8 | 7,013.9 | 6,892.0 | 121.89 | 57.544 | |
| 7,150.0 | 6,902.2 | 6,863.7 | 6,863.7 | 28.9 | 135.6 | 14.78 | 2,459.5 | -6,436.8 | 6,978.5 | 6,862.8 | 115.67 | 60.331 | |
| 7,200.0 | 6,934.4 | 6,895.9 | 6,895.9 | 28.7 | 136.3 | 16.08 | 2,459.5 | -6,436.8 | 6,940.9 | 6,831.4 | 109.41 | 63.438 | |
| 7,250.0 | 6,963.8 | 6,925.3 | 6,925.3 | 28.6 | 136.9 | 17.70 | 2,459.5 | -6,436.8 | 6,901.1 | 6,797.6 | 103.46 | 66.704 | |
| 7,300.0 | 6,990.4 | 6,951.9 | 6,951.9 | 28.5 | 137.4 | 19.75 | 2,459.5 | -6,436.8 | 6,859.4 | 6,761.1 | 98.34 | 69.754 | |
| 7,350.0 | 7,013.9 | 6,975.4 | 6,975.4 | 28.4 | 137.9 | 22.39 | 2,459.5 | -6,436.8 | 6,816.0 | 6,721.2 | 94.84 | 71.865 | |
| 7,400.0 | 7,034.4 | 6,995.9 | 6,995.9 | 28.2 | 138.3 | 25.87 | 2,459.5 | -6,436.8 | 6,771.1 | 6,677.0 | 94.12 | 71.938 | |
| 7,450.0 | 7,051.5 | 7,013.0 | 7,013.0 | 28.1 | 138.6 | 30.60 | 2,459.5 | -6,436.8 | 6,725.0 | 6,627.3 | 97.65 | 68.869 | |
| 7,500.0 | 7,065.4 | 7,026.9 | 7,026.9 | 28.0 | 138.9 | 37.22 | 2,459.5 | -6,436.8 | 6,677.7 | 6,570.8 | 106.95 | 62.439 | |
| 7,550.0 | 7,075.9 | 7,037.4 | 7,037.4 | 27.9 | 139.1 | 46.75 | 2,459.5 | -6,436.8 | 6,629.7 | 6,506.8 | 122.86 | 53.960 | |
| 7,600.0 | 7,082.9 | 7,044.4 | 7,044.4 | 27.8 | 139.3 | 60.50 | 2,459.5 | -6,436.8 | 6,581.0 | 6,437.5 | 143.49 | 45.865 | |
| 7,650.0 | 7,086.5 | 7,048.0 | 7,048.0 | 27.7 | 139.3 | 79.03 | 2,459.5 | -6,436.8 | 6,532.0 | 6,371.9 | 160.15 | 40.786 | |
| 7,677.7 | 7,087.0 | 7,048.5 | 7,048.5 | 27.6 | 139.3 | 90.58 | 2,459.5 | -6,436.8 | 6,504.8 | 6,342.2 | 162.58 | 40.010 | |
| 7,700.0 | 7,087.0 | 7,048.5 | 7,048.5 | 27.6 | 139.3 | 90.58 | 2,459.5 | -6,436.8 | 6,482.9 | 6,320.0 | 162.89 | 39.800 | |
| 7,800.0 | 7,086.8 | 7,048.3 | 7,048.3 | 27.5 | 139.3 | 90.57 | 2,459.5 | -6,436.8 | 6,384.7 | 6,220.3 | 164.42 | 38.832 | |
| 7,900.0 | 7,086.6 | 7,048.1 | 7,048.1 | 27.9 | 139.3 | 90.56 | 2,459.5 | -6,436.8 | 6,286.6 | 6,120.4 | 166.16 | 37.835 | |
| 8,000.0 | 7,086.4 | 7,047.9 | 7,047.9 | 29.5 | 139.3 | 90.55 | 2,459.5 | -6,436.8 | 6,188.5 | 6,020.4 | 168.06 | 36.822 | |
| 8,100.0 | 7,086.2 | 7,047.7 | 7,047.7 | 31.5 | 139.3 | 90.54 | 2,459.5 | -6,436.8 | 6,090.5 | 5,920.4 | 170.11 | 35.803 | |
| 8,200.0 | 7,086.0 | 7,047.5 | 7,047.5 | 33.7 | 139.3 | 90.54 | 2,459.5 | -6,436.8 | 5,992.5 | 5,820.3 | 172.27 | 34.787 | |
| 8,300.0 | 7,085.8 | 7,047.3 | 7,047.3 | 36.0 | 139.3 | 90.53 | 2,459.5 | -6,436.8 | 5,894.6 | 5,720.1 | 174.51 | 33.777 | |
| 8,400.0 | 7,085.6 | 7,047.1 | 7,047.1 | 38.3 | 139.3 | 90.52 | 2,459.5 | -6,436.8 | 5,796.8 | 5,620.0 | 176.84 | 32.780 | |
| 8,500.0 | 7,085.4 | 7,046.9 | 7,046.9 | 40.7 | 139.3 | 90.51 | 2,459.5 | -6,436.8 | 5,699.1 | 5,519.9 | 179.22 | 31.799 | |
| 8,600.0 | 7,085.2 | 7,046.7 | 7,046.7 | 43.1 | 139.3 | 90.50 | 2,459.5 | -6,436.8 | 5,601.4 | 5,419.8 | 181.66 | 30.834 | |
| 8,700.0 | 7,085.0 | 7,046.5 | 7,046.5 | 45.6 | 139.3 | 90.49 | 2,459.5 | -6,436.8 | 5,503.8 | 5,319.7 | 184.14 | 29.889 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT BROWN 20-1 - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-INC — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.0 | 7,084.8 | 7,046.3 | 7,046.3 | 48.1 | 139.3 | 90.48 | 2,459.5 | -6,436.8 | 5,406.4 | 5,219.7 | 186.66 | 28.964 | |
| 8,900.0 | 7,084.6 | 7,046.1 | 7,046.1 | 50.7 | 139.3 | 90.47 | 2,459.5 | -6,436.8 | 5,309.0 | 5,119.8 | 189.21 | 28.059 | |
| 9,000.0 | 7,084.4 | 7,045.9 | 7,045.9 | 53.2 | 139.3 | 90.47 | 2,459.5 | -6,436.8 | 5,211.7 | 5,019.9 | 191.78 | 27.175 | |
| 9,100.0 | 7,084.2 | 7,045.7 | 7,045.7 | 55.8 | 139.3 | 90.46 | 2,459.5 | -6,436.8 | 5,114.5 | 4,920.1 | 194.38 | 26.312 | |
| 9,200.0 | 7,084.0 | 7,045.5 | 7,045.5 | 58.4 | 139.3 | 90.45 | 2,459.5 | -6,436.8 | 5,017.4 | 4,820.4 | 196.99 | 25.470 | |
| 9,300.0 | 7,083.8 | 7,045.3 | 7,045.3 | 61.1 | 139.3 | 90.44 | 2,459.5 | -6,436.8 | 4,920.5 | 4,720.8 | 199.63 | 24.648 | |
| 9,400.0 | 7,083.7 | 7,045.2 | 7,045.2 | 63.7 | 139.3 | 90.43 | 2,459.5 | -6,436.8 | 4,823.6 | 4,621.3 | 202.27 | 23.847 | |
| 9,500.0 | 7,083.5 | 7,045.0 | 7,045.0 | 66.3 | 139.3 | 90.42 | 2,459.5 | -6,436.8 | 4,726.9 | 4,522.0 | 204.94 | 23.065 | |
| 9,600.0 | 7,083.3 | 7,044.8 | 7,044.8 | 69.0 | 139.3 | 90.41 | 2,459.5 | -6,436.8 | 4,630.3 | 4,422.7 | 207.61 | 22.303 | |
| 9,700.0 | 7,083.1 | 7,044.6 | 7,044.6 | 71.7 | 139.3 | 90.40 | 2,459.5 | -6,436.8 | 4,533.9 | 4,323.6 | 210.29 | 21.560 | |
| 9,800.0 | 7,082.9 | 7,044.4 | 7,044.4 | 74.4 | 139.3 | 90.40 | 2,459.5 | -6,436.8 | 4,437.7 | 4,224.7 | 212.98 | 20.836 | |
| 9,900.0 | 7,082.7 | 7,044.2 | 7,044.2 | 77.1 | 139.3 | 90.39 | 2,459.5 | -6,436.8 | 4,341.6 | 4,125.9 | 215.68 | 20.130 | |
| 10,000.0 | 7,082.5 | 7,044.0 | 7,044.0 | 79.7 | 139.3 | 90.38 | 2,459.5 | -6,436.8 | 4,245.7 | 4,027.3 | 218.39 | 19.441 | |
| 10,100.0 | 7,082.3 | 7,043.8 | 7,043.8 | 82.5 | 139.3 | 90.37 | 2,459.5 | -6,436.8 | 4,150.0 | 3,928.9 | 221.10 | 18.769 | |
| 10,200.0 | 7,082.1 | 7,043.6 | 7,043.6 | 85.2 | 139.2 | 90.36 | 2,459.5 | -6,436.8 | 4,054.5 | 3,830.6 | 223.82 | 18.115 | |
| 10,300.0 | 7,081.9 | 7,043.4 | 7,043.4 | 87.9 | 139.2 | 90.35 | 2,459.5 | -6,436.8 | 3,959.2 | 3,732.6 | 226.55 | 17.476 | |
| 10,400.0 | 7,081.7 | 7,043.2 | 7,043.2 | 90.6 | 139.2 | 90.34 | 2,459.5 | -6,436.8 | 3,864.1 | 3,634.8 | 229.28 | 16.853 | |
| 10,500.0 | 7,081.5 | 7,043.0 | 7,043.0 | 93.3 | 139.2 | 90.33 | 2,459.5 | -6,436.8 | 3,769.3 | 3,537.3 | 232.01 | 16.246 | |
| 10,600.0 | 7,081.3 | 7,042.8 | 7,042.8 | 96.1 | 139.2 | 90.32 | 2,459.5 | -6,436.8 | 3,674.8 | 3,440.1 | 234.75 | 15.654 | |
| 10,700.0 | 7,081.1 | 7,042.6 | 7,042.6 | 98.8 | 139.2 | 90.31 | 2,459.5 | -6,436.8 | 3,580.6 | 3,343.1 | 237.50 | 15.076 | |
| 10,800.0 | 7,080.9 | 7,042.4 | 7,042.4 | 101.5 | 139.2 | 90.31 | 2,459.5 | -6,436.8 | 3,486.7 | 3,246.5 | 240.24 | 14.513 | |
| 10,900.0 | 7,080.7 | 7,042.2 | 7,042.2 | 104.3 | 139.2 | 90.30 | 2,459.5 | -6,436.8 | 3,393.2 | 3,150.2 | 242.99 | 13.964 | |
| 11,000.0 | 7,080.5 | 7,042.0 | 7,042.0 | 107.0 | 139.2 | 90.29 | 2,459.5 | -6,436.8 | 3,300.0 | 3,054.2 | 245.74 | 13.429 | |
| 11,100.0 | 7,080.3 | 7,041.8 | 7,041.8 | 109.8 | 139.2 | 90.28 | 2,459.5 | -6,436.8 | 3,207.2 | 2,958.7 | 248.50 | 12.907 | |
| 11,200.0 | 7,080.1 | 7,041.6 | 7,041.6 | 112.5 | 139.2 | 90.27 | 2,459.5 | -6,436.8 | 3,114.9 | 2,863.7 | 251.25 | 12.397 | |
| 11,300.0 | 7,079.9 | 7,041.4 | 7,041.4 | 115.3 | 139.2 | 90.26 | 2,459.5 | -6,436.8 | 3,023.1 | 2,769.1 | 254.01 | 11.901 | |
| 11,400.0 | 7,079.7 | 7,041.2 | 7,041.2 | 118.0 | 139.2 | 90.25 | 2,459.5 | -6,436.8 | 2,931.8 | 2,675.1 | 256.78 | 11.418 | |
| 11,500.0 | 7,079.5 | 7,041.0 | 7,041.0 | 120.8 | 139.2 | 90.24 | 2,459.5 | -6,436.8 | 2,841.1 | 2,581.6 | 259.54 | 10.947 | |
| 11,600.0 | 7,079.3 | 7,040.8 | 7,040.8 | 123.6 | 139.2 | 90.23 | 2,459.5 | -6,436.8 | 2,751.1 | 2,488.8 | 262.31 | 10.488 | |
| 11,700.0 | 7,079.1 | 7,040.6 | 7,040.6 | 126.3 | 139.2 | 90.22 | 2,459.5 | -6,436.8 | 2,661.7 | 2,396.7 | 265.07 | 10.042 | |
| 11,800.0 | 7,078.9 | 7,040.4 | 7,040.4 | 129.1 | 139.2 | 90.21 | 2,459.5 | -6,436.8 | 2,573.2 | 2,305.3 | 267.84 | 9.607 | |
| 11,900.0 | 7,078.7 | 7,040.2 | 7,040.2 | 131.9 | 139.2 | 90.20 | 2,459.5 | -6,436.8 | 2,485.5 | 2,214.9 | 270.61 | 9.185 | |
| 12,000.0 | 7,078.5 | 7,040.0 | 7,040.0 | 134.6 | 139.2 | 90.20 | 2,459.5 | -6,436.8 | 2,398.8 | 2,125.4 | 273.38 | 8.774 | |
| 12,100.0 | 7,078.3 | 7,039.8 | 7,039.8 | 137.4 | 139.2 | 90.19 | 2,459.5 | -6,436.8 | 2,313.1 | 2,037.0 | 276.16 | 8.376 | |
| 12,200.0 | 7,078.1 | 7,039.6 | 7,039.6 | 140.2 | 139.2 | 90.18 | 2,459.5 | -6,436.8 | 2,228.7 | 1,949.7 | 278.93 | 7.990 | |
| 12,300.0 | 7,077.9 | 7,039.4 | 7,039.4 | 142.9 | 139.2 | 90.17 | 2,459.5 | -6,436.8 | 2,145.5 | 1,863.8 | 281.71 | 7.616 | |
| 12,400.0 | 7,077.7 | 7,039.2 | 7,039.2 | 145.7 | 139.2 | 90.16 | 2,459.5 | -6,436.8 | 2,063.9 | 1,779.4 | 284.49 | 7.255 | |
| 12,500.0 | 7,077.5 | 7,039.0 | 7,039.0 | 148.5 | 139.2 | 90.15 | 2,459.5 | -6,436.8 | 1,984.0 | 1,696.7 | 287.26 | 6.906 | |
| 12,600.0 | 7,077.3 | 7,038.8 | 7,038.8 | 151.3 | 139.2 | 90.14 | 2,459.5 | -6,436.8 | 1,905.9 | 1,615.9 | 290.04 | 6.571 | |
| 12,700.0 | 7,077.1 | 7,038.6 | 7,038.6 | 154.0 | 139.1 | 90.13 | 2,459.5 | -6,436.8 | 1,830.0 | 1,537.2 | 292.82 | 6.250 | |
| 12,800.0 | 7,076.9 | 7,038.4 | 7,038.4 | 156.8 | 139.1 | 90.12 | 2,459.5 | -6,436.8 | 1,756.5 | 1,460.9 | 295.60 | 5.942 | |
| 12,900.0 | 7,076.7 | 7,038.2 | 7,038.2 | 159.6 | 139.1 | 90.11 | 2,459.5 | -6,436.8 | 1,685.8 | 1,387.4 | 298.38 | 5.650 | |
| 13,000.0 | 7,076.5 | 7,038.0 | 7,038.0 | 162.4 | 139.1 | 90.10 | 2,459.5 | -6,436.8 | 1,618.1 | 1,316.9 | 301.17 | 5.373 | |
| 13,100.0 | 7,076.3 | 7,037.8 | 7,037.8 | 165.2 | 139.1 | 90.09 | 2,459.5 | -6,436.8 | 1,553.9 | 1,250.0 | 303.95 | 5.112 | |
| 13,200.0 | 7,076.1 | 7,037.6 | 7,037.6 | 168.0 | 139.1 | 90.08 | 2,459.5 | -6,436.8 | 1,493.7 | 1,186.9 | 306.73 | 4.870 | |
| 13,300.0 | 7,075.9 | 7,037.4 | 7,037.4 | 170.7 | 139.1 | 90.07 | 2,459.5 | -6,436.8 | 1,437.9 | 1,128.4 | 309.52 | 4.646 | |
| 13,400.0 | 7,075.7 | 7,037.2 | 7,037.2 | 173.5 | 139.1 | 90.06 | 2,459.5 | -6,436.8 | 1,387.0 | 1,074.7 | 312.30 | 4.441 | |
| 13,500.0 | 7,075.5 | 7,037.0 | 7,037.0 | 176.3 | 139.1 | 90.05 | 2,459.5 | -6,436.8 | 1,341.8 | 1,026.7 | 315.09 | 4.258 | |
| 13,600.0 | 7,075.3 | 7,036.8 | 7,036.8 | 179.1 | 139.1 | 90.04 | 2,459.5 | -6,436.8 | 1,302.6 | 984.7 | 317.88 | 4.098 | |
| 13,700.0 | 7,075.1 | 7,036.6 | 7,036.6 | 181.9 | 139.1 | 90.04 | 2,459.5 | -6,436.8 | 1,270.1 | 949.4 | 320.66 | 3.961 | |
| 13,800.0 | 7,074.9 | 7,036.4 | 7,036.4 | 184.7 | 139.1 | 90.03 | 2,459.5 | -6,436.8 | 1,244.8 | 921.4 | 323.45 | 3.849 | |
| 13,900.0 | 7,074.7 | 7,036.2 | 7,036.2 | 187.5 | 139.1 | 90.02 | 2,459.5 | -6,436.8 | 1,227.2 | 900.9 | 326.24 | 3.762 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT BROWN 20-1 - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-INC — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.0 | 7,074.5 | 7,036.0 | 7,036.0 | 190.2 | 139.1 | 90.01 | 2,459.5 | -6,436.8 | 1,217.5 | 888.5 | 329.03 | 3.700 | |
| 14,067.9 | 7,074.3 | 7,035.8 | 7,035.8 | 192.1 | 139.1 | 90.00 | 2,459.5 | -6,436.8 | 1,215.6 | 884.7 | 330.92 | 3.673 | CC |
| 14,100.0 | 7,074.2 | 7,035.7 | 7,035.7 | 193.0 | 139.1 | 90.00 | 2,459.5 | -6,436.8 | 1,216.1 | 884.2 | 331.82 | 3.665 | ES |
| 14,200.0 | 7,074.0 | 7,035.5 | 7,035.5 | 195.8 | 139.1 | 89.99 | 2,459.5 | -6,436.8 | 1,222.8 | 888.2 | 334.61 | 3.654 | SF |
| 14,221.4 | 7,074.0 | 7,035.5 | 7,035.5 | 196.4 | 139.1 | 89.99 | 2,459.5 | -6,436.8 | 1,225.3 | 890.1 | 335.20 | 3.655 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT BROWN 22-20 - Wellbore #1 - Design #1

**Offset Site Error:** 0.0 usft

**Survey Program:** 0-INC

**Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -79.67 | 970.4 | -5,324.8 | 5,412.7 | | | | |
| 100.0 | 100.0 | 49.5 | 49.5 | 0.1 | 0.0 | -79.67 | 970.4 | -5,324.8 | 5,412.5 | 5,412.4 | 0.10 | N/A | |
| 200.0 | 200.0 | 149.5 | 149.5 | 0.3 | 0.7 | -79.67 | 970.4 | -5,324.8 | 5,412.5 | 5,411.5 | 0.97 | 5,554.657 | |
| 300.0 | 300.0 | 249.5 | 249.5 | 0.5 | 2.4 | -79.67 | 970.4 | -5,324.8 | 5,412.5 | 5,409.5 | 2.99 | 1,812.966 | |
| 400.0 | 400.0 | 349.5 | 349.5 | 0.8 | 4.6 | -79.67 | 970.4 | -5,324.8 | 5,412.5 | 5,407.1 | 5.38 | 1,005.840 | |
| 500.0 | 500.0 | 449.5 | 449.5 | 1.0 | 6.7 | -108.02 | 970.4 | -5,324.8 | 5,413.0 | 5,405.4 | 7.66 | 706.487 | |
| 600.0 | 599.8 | 549.3 | 549.3 | 1.2 | 8.7 | -108.05 | 970.4 | -5,324.8 | 5,414.7 | 5,404.8 | 9.92 | 545.950 | |
| 700.0 | 699.5 | 649.0 | 649.0 | 1.5 | 10.7 | -108.08 | 970.4 | -5,324.8 | 5,417.4 | 5,405.2 | 12.17 | 445.113 | |
| 800.0 | 798.7 | 748.2 | 748.2 | 1.7 | 12.7 | -108.13 | 970.4 | -5,324.8 | 5,421.2 | 5,406.8 | 14.43 | 375.619 | |
| 900.0 | 897.5 | 847.0 | 847.0 | 2.0 | 14.7 | -108.19 | 970.4 | -5,324.8 | 5,426.1 | 5,409.4 | 16.71 | 324.672 | |
| 1,000.0 | 995.6 | 945.1 | 945.1 | 2.4 | 16.7 | -108.26 | 970.4 | -5,324.8 | 5,432.2 | 5,413.2 | 19.02 | 285.649 | |
| 1,100.0 | 1,093.1 | 1,042.6 | 1,042.6 | 2.8 | 18.7 | -108.35 | 970.4 | -5,324.8 | 5,439.4 | 5,418.1 | 21.35 | 254.773 | |
| 1,164.2 | 1,155.2 | 1,104.7 | 1,104.7 | 3.1 | 19.9 | -108.40 | 970.4 | -5,324.8 | 5,444.7 | 5,421.8 | 22.86 | 238.137 | |
| 1,200.0 | 1,189.7 | 1,139.2 | 1,139.2 | 3.2 | 20.6 | -108.49 | 970.4 | -5,324.8 | 5,447.8 | 5,424.1 | 23.72 | 229.682 | |
| 1,300.0 | 1,286.2 | 1,235.7 | 1,235.7 | 3.7 | 22.5 | -108.75 | 970.4 | -5,324.8 | 5,456.5 | 5,430.4 | 26.12 | 208.923 | |
| 1,400.0 | 1,382.6 | 1,332.1 | 1,332.1 | 4.2 | 24.5 | -109.00 | 970.4 | -5,324.8 | 5,465.3 | 5,436.8 | 28.53 | 191.586 | |
| 1,500.0 | 1,479.1 | 1,428.6 | 1,428.6 | 4.7 | 26.4 | -109.25 | 970.4 | -5,324.8 | 5,474.2 | 5,443.3 | 30.94 | 176.913 | |
| 1,600.0 | 1,575.6 | 1,525.1 | 1,525.1 | 5.3 | 28.4 | -109.51 | 970.4 | -5,324.8 | 5,483.2 | 5,449.9 | 33.36 | 164.347 | |
| 1,700.0 | 1,672.0 | 1,621.5 | 1,621.5 | 5.8 | 30.3 | -109.76 | 970.4 | -5,324.8 | 5,492.4 | 5,456.6 | 35.79 | 153.473 | |
| 1,800.0 | 1,768.5 | 1,718.0 | 1,718.0 | 6.3 | 32.3 | -110.01 | 970.4 | -5,324.8 | 5,501.6 | 5,463.4 | 38.21 | 143.974 | |
| 1,900.0 | 1,864.9 | 1,814.4 | 1,814.4 | 6.8 | 34.2 | -110.26 | 970.4 | -5,324.8 | 5,511.0 | 5,470.4 | 40.64 | 135.608 | |
| 2,000.0 | 1,961.4 | 1,910.9 | 1,910.9 | 7.4 | 36.1 | -110.51 | 970.4 | -5,324.8 | 5,520.5 | 5,477.4 | 43.07 | 128.186 | |
| 2,100.0 | 2,057.9 | 2,007.4 | 2,007.4 | 7.9 | 38.1 | -110.75 | 970.4 | -5,324.8 | 5,530.1 | 5,484.6 | 45.49 | 121.559 | |
| 2,200.0 | 2,154.3 | 2,103.8 | 2,103.8 | 8.4 | 40.0 | -111.00 | 970.4 | -5,324.8 | 5,539.7 | 5,491.8 | 47.92 | 115.606 | |
| 2,300.0 | 2,250.8 | 2,200.3 | 2,200.3 | 9.0 | 42.0 | -111.25 | 970.4 | -5,324.8 | 5,549.5 | 5,499.2 | 50.35 | 110.230 | |
| 2,400.0 | 2,347.3 | 2,296.8 | 2,296.8 | 9.5 | 43.9 | -111.49 | 970.4 | -5,324.8 | 5,559.5 | 5,506.7 | 52.77 | 105.352 | |
| 2,500.0 | 2,443.7 | 2,393.2 | 2,393.2 | 10.0 | 45.8 | -111.74 | 970.4 | -5,324.8 | 5,569.5 | 5,514.3 | 55.19 | 100.907 | |
| 2,600.0 | 2,540.2 | 2,489.7 | 2,489.7 | 10.6 | 47.8 | -111.98 | 970.4 | -5,324.8 | 5,579.6 | 5,522.0 | 57.62 | 96.839 | |
| 2,700.0 | 2,636.7 | 2,586.2 | 2,586.2 | 11.1 | 49.7 | -112.22 | 970.4 | -5,324.8 | 5,589.8 | 5,529.8 | 60.04 | 93.103 | |
| 2,800.0 | 2,733.1 | 2,682.6 | 2,682.6 | 11.6 | 51.7 | -112.47 | 970.4 | -5,324.8 | 5,600.2 | 5,537.7 | 62.46 | 89.660 | |
| 2,900.0 | 2,829.6 | 2,779.1 | 2,779.1 | 12.2 | 53.6 | -112.71 | 970.4 | -5,324.8 | 5,610.6 | 5,545.7 | 64.88 | 86.478 | |
| 3,000.0 | 2,926.0 | 2,875.5 | 2,875.5 | 12.7 | 55.5 | -112.95 | 970.4 | -5,324.8 | 5,621.1 | 5,553.8 | 67.30 | 83.527 | |
| 3,100.0 | 3,022.5 | 2,972.0 | 2,972.0 | 13.2 | 57.5 | -113.19 | 970.4 | -5,324.8 | 5,631.8 | 5,562.1 | 69.71 | 80.784 | |
| 3,200.0 | 3,119.0 | 3,068.5 | 3,068.5 | 13.8 | 59.4 | -113.43 | 970.4 | -5,324.8 | 5,642.5 | 5,570.4 | 72.13 | 78.229 | |
| 3,300.0 | 3,215.4 | 3,164.9 | 3,164.9 | 14.3 | 61.4 | -113.66 | 970.4 | -5,324.8 | 5,653.4 | 5,578.8 | 74.54 | 75.841 | |
| 3,400.0 | 3,311.9 | 3,261.4 | 3,261.4 | 14.9 | 63.3 | -113.90 | 970.4 | -5,324.8 | 5,664.3 | 5,587.4 | 76.95 | 73.607 | |
| 3,500.0 | 3,408.4 | 3,357.9 | 3,357.9 | 15.4 | 65.2 | -114.14 | 970.4 | -5,324.8 | 5,675.4 | 5,596.0 | 79.36 | 71.511 | |
| 3,600.0 | 3,504.8 | 3,454.3 | 3,454.3 | 15.9 | 67.2 | -114.37 | 970.4 | -5,324.8 | 5,686.5 | 5,604.8 | 81.77 | 69.541 | |
| 3,700.0 | 3,601.3 | 3,550.8 | 3,550.8 | 16.5 | 69.1 | -114.61 | 970.4 | -5,324.8 | 5,697.8 | 5,613.6 | 84.18 | 67.686 | |
| 3,800.0 | 3,697.7 | 3,647.2 | 3,647.2 | 17.0 | 71.1 | -114.84 | 970.4 | -5,324.8 | 5,709.2 | 5,622.6 | 86.59 | 65.937 | |
| 3,900.0 | 3,794.2 | 3,743.7 | 3,743.7 | 17.5 | 73.0 | -115.07 | 970.4 | -5,324.8 | 5,720.6 | 5,631.6 | 88.99 | 64.284 | |
| 4,000.0 | 3,890.7 | 3,840.2 | 3,840.2 | 18.1 | 74.9 | -115.31 | 970.4 | -5,324.8 | 5,732.2 | 5,640.8 | 91.39 | 62.721 | |
| 4,100.0 | 3,987.1 | 3,936.6 | 3,936.6 | 18.6 | 76.9 | -115.54 | 970.4 | -5,324.8 | 5,743.8 | 5,650.0 | 93.79 | 61.240 | |
| 4,200.0 | 4,083.6 | 4,033.1 | 4,033.1 | 19.2 | 78.8 | -115.77 | 970.4 | -5,324.8 | 5,755.6 | 5,659.4 | 96.19 | 59.835 | |
| 4,300.0 | 4,180.1 | 4,129.6 | 4,129.6 | 19.7 | 80.8 | -116.00 | 970.4 | -5,324.8 | 5,767.4 | 5,668.8 | 98.59 | 58.501 | |
| 4,400.0 | 4,276.5 | 4,226.0 | 4,226.0 | 20.2 | 82.7 | -116.22 | 970.4 | -5,324.8 | 5,779.3 | 5,678.4 | 100.98 | 57.231 | |
| 4,500.0 | 4,373.0 | 4,322.5 | 4,322.5 | 20.8 | 84.6 | -116.45 | 970.4 | -5,324.8 | 5,791.4 | 5,688.0 | 103.38 | 56.023 | |
| 4,600.0 | 4,469.5 | 4,419.0 | 4,419.0 | 21.3 | 86.6 | -116.68 | 970.4 | -5,324.8 | 5,803.5 | 5,697.7 | 105.77 | 54.871 | |
| 4,700.0 | 4,565.9 | 4,515.4 | 4,515.4 | 21.9 | 88.5 | -116.90 | 970.4 | -5,324.8 | 5,815.7 | 5,707.6 | 108.16 | 53.771 | |
| 4,800.0 | 4,662.4 | 4,611.9 | 4,611.9 | 22.4 | 90.5 | -117.13 | 970.4 | -5,324.8 | 5,828.1 | 5,717.5 | 110.54 | 52.721 | |
| 4,900.0 | 4,758.8 | 4,708.3 | 4,708.3 | 22.9 | 92.4 | -117.35 | 970.4 | -5,324.8 | 5,840.5 | 5,727.5 | 112.93 | 51.717 | |
| 5,000.0 | 4,855.3 | 4,804.8 | 4,804.8 | 23.5 | 94.3 | -117.57 | 970.4 | -5,324.8 | 5,853.0 | 5,737.7 | 115.32 | 50.756 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT BROWN 22-20 - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-INC — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 4,901.3 | 4,901.3 | 24.0 | 96.3 | -117.80 | 970.4 | -5,324.8 | 5,865.6 | 5,747.9 | 117.70 | 49.836 | |
| 5,200.0 | 5,048.2 | 4,997.7 | 4,997.7 | 24.6 | 98.2 | -118.02 | 970.4 | -5,324.8 | 5,878.3 | 5,758.2 | 120.08 | 48.953 | |
| 5,300.0 | 5,144.7 | 5,094.2 | 5,094.2 | 25.1 | 100.2 | -118.24 | 970.4 | -5,324.8 | 5,891.0 | 5,768.6 | 122.46 | 48.107 | |
| 5,400.0 | 5,241.2 | 5,190.7 | 5,190.7 | 25.6 | 102.1 | -118.46 | 970.4 | -5,324.8 | 5,903.9 | 5,779.1 | 124.83 | 47.294 | |
| 5,500.0 | 5,337.6 | 5,287.1 | 5,287.1 | 26.2 | 104.0 | -118.67 | 970.4 | -5,324.8 | 5,916.9 | 5,789.6 | 127.21 | 46.512 | |
| 5,600.0 | 5,434.1 | 5,383.6 | 5,383.6 | 26.7 | 106.0 | -118.89 | 970.4 | -5,324.8 | 5,929.9 | 5,800.3 | 129.58 | 45.761 | |
| 5,700.0 | 5,530.5 | 5,480.0 | 5,480.0 | 27.3 | 107.9 | -119.11 | 970.4 | -5,324.8 | 5,943.0 | 5,811.1 | 131.96 | 45.038 | |
| 5,757.1 | 5,585.6 | 5,535.1 | 5,535.1 | 27.6 | 109.0 | -119.23 | 970.4 | -5,324.8 | 5,950.6 | 5,817.3 | 133.31 | 44.637 | |
| 5,800.0 | 5,627.1 | 5,576.6 | 5,576.6 | 27.8 | 109.9 | -119.42 | 970.4 | -5,324.8 | 5,956.1 | 5,821.7 | 134.38 | 44.322 | |
| 5,900.0 | 5,724.4 | 5,673.9 | 5,673.9 | 28.2 | 111.8 | -119.81 | 970.4 | -5,324.8 | 5,967.8 | 5,831.0 | 136.81 | 43.620 | |
| 6,000.0 | 5,822.4 | 5,771.9 | 5,771.9 | 28.5 | 113.8 | -120.15 | 970.4 | -5,324.8 | 5,977.9 | 5,838.6 | 139.21 | 42.940 | |
| 6,100.0 | 5,921.0 | 5,870.5 | 5,870.5 | 28.8 | 115.8 | -120.43 | 970.4 | -5,324.8 | 5,986.2 | 5,844.6 | 141.58 | 42.282 | |
| 6,200.0 | 6,020.2 | 5,969.7 | 5,969.7 | 29.0 | 117.8 | -120.65 | 970.4 | -5,324.8 | 5,992.8 | 5,848.9 | 143.89 | 41.647 | |
| 6,300.0 | 6,119.7 | 6,069.2 | 6,069.2 | 29.3 | 119.8 | -120.81 | 970.4 | -5,324.8 | 5,997.7 | 5,851.5 | 146.16 | 41.036 | |
| 6,400.0 | 6,219.5 | 6,169.0 | 6,169.0 | 29.4 | 121.8 | -120.91 | 970.4 | -5,324.8 | 6,000.7 | 5,852.4 | 148.36 | 40.447 | |
| 6,500.0 | 6,319.5 | 6,269.0 | 6,269.0 | 29.5 | 123.8 | -120.95 | 970.4 | -5,324.8 | 6,002.0 | 5,851.5 | 150.50 | 39.881 | |
| 6,521.3 | 6,340.8 | 6,290.3 | 6,290.3 | 29.6 | 124.2 | -92.61 | 970.4 | -5,324.8 | 6,002.1 | 5,856.8 | 145.29 | 41.312 | |
| 6,551.3 | 6,370.8 | 6,320.3 | 6,320.3 | 29.6 | 124.8 | -92.61 | 970.4 | -5,324.8 | 6,002.1 | 5,856.1 | 145.93 | 41.130 | |
| 6,600.0 | 6,419.5 | 6,369.0 | 6,369.0 | 29.6 | 125.8 | -2.62 | 970.4 | -5,324.8 | 6,000.4 | 5,848.2 | 152.18 | 39.429 | |
| 6,650.0 | 6,469.2 | 6,418.7 | 6,418.7 | 29.6 | 126.8 | -2.64 | 970.4 | -5,324.8 | 5,995.3 | 5,843.2 | 152.06 | 39.426 | |
| 6,700.0 | 6,518.4 | 6,467.9 | 6,467.9 | 29.6 | 127.8 | -2.68 | 970.4 | -5,324.8 | 5,986.7 | 5,835.5 | 151.18 | 39.599 | |
| 6,750.0 | 6,567.0 | 6,516.5 | 6,516.5 | 29.6 | 128.8 | -2.73 | 970.4 | -5,324.8 | 5,974.7 | 5,825.2 | 149.53 | 39.956 | |
| 6,800.0 | 6,614.5 | 6,564.0 | 6,564.0 | 29.6 | 129.7 | -2.80 | 970.4 | -5,324.8 | 5,959.4 | 5,812.2 | 147.11 | 40.511 | |
| 6,850.0 | 6,660.9 | 6,610.4 | 6,610.4 | 29.5 | 130.7 | -2.89 | 970.4 | -5,324.8 | 5,940.7 | 5,796.8 | 143.91 | 41.281 | |
| 6,900.0 | 6,705.9 | 6,655.4 | 6,655.4 | 29.4 | 131.6 | -3.00 | 970.4 | -5,324.8 | 5,918.9 | 5,779.0 | 139.95 | 42.292 | |
| 6,950.0 | 6,749.2 | 6,698.7 | 6,698.7 | 29.3 | 132.4 | -3.13 | 970.4 | -5,324.8 | 5,894.0 | 5,758.8 | 135.25 | 43.579 | |
| 7,000.0 | 6,790.7 | 6,740.2 | 6,740.2 | 29.2 | 133.3 | -3.30 | 970.4 | -5,324.8 | 5,866.2 | 5,736.4 | 129.82 | 45.187 | |
| 7,050.0 | 6,830.2 | 6,779.7 | 6,779.7 | 29.1 | 134.1 | -3.50 | 970.4 | -5,324.8 | 5,835.5 | 5,711.8 | 123.70 | 47.176 | |
| 7,100.0 | 6,867.4 | 6,816.9 | 6,816.9 | 29.0 | 134.8 | -3.75 | 970.4 | -5,324.8 | 5,802.2 | 5,685.3 | 116.91 | 49.629 | |
| 7,150.0 | 6,902.2 | 6,851.7 | 6,851.7 | 28.9 | 135.5 | -4.05 | 970.4 | -5,324.8 | 5,766.3 | 5,656.8 | 109.52 | 52.651 | |
| 7,200.0 | 6,934.4 | 6,883.9 | 6,883.9 | 28.7 | 136.2 | -4.43 | 970.4 | -5,324.8 | 5,728.1 | 5,626.5 | 101.58 | 56.390 | |
| 7,250.0 | 6,963.8 | 6,913.3 | 6,913.3 | 28.6 | 136.7 | -4.91 | 970.4 | -5,324.8 | 5,687.8 | 5,594.6 | 93.18 | 61.040 | |
| 7,300.0 | 6,990.4 | 6,939.9 | 6,939.9 | 28.5 | 137.3 | -5.52 | 970.4 | -5,324.8 | 5,645.5 | 5,561.0 | 84.44 | 66.858 | |
| 7,350.0 | 7,013.9 | 6,963.4 | 6,963.4 | 28.4 | 137.8 | -6.34 | 970.4 | -5,324.8 | 5,601.4 | 5,525.9 | 75.55 | 74.146 | |
| 7,400.0 | 7,034.4 | 6,983.9 | 6,983.9 | 28.2 | 138.2 | -7.46 | 970.4 | -5,324.8 | 5,555.9 | 5,489.0 | 66.84 | 83.126 | |
| 7,450.0 | 7,051.5 | 7,001.0 | 7,001.0 | 28.1 | 138.5 | -9.09 | 970.4 | -5,324.8 | 5,509.0 | 5,450.0 | 59.01 | 93.356 | |
| 7,500.0 | 7,065.4 | 7,014.9 | 7,014.9 | 28.0 | 138.8 | -11.63 | 970.4 | -5,324.8 | 5,461.0 | 5,407.3 | 53.71 | 101.682 | |
| 7,550.0 | 7,075.9 | 7,025.4 | 7,025.4 | 27.9 | 139.0 | -16.09 | 970.4 | -5,324.8 | 5,412.2 | 5,357.3 | 54.92 | 98.555 | |
| 7,600.0 | 7,082.9 | 7,032.4 | 7,032.4 | 27.8 | 139.1 | -25.65 | 970.4 | -5,324.8 | 5,362.8 | 5,290.5 | 72.26 | 74.218 | |
| 7,650.0 | 7,086.5 | 7,036.0 | 7,036.0 | 27.7 | 139.2 | -54.53 | 970.4 | -5,324.8 | 5,313.0 | 5,182.3 | 130.68 | 40.657 | |
| 7,677.7 | 7,087.0 | 7,036.5 | 7,036.5 | 27.6 | 139.2 | -92.13 | 970.4 | -5,324.8 | 5,285.3 | 5,122.8 | 162.55 | 32.515 | |
| 7,700.0 | 7,087.0 | 7,036.5 | 7,036.5 | 27.6 | 139.2 | -92.12 | 970.4 | -5,324.8 | 5,263.0 | 5,100.2 | 162.86 | 32.316 | |
| 7,800.0 | 7,086.8 | 7,036.3 | 7,036.3 | 27.5 | 139.2 | -92.08 | 970.4 | -5,324.8 | 5,163.2 | 4,998.8 | 164.39 | 31.408 | |
| 7,900.0 | 7,086.6 | 7,036.1 | 7,036.1 | 27.9 | 139.2 | -92.04 | 970.4 | -5,324.8 | 5,063.3 | 4,897.2 | 166.13 | 30.479 | |
| 8,000.0 | 7,086.4 | 7,035.9 | 7,035.9 | 29.5 | 139.2 | -92.01 | 970.4 | -5,324.8 | 4,963.5 | 4,795.4 | 168.03 | 29.539 | |
| 8,100.0 | 7,086.2 | 7,035.7 | 7,035.7 | 31.5 | 139.2 | -91.97 | 970.4 | -5,324.8 | 4,863.6 | 4,693.6 | 170.07 | 28.597 | |
| 8,200.0 | 7,086.0 | 7,035.5 | 7,035.5 | 33.7 | 139.2 | -91.93 | 970.4 | -5,324.8 | 4,763.8 | 4,591.6 | 172.23 | 27.660 | |
| 8,300.0 | 7,085.8 | 7,035.3 | 7,035.3 | 36.0 | 139.2 | -91.89 | 970.4 | -5,324.8 | 4,664.0 | 4,489.5 | 174.47 | 26.732 | |
| 8,400.0 | 7,085.6 | 7,035.1 | 7,035.1 | 38.3 | 139.2 | -91.85 | 970.4 | -5,324.8 | 4,564.1 | 4,387.3 | 176.79 | 25.816 | |
| 8,500.0 | 7,085.4 | 7,034.9 | 7,034.9 | 40.7 | 139.2 | -91.81 | 970.4 | -5,324.8 | 4,464.3 | 4,285.1 | 179.18 | 24.916 | |
| 8,600.0 | 7,085.2 | 7,034.7 | 7,034.7 | 43.1 | 139.2 | -91.77 | 970.4 | -5,324.8 | 4,364.5 | 4,182.9 | 181.61 | 24.032 | |
| 8,700.0 | 7,085.0 | 7,034.5 | 7,034.5 | 45.6 | 139.2 | -91.73 | 970.4 | -5,324.8 | 4,264.7 | 4,080.6 | 184.09 | 23.166 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT BROWN 22-20 - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-INC — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.0 | 7,084.8 | 7,034.3 | 7,034.3 | 48.1 | 139.2 | -91.69 | 970.4 | -5,324.8 | 4,164.9 | 3,978.3 | 186.60 | 22.320 | |
| 8,900.0 | 7,084.6 | 7,034.1 | 7,034.1 | 50.7 | 139.2 | -91.66 | 970.4 | -5,324.8 | 4,065.1 | 3,876.0 | 189.15 | 21.492 | |
| 9,000.0 | 7,084.4 | 7,033.9 | 7,033.9 | 53.2 | 139.2 | -91.62 | 970.4 | -5,324.8 | 3,965.4 | 3,773.7 | 191.72 | 20.683 | |
| 9,100.0 | 7,084.2 | 7,033.7 | 7,033.7 | 55.8 | 139.2 | -91.58 | 970.4 | -5,324.8 | 3,865.6 | 3,671.3 | 194.32 | 19.893 | |
| 9,200.0 | 7,084.0 | 7,033.5 | 7,033.5 | 58.4 | 139.2 | -91.54 | 970.4 | -5,324.8 | 3,765.9 | 3,568.9 | 196.93 | 19.123 | |
| 9,300.0 | 7,083.8 | 7,033.3 | 7,033.3 | 61.1 | 139.2 | -91.50 | 970.4 | -5,324.8 | 3,666.1 | 3,466.6 | 199.56 | 18.371 | |
| 9,400.0 | 7,083.7 | 7,033.2 | 7,033.2 | 63.7 | 139.2 | -91.46 | 970.4 | -5,324.8 | 3,566.4 | 3,364.2 | 202.21 | 17.637 | |
| 9,500.0 | 7,083.5 | 7,033.0 | 7,033.0 | 66.3 | 139.2 | -91.42 | 970.4 | -5,324.8 | 3,466.7 | 3,261.9 | 204.87 | 16.922 | |
| 9,600.0 | 7,083.3 | 7,032.8 | 7,032.8 | 69.0 | 139.2 | -91.38 | 970.4 | -5,324.8 | 3,367.1 | 3,159.5 | 207.54 | 16.224 | |
| 9,700.0 | 7,083.1 | 7,032.6 | 7,032.6 | 71.7 | 139.1 | -91.34 | 970.4 | -5,324.8 | 3,267.4 | 3,057.2 | 210.22 | 15.543 | |
| 9,800.0 | 7,082.9 | 7,032.4 | 7,032.4 | 74.4 | 139.1 | -91.30 | 970.4 | -5,324.8 | 3,167.8 | 2,954.9 | 212.91 | 14.878 | |
| 9,900.0 | 7,082.7 | 7,032.2 | 7,032.2 | 77.1 | 139.1 | -91.26 | 970.4 | -5,324.8 | 3,068.1 | 2,852.5 | 215.61 | 14.230 | |
| 10,000.0 | 7,082.5 | 7,032.0 | 7,032.0 | 79.7 | 139.1 | -91.22 | 970.4 | -5,324.8 | 2,968.6 | 2,750.2 | 218.32 | 13.597 | |
| 10,100.0 | 7,082.3 | 7,031.8 | 7,031.8 | 82.5 | 139.1 | -91.18 | 970.4 | -5,324.8 | 2,869.0 | 2,648.0 | 221.03 | 12.980 | |
| 10,200.0 | 7,082.1 | 7,031.6 | 7,031.6 | 85.2 | 139.1 | -91.14 | 970.4 | -5,324.8 | 2,769.5 | 2,545.7 | 223.75 | 12.378 | |
| 10,300.0 | 7,081.9 | 7,031.4 | 7,031.4 | 87.9 | 139.1 | -91.10 | 970.4 | -5,324.8 | 2,670.0 | 2,443.5 | 226.47 | 11.789 | |
| 10,400.0 | 7,081.7 | 7,031.2 | 7,031.2 | 90.6 | 139.1 | -91.06 | 970.4 | -5,324.8 | 2,570.5 | 2,341.3 | 229.20 | 11.215 | |
| 10,500.0 | 7,081.5 | 7,031.0 | 7,031.0 | 93.3 | 139.1 | -91.02 | 970.4 | -5,324.8 | 2,471.1 | 2,239.2 | 231.94 | 10.654 | |
| 10,600.0 | 7,081.3 | 7,030.8 | 7,030.8 | 96.1 | 139.1 | -90.98 | 970.4 | -5,324.8 | 2,371.8 | 2,137.1 | 234.68 | 10.107 | |
| 10,700.0 | 7,081.1 | 7,030.6 | 7,030.6 | 98.8 | 139.1 | -90.94 | 970.4 | -5,324.8 | 2,272.5 | 2,035.0 | 237.42 | 9.572 | |
| 10,800.0 | 7,080.9 | 7,030.4 | 7,030.4 | 101.5 | 139.1 | -90.90 | 970.4 | -5,324.8 | 2,173.2 | 1,933.1 | 240.16 | 9.049 | |
| 10,900.0 | 7,080.7 | 7,030.2 | 7,030.2 | 104.3 | 139.1 | -90.86 | 970.4 | -5,324.8 | 2,074.1 | 1,831.1 | 242.91 | 8.538 | |
| 11,000.0 | 7,080.5 | 7,030.0 | 7,030.0 | 107.0 | 139.1 | -90.81 | 970.4 | -5,324.8 | 1,975.0 | 1,729.3 | 245.66 | 8.039 | |
| 11,100.0 | 7,080.3 | 7,029.8 | 7,029.8 | 109.8 | 139.1 | -90.77 | 970.4 | -5,324.8 | 1,876.0 | 1,627.6 | 248.42 | 7.552 | |
| 11,200.0 | 7,080.1 | 7,029.6 | 7,029.6 | 112.5 | 139.1 | -90.73 | 970.4 | -5,324.8 | 1,777.1 | 1,525.9 | 251.17 | 7.075 | |
| 11,300.0 | 7,079.9 | 7,029.4 | 7,029.4 | 115.3 | 139.1 | -90.69 | 970.4 | -5,324.8 | 1,678.4 | 1,424.4 | 253.93 | 6.610 | |
| 11,400.0 | 7,079.7 | 7,029.2 | 7,029.2 | 118.0 | 139.1 | -90.65 | 970.4 | -5,324.8 | 1,579.8 | 1,323.1 | 256.69 | 6.154 | |
| 11,500.0 | 7,079.5 | 7,029.0 | 7,029.0 | 120.8 | 139.1 | -90.61 | 970.4 | -5,324.8 | 1,481.4 | 1,222.0 | 259.45 | 5.710 | |
| 11,600.0 | 7,079.3 | 7,028.8 | 7,028.8 | 123.6 | 139.1 | -90.57 | 970.4 | -5,324.8 | 1,383.3 | 1,121.0 | 262.22 | 5.275 | |
| 11,700.0 | 7,079.1 | 7,028.6 | 7,028.6 | 126.3 | 139.1 | -90.53 | 970.4 | -5,324.8 | 1,285.4 | 1,020.4 | 264.98 | 4.851 | |
| 11,800.0 | 7,078.9 | 7,028.4 | 7,028.4 | 129.1 | 139.1 | -90.48 | 970.4 | -5,324.8 | 1,187.9 | 920.1 | 267.75 | 4.436 | |
| 11,900.0 | 7,078.7 | 7,028.2 | 7,028.2 | 131.9 | 139.1 | -90.44 | 970.4 | -5,324.8 | 1,090.8 | 820.3 | 270.52 | 4.032 | |
| 12,000.0 | 7,078.5 | 7,028.0 | 7,028.0 | 134.6 | 139.1 | -90.40 | 970.4 | -5,324.8 | 994.3 | 721.0 | 273.29 | 3.638 | |
| 12,100.0 | 7,078.3 | 7,027.8 | 7,027.8 | 137.4 | 139.1 | -90.36 | 970.4 | -5,324.8 | 898.6 | 622.5 | 276.06 | 3.255 | |
| 12,200.0 | 7,078.1 | 7,027.6 | 7,027.6 | 140.2 | 139.0 | -90.32 | 970.4 | -5,324.8 | 803.9 | 525.1 | 278.84 | 2.883 | |
| 12,300.0 | 7,077.9 | 7,027.4 | 7,027.4 | 142.9 | 139.0 | -90.28 | 970.4 | -5,324.8 | 710.7 | 429.1 | 281.61 | 2.524 | |
| 12,400.0 | 7,077.7 | 7,027.2 | 7,027.2 | 145.7 | 139.0 | -90.23 | 970.4 | -5,324.8 | 619.6 | 335.2 | 284.38 | 2.179 | |
| 12,500.0 | 7,077.5 | 7,027.0 | 7,027.0 | 148.5 | 139.0 | -90.19 | 970.4 | -5,324.8 | 531.7 | 244.5 | 287.16 | 1.852 | |
| 12,600.0 | 7,077.3 | 7,026.8 | 7,026.8 | 151.3 | 139.0 | -90.15 | 970.4 | -5,324.8 | 448.9 | 159.0 | 289.94 | 1.548 | |
| 12,700.0 | 7,077.1 | 7,026.6 | 7,026.6 | 154.0 | 139.0 | -90.11 | 970.4 | -5,324.8 | 374.6 | 81.9 | 292.71 | 1.280 | Level 3 |
| 12,800.0 | 7,076.9 | 7,026.4 | 7,026.4 | 156.8 | 139.0 | -90.07 | 970.4 | -5,324.8 | 314.9 | 19.4 | 295.49 | 1.066 | Level 2 |
| 12,900.0 | 7,076.7 | 7,026.2 | 7,026.2 | 159.6 | 139.0 | -90.02 | 970.4 | -5,324.8 | 279.2 | -19.1 | 298.27 | 0.936 | Level 1 |
| 12,955.9 | 7,076.6 | 7,026.1 | 7,026.1 | 161.2 | 139.0 | -90.00 | 970.4 | -5,324.8 | 273.5 | -26.3 | 299.83 | 0.912 | Level 1, CC, ES, SF |
| 13,000.0 | 7,076.5 | 7,026.0 | 7,026.0 | 162.4 | 139.0 | -89.98 | 970.4 | -5,324.8 | 277.1 | -24.0 | 301.05 | 0.920 | Level 1 |
| 13,100.0 | 7,076.3 | 7,025.8 | 7,025.8 | 165.2 | 139.0 | -89.94 | 970.4 | -5,324.8 | 309.2 | 5.3 | 303.83 | 1.018 | Level 2 |
| 13,200.0 | 7,076.1 | 7,025.6 | 7,025.6 | 168.0 | 139.0 | -89.90 | 970.4 | -5,324.8 | 366.6 | 60.0 | 306.61 | 1.196 | Level 2 |
| 13,300.0 | 7,075.9 | 7,025.4 | 7,025.4 | 170.7 | 139.0 | -89.85 | 970.4 | -5,324.8 | 439.6 | 130.2 | 309.39 | 1.421 | Level 3 |
| 13,400.0 | 7,075.7 | 7,025.2 | 7,025.2 | 173.5 | 139.0 | -89.81 | 970.4 | -5,324.8 | 521.6 | 209.4 | 312.17 | 1.671 | |
| 13,500.0 | 7,075.5 | 7,025.0 | 7,025.0 | 176.3 | 139.0 | -89.77 | 970.4 | -5,324.8 | 609.0 | 294.0 | 314.96 | 1.933 | |
| 13,600.0 | 7,075.3 | 7,024.8 | 7,024.8 | 179.1 | 139.0 | -89.73 | 970.4 | -5,324.8 | 699.7 | 382.0 | 317.74 | 2.202 | |
| 13,700.0 | 7,075.1 | 7,024.6 | 7,024.6 | 181.9 | 139.0 | -89.68 | 970.4 | -5,324.8 | 792.8 | 472.2 | 320.52 | 2.473 | |
| 13,800.0 | 7,074.9 | 7,024.4 | 7,024.4 | 184.7 | 139.0 | -89.64 | 970.4 | -5,324.8 | 887.3 | 564.0 | 323.31 | 2.744 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT BROWN 22-20 - Wellbore #1 - Design #1

**Offset Site Error:** 0.0 usft

**Survey Program:** 0-INC

**Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.0 | 7,074.7 | 7,024.2 | 7,024.2 | 187.5 | 139.0 | -89.60 | 970.4 | -5,324.8 | 982.9 | 656.8 | 326.09 | 3.014 | |
| 14,000.0 | 7,074.5 | 7,024.0 | 7,024.0 | 190.2 | 139.0 | -89.55 | 970.4 | -5,324.8 | 1,079.3 | 750.4 | 328.87 | 3.282 | |
| 14,100.0 | 7,074.2 | 7,023.7 | 7,023.7 | 193.0 | 139.0 | -89.51 | 970.4 | -5,324.8 | 1,176.3 | 844.7 | 331.66 | 3.547 | |
| 14,200.0 | 7,074.0 | 7,023.5 | 7,023.5 | 195.8 | 139.0 | -89.47 | 970.4 | -5,324.8 | 1,273.8 | 939.3 | 334.44 | 3.809 | |
| 14,221.4 | 7,074.0 | 7,023.5 | 7,023.5 | 196.4 | 139.0 | -89.46 | 970.4 | -5,324.8 | 1,294.7 | 959.6 | 335.04 | 3.864 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT CYPRUS 1 - Wellbore #1 - Design #1

**Offset Site Error:** 0.0 usft

**Survey Program:** 0-INC

**Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -65.65 | 2,342.7 | -5,176.7 | 5,682.3 | | | | |
| 100.0 | 100.0 | 56.5 | 56.5 | 0.1 | 0.0 | -65.65 | 2,342.7 | -5,176.7 | 5,682.1 | 5,682.0 | 0.10 | N/A | |
| 200.0 | 200.0 | 156.5 | 156.5 | 0.3 | 0.7 | -65.65 | 2,342.7 | -5,176.7 | 5,682.1 | 5,681.1 | 1.01 | 5,603.551 | |
| 300.0 | 300.0 | 256.5 | 256.5 | 0.5 | 2.5 | -65.65 | 2,342.7 | -5,176.7 | 5,682.1 | 5,679.0 | 3.06 | 1,855.717 | |
| 400.0 | 400.0 | 356.5 | 356.5 | 0.8 | 4.7 | -65.65 | 2,342.7 | -5,176.7 | 5,682.1 | 5,676.6 | 5.45 | 1,041.796 | |
| 500.0 | 500.0 | 456.5 | 456.5 | 1.0 | 6.7 | -94.01 | 2,342.7 | -5,176.7 | 5,682.2 | 5,674.5 | 7.73 | 734.696 | |
| 600.0 | 599.8 | 556.3 | 556.3 | 1.2 | 8.8 | -94.06 | 2,342.7 | -5,176.7 | 5,682.6 | 5,672.6 | 9.99 | 568.729 | |
| 700.0 | 699.5 | 656.0 | 656.0 | 1.5 | 10.8 | -94.13 | 2,342.7 | -5,176.7 | 5,683.2 | 5,671.0 | 12.25 | 463.940 | |
| 800.0 | 798.7 | 755.2 | 755.2 | 1.7 | 12.8 | -94.23 | 2,342.7 | -5,176.7 | 5,684.1 | 5,669.6 | 14.52 | 391.413 | |
| 900.0 | 897.5 | 854.0 | 854.0 | 2.0 | 14.8 | -94.37 | 2,342.7 | -5,176.7 | 5,685.3 | 5,668.5 | 16.82 | 338.041 | |
| 1,000.0 | 995.6 | 952.1 | 952.1 | 2.4 | 16.8 | -94.52 | 2,342.7 | -5,176.7 | 5,686.8 | 5,667.7 | 19.15 | 297.015 | |
| 1,100.0 | 1,093.1 | 1,049.6 | 1,049.6 | 2.8 | 18.7 | -94.71 | 2,342.7 | -5,176.7 | 5,688.7 | 5,667.1 | 21.51 | 264.450 | |
| 1,164.2 | 1,155.2 | 1,111.7 | 1,111.7 | 3.1 | 20.0 | -94.84 | 2,342.7 | -5,176.7 | 5,690.1 | 5,667.0 | 23.05 | 246.858 | |
| 1,200.0 | 1,189.7 | 1,146.2 | 1,146.2 | 3.2 | 20.7 | -94.93 | 2,342.7 | -5,176.7 | 5,690.9 | 5,667.0 | 23.91 | 237.968 | |
| 1,300.0 | 1,286.2 | 1,242.7 | 1,242.7 | 3.7 | 22.6 | -95.18 | 2,342.7 | -5,176.7 | 5,693.3 | 5,667.0 | 26.34 | 216.142 | |
| 1,400.0 | 1,382.6 | 1,339.1 | 1,339.1 | 4.2 | 24.6 | -95.44 | 2,342.7 | -5,176.7 | 5,695.8 | 5,667.0 | 28.78 | 197.917 | |
| 1,500.0 | 1,479.1 | 1,435.6 | 1,435.6 | 4.7 | 26.5 | -95.69 | 2,342.7 | -5,176.7 | 5,698.5 | 5,667.2 | 31.23 | 182.496 | |
| 1,600.0 | 1,575.6 | 1,532.1 | 1,532.1 | 5.3 | 28.4 | -95.95 | 2,342.7 | -5,176.7 | 5,701.2 | 5,667.6 | 33.68 | 169.291 | |
| 1,700.0 | 1,672.0 | 1,628.5 | 1,628.5 | 5.8 | 30.4 | -96.20 | 2,342.7 | -5,176.7 | 5,704.1 | 5,668.0 | 36.13 | 157.865 | |
| 1,800.0 | 1,768.5 | 1,725.0 | 1,725.0 | 6.3 | 32.3 | -96.45 | 2,342.7 | -5,176.7 | 5,707.1 | 5,668.6 | 38.59 | 147.886 | |
| 1,900.0 | 1,864.9 | 1,821.4 | 1,821.4 | 6.8 | 34.3 | -96.71 | 2,342.7 | -5,176.7 | 5,710.3 | 5,669.2 | 41.05 | 139.099 | |
| 2,000.0 | 1,961.4 | 1,917.9 | 1,917.9 | 7.4 | 36.2 | -96.96 | 2,342.7 | -5,176.7 | 5,713.5 | 5,670.0 | 43.51 | 131.304 | |
| 2,100.0 | 2,057.9 | 2,014.4 | 2,014.4 | 7.9 | 38.2 | -97.22 | 2,342.7 | -5,176.7 | 5,716.9 | 5,670.9 | 45.98 | 124.345 | |
| 2,200.0 | 2,154.3 | 2,110.8 | 2,110.8 | 8.4 | 40.1 | -97.47 | 2,342.7 | -5,176.7 | 5,720.4 | 5,671.9 | 48.44 | 118.094 | |
| 2,300.0 | 2,250.8 | 2,207.3 | 2,207.3 | 9.0 | 42.0 | -97.72 | 2,342.7 | -5,176.7 | 5,724.0 | 5,673.1 | 50.90 | 112.449 | |
| 2,400.0 | 2,347.3 | 2,303.8 | 2,303.8 | 9.5 | 44.0 | -97.97 | 2,342.7 | -5,176.7 | 5,727.7 | 5,674.4 | 53.37 | 107.328 | |
| 2,500.0 | 2,443.7 | 2,400.2 | 2,400.2 | 10.0 | 45.9 | -98.22 | 2,342.7 | -5,176.7 | 5,731.6 | 5,675.7 | 55.83 | 102.661 | |
| 2,600.0 | 2,540.2 | 2,496.7 | 2,496.7 | 10.6 | 47.9 | -98.48 | 2,342.7 | -5,176.7 | 5,735.5 | 5,677.2 | 58.29 | 98.391 | |
| 2,700.0 | 2,636.7 | 2,593.2 | 2,593.2 | 11.1 | 49.8 | -98.73 | 2,342.7 | -5,176.7 | 5,739.6 | 5,678.9 | 60.76 | 94.470 | |
| 2,800.0 | 2,733.1 | 2,689.6 | 2,689.6 | 11.6 | 51.7 | -98.98 | 2,342.7 | -5,176.7 | 5,743.8 | 5,680.6 | 63.22 | 90.856 | |
| 2,900.0 | 2,829.6 | 2,786.1 | 2,786.1 | 12.2 | 53.7 | -99.23 | 2,342.7 | -5,176.7 | 5,748.1 | 5,682.5 | 65.68 | 87.516 | |
| 3,000.0 | 2,926.0 | 2,882.5 | 2,882.5 | 12.7 | 55.6 | -99.48 | 2,342.7 | -5,176.7 | 5,752.6 | 5,684.4 | 68.14 | 84.420 | |
| 3,100.0 | 3,022.5 | 2,979.0 | 2,979.0 | 13.2 | 57.6 | -99.73 | 2,342.7 | -5,176.7 | 5,757.1 | 5,686.5 | 70.60 | 81.543 | |
| 3,200.0 | 3,119.0 | 3,075.5 | 3,075.5 | 13.8 | 59.5 | -99.98 | 2,342.7 | -5,176.7 | 5,761.8 | 5,688.7 | 73.06 | 78.861 | |
| 3,300.0 | 3,215.4 | 3,171.9 | 3,171.9 | 14.3 | 61.4 | -100.23 | 2,342.7 | -5,176.7 | 5,766.6 | 5,691.1 | 75.52 | 76.357 | |
| 3,400.0 | 3,311.9 | 3,268.4 | 3,268.4 | 14.9 | 63.4 | -100.48 | 2,342.7 | -5,176.7 | 5,771.5 | 5,693.5 | 77.98 | 74.012 | |
| 3,500.0 | 3,408.4 | 3,364.9 | 3,364.9 | 15.4 | 65.3 | -100.72 | 2,342.7 | -5,176.7 | 5,776.5 | 5,696.1 | 80.44 | 71.813 | |
| 3,600.0 | 3,504.8 | 3,461.3 | 3,461.3 | 15.9 | 67.3 | -100.97 | 2,342.7 | -5,176.7 | 5,781.7 | 5,698.8 | 82.89 | 69.747 | |
| 3,700.0 | 3,601.3 | 3,557.8 | 3,557.8 | 16.5 | 69.2 | -101.22 | 2,342.7 | -5,176.7 | 5,786.9 | 5,701.6 | 85.35 | 67.802 | |
| 3,800.0 | 3,697.7 | 3,654.2 | 3,654.2 | 17.0 | 71.1 | -101.47 | 2,342.7 | -5,176.7 | 5,792.3 | 5,704.5 | 87.80 | 65.968 | |
| 3,900.0 | 3,794.2 | 3,750.7 | 3,750.7 | 17.5 | 73.1 | -101.71 | 2,342.7 | -5,176.7 | 5,797.8 | 5,707.5 | 90.26 | 64.235 | |
| 4,000.0 | 3,890.7 | 3,847.2 | 3,847.2 | 18.1 | 75.0 | -101.96 | 2,342.7 | -5,176.7 | 5,803.3 | 5,710.6 | 92.71 | 62.596 | |
| 4,100.0 | 3,987.1 | 3,943.6 | 3,943.6 | 18.6 | 77.0 | -102.21 | 2,342.7 | -5,176.7 | 5,809.1 | 5,713.9 | 95.16 | 61.044 | |
| 4,200.0 | 4,083.6 | 4,040.1 | 4,040.1 | 19.2 | 78.9 | -102.45 | 2,342.7 | -5,176.7 | 5,814.9 | 5,717.3 | 97.61 | 59.571 | |
| 4,300.0 | 4,180.1 | 4,136.6 | 4,136.6 | 19.7 | 80.8 | -102.70 | 2,342.7 | -5,176.7 | 5,820.8 | 5,720.8 | 100.06 | 58.173 | |
| 4,400.0 | 4,276.5 | 4,233.0 | 4,233.0 | 20.2 | 82.8 | -102.94 | 2,342.7 | -5,176.7 | 5,826.9 | 5,724.4 | 102.51 | 56.843 | |
| 4,500.0 | 4,373.0 | 4,329.5 | 4,329.5 | 20.8 | 84.7 | -103.18 | 2,342.7 | -5,176.7 | 5,833.0 | 5,728.1 | 104.96 | 55.576 | |
| 4,600.0 | 4,469.5 | 4,426.0 | 4,426.0 | 21.3 | 86.7 | -103.43 | 2,342.7 | -5,176.7 | 5,839.3 | 5,731.9 | 107.40 | 54.369 | |
| 4,700.0 | 4,565.9 | 4,522.4 | 4,522.4 | 21.9 | 88.6 | -103.67 | 2,342.7 | -5,176.7 | 5,845.7 | 5,735.9 | 109.85 | 53.218 | |
| 4,800.0 | 4,662.4 | 4,618.9 | 4,618.9 | 22.4 | 90.5 | -103.91 | 2,342.7 | -5,176.7 | 5,852.2 | 5,739.9 | 112.29 | 52.118 | |
| 4,900.0 | 4,758.8 | 4,715.3 | 4,715.3 | 22.9 | 92.5 | -104.15 | 2,342.7 | -5,176.7 | 5,858.8 | 5,744.1 | 114.73 | 51.066 | |
| 5,000.0 | 4,855.3 | 4,811.8 | 4,811.8 | 23.5 | 94.4 | -104.40 | 2,342.7 | -5,176.7 | 5,865.5 | 5,748.4 | 117.17 | 50.060 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT CYPRUS 1 - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-INC — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 4,908.3 | 4,908.3 | 24.0 | 96.4 | -104.64 | 2,342.7 | -5,176.7 | 5,872.4 | 5,752.8 | 119.61 | 49.096 | |
| 5,200.0 | 5,048.2 | 5,004.7 | 5,004.7 | 24.6 | 98.3 | -104.88 | 2,342.7 | -5,176.7 | 5,879.3 | 5,757.3 | 122.05 | 48.173 | |
| 5,300.0 | 5,144.7 | 5,101.2 | 5,101.2 | 25.1 | 100.2 | -105.12 | 2,342.7 | -5,176.7 | 5,886.4 | 5,761.9 | 124.48 | 47.287 | |
| 5,400.0 | 5,241.2 | 5,197.7 | 5,197.7 | 25.6 | 102.2 | -105.36 | 2,342.7 | -5,176.7 | 5,893.5 | 5,766.6 | 126.92 | 46.436 | |
| 5,500.0 | 5,337.6 | 5,294.1 | 5,294.1 | 26.2 | 104.1 | -105.60 | 2,342.7 | -5,176.7 | 5,900.8 | 5,771.5 | 129.35 | 45.619 | |
| 5,600.0 | 5,434.1 | 5,390.6 | 5,390.6 | 26.7 | 106.1 | -105.83 | 2,342.7 | -5,176.7 | 5,908.2 | 5,776.4 | 131.78 | 44.833 | |
| 5,700.0 | 5,530.5 | 5,487.0 | 5,487.0 | 27.3 | 108.0 | -106.07 | 2,342.7 | -5,176.7 | 5,915.7 | 5,781.5 | 134.21 | 44.077 | |
| 5,757.1 | 5,585.6 | 5,542.1 | 5,542.1 | 27.6 | 109.1 | -106.21 | 2,342.7 | -5,176.7 | 5,920.0 | 5,784.4 | 135.60 | 43.658 | |
| 5,800.0 | 5,627.1 | 5,583.6 | 5,583.6 | 27.8 | 109.9 | -106.37 | 2,342.7 | -5,176.7 | 5,923.2 | 5,786.5 | 136.64 | 43.349 | |
| 5,900.0 | 5,724.4 | 5,680.9 | 5,680.9 | 28.2 | 111.9 | -106.71 | 2,342.7 | -5,176.7 | 5,930.0 | 5,791.0 | 138.99 | 42.663 | |
| 6,000.0 | 5,822.4 | 5,778.9 | 5,778.9 | 28.5 | 113.9 | -107.00 | 2,342.7 | -5,176.7 | 5,935.8 | 5,794.5 | 141.32 | 42.001 | |
| 6,100.0 | 5,921.0 | 5,877.5 | 5,877.5 | 28.8 | 115.8 | -107.24 | 2,342.7 | -5,176.7 | 5,940.7 | 5,797.1 | 143.62 | 41.363 | |
| 6,200.0 | 6,020.2 | 5,976.7 | 5,976.7 | 29.0 | 117.8 | -107.43 | 2,342.7 | -5,176.7 | 5,944.6 | 5,798.7 | 145.89 | 40.747 | |
| 6,300.0 | 6,119.7 | 6,076.2 | 6,076.2 | 29.3 | 119.8 | -107.57 | 2,342.7 | -5,176.7 | 5,947.4 | 5,799.3 | 148.11 | 40.155 | |
| 6,400.0 | 6,219.5 | 6,176.0 | 6,176.0 | 29.4 | 121.9 | -107.66 | 2,342.7 | -5,176.7 | 5,949.2 | 5,799.0 | 150.29 | 39.584 | |
| 6,500.0 | 6,319.5 | 6,276.0 | 6,276.0 | 29.5 | 123.9 | -107.70 | 2,342.7 | -5,176.7 | 5,950.0 | 5,797.6 | 152.43 | 39.036 | |
| 6,521.3 | 6,340.8 | 6,297.3 | 6,297.3 | 29.6 | 124.3 | -79.36 | 2,342.7 | -5,176.7 | 5,950.0 | 5,807.3 | 142.76 | 41.680 | |
| 6,551.3 | 6,370.8 | 6,327.3 | 6,327.3 | 29.6 | 124.9 | -79.36 | 2,342.7 | -5,176.7 | 5,950.0 | 5,806.6 | 143.40 | 41.492 | |
| 6,600.0 | 6,419.5 | 6,376.0 | 6,376.0 | 29.6 | 125.9 | 10.67 | 2,342.7 | -5,176.7 | 5,948.4 | 5,794.2 | 154.15 | 38.588 | |
| 6,650.0 | 6,469.2 | 6,425.7 | 6,425.7 | 29.6 | 126.9 | 10.75 | 2,342.7 | -5,176.7 | 5,943.4 | 5,789.3 | 154.10 | 38.568 | |
| 6,700.0 | 6,518.4 | 6,474.9 | 6,474.9 | 29.6 | 127.9 | 10.90 | 2,342.7 | -5,176.7 | 5,934.9 | 5,781.6 | 153.31 | 38.711 | |
| 6,750.0 | 6,567.0 | 6,523.5 | 6,523.5 | 29.6 | 128.8 | 11.11 | 2,342.7 | -5,176.7 | 5,923.1 | 5,771.3 | 151.79 | 39.021 | |
| 6,800.0 | 6,614.5 | 6,571.0 | 6,571.0 | 29.6 | 129.8 | 11.38 | 2,342.7 | -5,176.7 | 5,908.0 | 5,758.5 | 149.54 | 39.509 | |
| 6,850.0 | 6,660.9 | 6,617.4 | 6,617.4 | 29.5 | 130.7 | 11.73 | 2,342.7 | -5,176.7 | 5,889.7 | 5,743.1 | 146.57 | 40.184 | |
| 6,900.0 | 6,705.9 | 6,662.4 | 6,662.4 | 29.4 | 131.6 | 12.17 | 2,342.7 | -5,176.7 | 5,868.3 | 5,725.3 | 142.91 | 41.063 | |
| 6,950.0 | 6,749.2 | 6,705.7 | 6,705.7 | 29.3 | 132.5 | 12.71 | 2,342.7 | -5,176.7 | 5,843.8 | 5,705.2 | 138.60 | 42.162 | |
| 7,000.0 | 6,790.7 | 6,747.2 | 6,747.2 | 29.2 | 133.3 | 13.36 | 2,342.7 | -5,176.7 | 5,816.4 | 5,682.7 | 133.71 | 43.500 | |
| 7,050.0 | 6,830.2 | 6,786.7 | 6,786.7 | 29.1 | 134.1 | 14.15 | 2,342.7 | -5,176.7 | 5,786.3 | 5,657.9 | 128.31 | 45.096 | |
| 7,100.0 | 6,867.4 | 6,823.9 | 6,823.9 | 29.0 | 134.9 | 15.11 | 2,342.7 | -5,176.7 | 5,753.5 | 5,631.0 | 122.53 | 46.955 | |
| 7,150.0 | 6,902.2 | 6,858.7 | 6,858.7 | 28.9 | 135.6 | 16.28 | 2,342.7 | -5,176.7 | 5,718.3 | 5,601.7 | 116.54 | 49.065 | |
| 7,200.0 | 6,934.4 | 6,890.9 | 6,890.9 | 28.7 | 136.2 | 17.72 | 2,342.7 | -5,176.7 | 5,680.7 | 5,570.1 | 110.61 | 51.358 | |
| 7,250.0 | 6,963.8 | 6,920.3 | 6,920.3 | 28.6 | 136.8 | 19.50 | 2,342.7 | -5,176.7 | 5,641.1 | 5,536.0 | 105.11 | 53.668 | |
| 7,300.0 | 6,990.4 | 6,946.9 | 6,946.9 | 28.5 | 137.4 | 21.75 | 2,342.7 | -5,176.7 | 5,599.6 | 5,499.0 | 100.62 | 55.651 | |
| 7,350.0 | 7,013.9 | 6,970.4 | 6,970.4 | 28.4 | 137.8 | 24.63 | 2,342.7 | -5,176.7 | 5,556.4 | 5,458.4 | 97.96 | 56.721 | |
| 7,400.0 | 7,034.4 | 6,990.9 | 6,990.9 | 28.2 | 138.2 | 28.40 | 2,342.7 | -5,176.7 | 5,511.6 | 5,413.4 | 98.25 | 56.098 | |
| 7,450.0 | 7,051.5 | 7,008.0 | 7,008.0 | 28.1 | 138.6 | 33.44 | 2,342.7 | -5,176.7 | 5,465.6 | 5,362.8 | 102.80 | 53.169 | |
| 7,500.0 | 7,065.4 | 7,021.9 | 7,021.9 | 28.0 | 138.9 | 40.36 | 2,342.7 | -5,176.7 | 5,418.6 | 5,305.9 | 112.75 | 48.060 | |
| 7,550.0 | 7,075.9 | 7,032.4 | 7,032.4 | 27.9 | 139.1 | 49.99 | 2,342.7 | -5,176.7 | 5,370.7 | 5,242.5 | 128.27 | 41.871 | |
| 7,600.0 | 7,082.9 | 7,039.4 | 7,039.4 | 27.8 | 139.2 | 63.25 | 2,342.7 | -5,176.7 | 5,322.3 | 5,175.5 | 146.78 | 36.260 | |
| 7,650.0 | 7,086.5 | 7,043.0 | 7,043.0 | 27.7 | 139.3 | 80.22 | 2,342.7 | -5,176.7 | 5,273.5 | 5,112.9 | 160.61 | 32.835 | |
| 7,677.7 | 7,087.0 | 7,043.5 | 7,043.5 | 27.6 | 139.3 | 90.52 | 2,342.7 | -5,176.7 | 5,246.5 | 5,083.9 | 162.54 | 32.279 | |
| 7,700.0 | 7,087.0 | 7,043.5 | 7,043.5 | 27.6 | 139.3 | 90.51 | 2,342.7 | -5,176.7 | 5,224.6 | 5,061.8 | 162.84 | 32.084 | |
| 7,800.0 | 7,086.8 | 7,043.3 | 7,043.3 | 27.5 | 139.3 | 90.50 | 2,342.7 | -5,176.7 | 5,126.9 | 4,962.6 | 164.38 | 31.190 | |
| 7,900.0 | 7,086.6 | 7,043.1 | 7,043.1 | 27.9 | 139.3 | 90.49 | 2,342.7 | -5,176.7 | 5,029.3 | 4,863.2 | 166.11 | 30.276 | |
| 8,000.0 | 7,086.4 | 7,042.9 | 7,042.9 | 29.5 | 139.3 | 90.48 | 2,342.7 | -5,176.7 | 4,931.8 | 4,763.7 | 168.02 | 29.352 | |
| 8,100.0 | 7,086.2 | 7,042.7 | 7,042.7 | 31.5 | 139.3 | 90.47 | 2,342.7 | -5,176.7 | 4,834.3 | 4,664.3 | 170.06 | 28.426 | |
| 8,200.0 | 7,086.0 | 7,042.5 | 7,042.5 | 33.7 | 139.3 | 90.47 | 2,342.7 | -5,176.7 | 4,737.0 | 4,564.8 | 172.22 | 27.505 | |
| 8,300.0 | 7,085.8 | 7,042.3 | 7,042.3 | 36.0 | 139.3 | 90.46 | 2,342.7 | -5,176.7 | 4,639.8 | 4,465.3 | 174.47 | 26.593 | |
| 8,400.0 | 7,085.6 | 7,042.1 | 7,042.1 | 38.3 | 139.3 | 90.45 | 2,342.7 | -5,176.7 | 4,542.7 | 4,365.9 | 176.79 | 25.695 | |
| 8,500.0 | 7,085.4 | 7,041.9 | 7,041.9 | 40.7 | 139.3 | 90.44 | 2,342.7 | -5,176.7 | 4,445.7 | 4,266.5 | 179.18 | 24.811 | |
| 8,600.0 | 7,085.2 | 7,041.7 | 7,041.7 | 43.1 | 139.3 | 90.43 | 2,342.7 | -5,176.7 | 4,348.9 | 4,167.3 | 181.62 | 23.945 | |
| 8,700.0 | 7,085.0 | 7,041.5 | 7,041.5 | 45.6 | 139.3 | 90.42 | 2,342.7 | -5,176.7 | 4,252.2 | 4,068.1 | 184.10 | 23.097 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT CYPRUS 1 - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-INC — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.0 | 7,084.8 | 7,041.3 | 7,041.3 | 48.1 | 139.3 | 90.41 | 2,342.7 | -5,176.7 | 4,155.7 | 3,969.1 | 186.62 | 22.269 | |
| 8,900.0 | 7,084.6 | 7,041.1 | 7,041.1 | 50.7 | 139.2 | 90.40 | 2,342.7 | -5,176.7 | 4,059.3 | 3,870.2 | 189.16 | 21.459 | |
| 9,000.0 | 7,084.4 | 7,040.9 | 7,040.9 | 53.2 | 139.2 | 90.39 | 2,342.7 | -5,176.7 | 3,963.2 | 3,771.4 | 191.74 | 20.670 | |
| 9,100.0 | 7,084.2 | 7,040.7 | 7,040.7 | 55.8 | 139.2 | 90.38 | 2,342.7 | -5,176.7 | 3,867.2 | 3,672.9 | 194.33 | 19.900 | |
| 9,200.0 | 7,084.0 | 7,040.5 | 7,040.5 | 58.4 | 139.2 | 90.37 | 2,342.7 | -5,176.7 | 3,771.4 | 3,574.5 | 196.95 | 19.149 | |
| 9,300.0 | 7,083.8 | 7,040.3 | 7,040.3 | 61.1 | 139.2 | 90.36 | 2,342.7 | -5,176.7 | 3,675.9 | 3,476.3 | 199.58 | 18.418 | |
| 9,400.0 | 7,083.7 | 7,040.2 | 7,040.2 | 63.7 | 139.2 | 90.35 | 2,342.7 | -5,176.7 | 3,580.6 | 3,378.3 | 202.23 | 17.705 | |
| 9,500.0 | 7,083.5 | 7,040.0 | 7,040.0 | 66.3 | 139.2 | 90.34 | 2,342.7 | -5,176.7 | 3,485.5 | 3,280.6 | 204.89 | 17.012 | |
| 9,600.0 | 7,083.3 | 7,039.8 | 7,039.8 | 69.0 | 139.2 | 90.33 | 2,342.7 | -5,176.7 | 3,390.8 | 3,183.2 | 207.56 | 16.336 | |
| 9,700.0 | 7,083.1 | 7,039.6 | 7,039.6 | 71.7 | 139.2 | 90.32 | 2,342.7 | -5,176.7 | 3,296.3 | 3,086.1 | 210.25 | 15.678 | |
| 9,800.0 | 7,082.9 | 7,039.4 | 7,039.4 | 74.4 | 139.2 | 90.31 | 2,342.7 | -5,176.7 | 3,202.2 | 2,989.3 | 212.94 | 15.038 | |
| 9,900.0 | 7,082.7 | 7,039.2 | 7,039.2 | 77.1 | 139.2 | 90.30 | 2,342.7 | -5,176.7 | 3,108.5 | 2,892.8 | 215.64 | 14.415 | |
| 10,000.0 | 7,082.5 | 7,039.0 | 7,039.0 | 79.7 | 139.2 | 90.29 | 2,342.7 | -5,176.7 | 3,015.1 | 2,796.8 | 218.35 | 13.809 | |
| 10,100.0 | 7,082.3 | 7,038.8 | 7,038.8 | 82.5 | 139.2 | 90.28 | 2,342.7 | -5,176.7 | 2,922.2 | 2,701.2 | 221.06 | 13.219 | |
| 10,200.0 | 7,082.1 | 7,038.6 | 7,038.6 | 85.2 | 139.2 | 90.27 | 2,342.7 | -5,176.7 | 2,829.8 | 2,606.1 | 223.78 | 12.646 | |
| 10,300.0 | 7,081.9 | 7,038.4 | 7,038.4 | 87.9 | 139.2 | 90.26 | 2,342.7 | -5,176.7 | 2,738.0 | 2,511.4 | 226.51 | 12.088 | |
| 10,400.0 | 7,081.7 | 7,038.2 | 7,038.2 | 90.6 | 139.2 | 90.25 | 2,342.7 | -5,176.7 | 2,646.7 | 2,417.4 | 229.24 | 11.546 | |
| 10,500.0 | 7,081.5 | 7,038.0 | 7,038.0 | 93.3 | 139.2 | 90.24 | 2,342.7 | -5,176.7 | 2,556.0 | 2,324.1 | 231.97 | 11.019 | |
| 10,600.0 | 7,081.3 | 7,037.8 | 7,037.8 | 96.1 | 139.2 | 90.23 | 2,342.7 | -5,176.7 | 2,466.1 | 2,231.4 | 234.71 | 10.507 | |
| 10,700.0 | 7,081.1 | 7,037.6 | 7,037.6 | 98.8 | 139.2 | 90.22 | 2,342.7 | -5,176.7 | 2,377.0 | 2,139.6 | 237.45 | 10.010 | |
| 10,800.0 | 7,080.9 | 7,037.4 | 7,037.4 | 101.5 | 139.2 | 90.21 | 2,342.7 | -5,176.7 | 2,288.8 | 2,048.6 | 240.20 | 9.529 | |
| 10,900.0 | 7,080.7 | 7,037.2 | 7,037.2 | 104.3 | 139.2 | 90.20 | 2,342.7 | -5,176.7 | 2,201.6 | 1,958.6 | 242.95 | 9.062 | |
| 11,000.0 | 7,080.5 | 7,037.0 | 7,037.0 | 107.0 | 139.2 | 90.19 | 2,342.7 | -5,176.7 | 2,115.5 | 1,869.8 | 245.70 | 8.610 | |
| 11,100.0 | 7,080.3 | 7,036.8 | 7,036.8 | 109.8 | 139.2 | 90.18 | 2,342.7 | -5,176.7 | 2,030.7 | 1,782.3 | 248.45 | 8.173 | |
| 11,200.0 | 7,080.1 | 7,036.6 | 7,036.6 | 112.5 | 139.2 | 90.17 | 2,342.7 | -5,176.7 | 1,947.4 | 1,696.2 | 251.21 | 7.752 | |
| 11,300.0 | 7,079.9 | 7,036.4 | 7,036.4 | 115.3 | 139.2 | 90.16 | 2,342.7 | -5,176.7 | 1,865.7 | 1,611.7 | 253.97 | 7.346 | |
| 11,400.0 | 7,079.7 | 7,036.2 | 7,036.2 | 118.0 | 139.1 | 90.15 | 2,342.7 | -5,176.7 | 1,785.8 | 1,529.1 | 256.73 | 6.956 | |
| 11,500.0 | 7,079.5 | 7,036.0 | 7,036.0 | 120.8 | 139.1 | 90.14 | 2,342.7 | -5,176.7 | 1,708.1 | 1,448.6 | 259.50 | 6.582 | |
| 11,600.0 | 7,079.3 | 7,035.8 | 7,035.8 | 123.6 | 139.1 | 90.13 | 2,342.7 | -5,176.7 | 1,632.8 | 1,370.6 | 262.26 | 6.226 | |
| 11,700.0 | 7,079.1 | 7,035.6 | 7,035.6 | 126.3 | 139.1 | 90.12 | 2,342.7 | -5,176.7 | 1,560.3 | 1,295.3 | 265.03 | 5.887 | |
| 11,800.0 | 7,078.9 | 7,035.4 | 7,035.4 | 129.1 | 139.1 | 90.11 | 2,342.7 | -5,176.7 | 1,491.0 | 1,223.2 | 267.80 | 5.567 | |
| 11,900.0 | 7,078.7 | 7,035.2 | 7,035.2 | 131.9 | 139.1 | 90.09 | 2,342.7 | -5,176.7 | 1,425.3 | 1,154.7 | 270.57 | 5.268 | |
| 12,000.0 | 7,078.5 | 7,035.0 | 7,035.0 | 134.6 | 139.1 | 90.08 | 2,342.7 | -5,176.7 | 1,363.8 | 1,090.4 | 273.34 | 4.989 | |
| 12,100.0 | 7,078.3 | 7,034.8 | 7,034.8 | 137.4 | 139.1 | 90.07 | 2,342.7 | -5,176.7 | 1,307.0 | 1,030.9 | 276.11 | 4.734 | |
| 12,200.0 | 7,078.1 | 7,034.6 | 7,034.6 | 140.2 | 139.1 | 90.06 | 2,342.7 | -5,176.7 | 1,255.7 | 976.8 | 278.89 | 4.502 | |
| 12,300.0 | 7,077.9 | 7,034.4 | 7,034.4 | 142.9 | 139.1 | 90.05 | 2,342.7 | -5,176.7 | 1,210.4 | 928.8 | 281.67 | 4.297 | |
| 12,400.0 | 7,077.7 | 7,034.2 | 7,034.2 | 145.7 | 139.1 | 90.04 | 2,342.7 | -5,176.7 | 1,172.0 | 887.6 | 284.44 | 4.120 | |
| 12,500.0 | 7,077.5 | 7,034.0 | 7,034.0 | 148.5 | 139.1 | 90.03 | 2,342.7 | -5,176.7 | 1,141.1 | 853.8 | 287.22 | 3.973 | |
| 12,600.0 | 7,077.3 | 7,033.8 | 7,033.8 | 151.3 | 139.1 | 90.02 | 2,342.7 | -5,176.7 | 1,118.2 | 828.2 | 290.00 | 3.856 | |
| 12,700.0 | 7,077.1 | 7,033.6 | 7,033.6 | 154.0 | 139.1 | 90.01 | 2,342.7 | -5,176.7 | 1,104.0 | 811.3 | 292.78 | 3.771 | |
| 12,800.0 | 7,076.9 | 7,033.4 | 7,033.4 | 156.8 | 139.1 | 90.00 | 2,342.7 | -5,176.7 | 1,098.8 | 803.2 | 295.56 | 3.718 | |
| 12,807.8 | 7,076.9 | 7,033.4 | 7,033.4 | 157.0 | 139.1 | 90.00 | 2,342.7 | -5,176.7 | 1,098.8 | 803.0 | 295.78 | 3.715 | CC, ES |
| 12,900.0 | 7,076.7 | 7,033.2 | 7,033.2 | 159.6 | 139.1 | 89.99 | 2,342.7 | -5,176.7 | 1,102.6 | 804.3 | 298.34 | 3.696 | SF |
| 13,000.0 | 7,076.5 | 7,033.0 | 7,033.0 | 162.4 | 139.1 | 89.98 | 2,342.7 | -5,176.7 | 1,115.4 | 814.3 | 301.12 | 3.704 | |
| 13,100.0 | 7,076.3 | 7,032.8 | 7,032.8 | 165.2 | 139.1 | 89.97 | 2,342.7 | -5,176.7 | 1,136.9 | 833.0 | 303.91 | 3.741 | |
| 13,200.0 | 7,076.1 | 7,032.6 | 7,032.6 | 168.0 | 139.1 | 89.96 | 2,342.7 | -5,176.7 | 1,166.7 | 860.0 | 306.69 | 3.804 | |
| 13,300.0 | 7,075.9 | 7,032.4 | 7,032.4 | 170.7 | 139.1 | 89.95 | 2,342.7 | -5,176.7 | 1,204.0 | 894.5 | 309.48 | 3.890 | |
| 13,400.0 | 7,075.7 | 7,032.2 | 7,032.2 | 173.5 | 139.1 | 89.94 | 2,342.7 | -5,176.7 | 1,248.2 | 935.9 | 312.26 | 3.997 | |
| 13,500.0 | 7,075.5 | 7,032.0 | 7,032.0 | 176.3 | 139.1 | 89.93 | 2,342.7 | -5,176.7 | 1,298.6 | 983.6 | 315.05 | 4.122 | |
| 13,600.0 | 7,075.3 | 7,031.8 | 7,031.8 | 179.1 | 139.1 | 89.92 | 2,342.7 | -5,176.7 | 1,354.6 | 1,036.7 | 317.83 | 4.262 | |
| 13,700.0 | 7,075.1 | 7,031.6 | 7,031.6 | 181.9 | 139.1 | 89.91 | 2,342.7 | -5,176.7 | 1,415.4 | 1,094.8 | 320.62 | 4.414 | |
| 13,800.0 | 7,074.9 | 7,031.4 | 7,031.4 | 184.7 | 139.1 | 89.89 | 2,342.7 | -5,176.7 | 1,480.4 | 1,157.0 | 323.41 | 4.578 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT CYPRUS 1 - Wellbore #1 - Design #1

**Offset Site Error:** 0.0 usft

**Survey Program:** 0-INC

**Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.0 | 7,074.7 | 7,031.2 | 7,031.2 | 187.5 | 139.0 | 89.88 | 2,342.7 | -5,176.7 | 1,549.2 | 1,223.0 | 326.19 | 4.749 | |
| 14,000.0 | 7,074.5 | 7,031.0 | 7,031.0 | 190.2 | 139.0 | 89.87 | 2,342.7 | -5,176.7 | 1,621.3 | 1,292.3 | 328.98 | 4.928 | |
| 14,100.0 | 7,074.2 | 7,030.7 | 7,030.7 | 193.0 | 139.0 | 89.86 | 2,342.7 | -5,176.7 | 1,696.2 | 1,364.4 | 331.77 | 5.112 | |
| 14,200.0 | 7,074.0 | 7,030.5 | 7,030.5 | 195.8 | 139.0 | 89.85 | 2,342.7 | -5,176.7 | 1,773.5 | 1,439.0 | 334.56 | 5.301 | |
| 14,221.4 | 7,074.0 | 7,030.5 | 7,030.5 | 196.4 | 139.0 | 89.85 | 2,342.7 | -5,176.7 | 1,790.4 | 1,455.2 | 335.16 | 5.342 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21N-334 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.07 | 14.9 | 0.3 | 14.9 | | | | |
| 100.0 | 100.0 | 101.0 | 101.0 | 0.1 | 0.1 | 1.07 | 14.9 | 0.3 | 14.9 | 14.7 | 0.20 | 75.960 | |
| 200.0 | 200.0 | 201.0 | 201.0 | 0.3 | 0.3 | 1.07 | 14.9 | 0.3 | 14.9 | 14.3 | 0.65 | 23.118 | |
| 266.3 | 266.3 | 267.3 | 267.3 | 0.5 | 0.5 | 1.07 | 14.9 | 0.3 | 14.9 | 14.0 | 0.94 | 15.819 | CC |
| 300.0 | 300.0 | 301.0 | 301.0 | 0.5 | 0.5 | 1.07 | 14.9 | 0.3 | 14.9 | 13.8 | 1.10 | 13.634 | |
| 400.0 | 400.0 | 400.5 | 400.5 | 0.8 | 0.8 | 3.56 | 16.5 | 1.0 | 16.6 | 15.0 | 1.54 | 10.733 | |
| 500.0 | 500.0 | 500.0 | 499.8 | 1.0 | 1.0 | -21.31 | 21.3 | 3.3 | 19.9 | 17.9 | 2.00 | 9.970 | |
| 600.0 | 599.8 | 599.0 | 598.5 | 1.2 | 1.2 | -19.30 | 29.0 | 6.9 | 23.3 | 20.9 | 2.45 | 9.520 | |
| 700.0 | 699.5 | 698.2 | 696.9 | 1.5 | 1.5 | -18.21 | 39.9 | 12.0 | 26.8 | 23.9 | 2.91 | 9.205 | |
| 800.0 | 798.7 | 797.1 | 794.6 | 1.7 | 1.8 | -17.72 | 53.9 | 18.6 | 30.2 | 26.9 | 3.38 | 8.955 | |
| 900.0 | 897.5 | 896.0 | 891.7 | 2.0 | 2.2 | -17.65 | 70.8 | 26.6 | 33.7 | 29.9 | 3.86 | 8.733 | |
| 1,000.0 | 995.6 | 994.8 | 988.0 | 2.4 | 2.6 | -17.87 | 90.8 | 36.0 | 37.3 | 32.9 | 4.37 | 8.521 | |
| 1,100.0 | 1,093.1 | 1,093.4 | 1,083.3 | 2.8 | 3.1 | -18.32 | 113.7 | 46.8 | 40.8 | 35.9 | 4.91 | 8.305 | |
| 1,164.2 | 1,155.2 | 1,157.1 | 1,144.4 | 3.1 | 3.4 | -18.76 | 129.9 | 54.4 | 42.9 | 37.6 | 5.28 | 8.130 | |
| 1,200.0 | 1,189.7 | 1,192.9 | 1,178.7 | 3.2 | 3.6 | -19.13 | 139.2 | 58.8 | 43.8 | 38.3 | 5.49 | 7.973 | |
| 1,300.0 | 1,286.2 | 1,292.9 | 1,274.5 | 3.7 | 4.1 | -20.07 | 164.9 | 70.9 | 46.4 | 40.2 | 6.12 | 7.572 | |
| 1,400.0 | 1,382.6 | 1,392.8 | 1,370.4 | 4.2 | 4.7 | -20.91 | 190.7 | 83.0 | 48.9 | 42.2 | 6.77 | 7.229 | |
| 1,500.0 | 1,479.1 | 1,492.8 | 1,466.2 | 4.7 | 5.2 | -21.67 | 216.4 | 95.1 | 51.5 | 44.1 | 7.44 | 6.927 | |
| 1,600.0 | 1,575.6 | 1,592.7 | 1,562.0 | 5.3 | 5.8 | -22.36 | 242.2 | 107.3 | 54.1 | 46.0 | 8.12 | 6.665 | |
| 1,700.0 | 1,672.0 | 1,692.7 | 1,657.8 | 5.8 | 6.3 | -22.98 | 267.9 | 119.4 | 56.7 | 47.9 | 8.81 | 6.435 | |
| 1,800.0 | 1,768.5 | 1,792.7 | 1,753.7 | 6.3 | 6.9 | -23.55 | 293.7 | 131.5 | 59.3 | 49.8 | 9.51 | 6.233 | |
| 1,900.0 | 1,864.9 | 1,892.6 | 1,849.5 | 6.8 | 7.5 | -24.07 | 319.4 | 143.6 | 61.9 | 51.7 | 10.22 | 6.054 | |
| 2,000.0 | 1,961.4 | 1,992.6 | 1,945.3 | 7.4 | 8.0 | -24.55 | 345.2 | 155.8 | 64.5 | 53.6 | 10.94 | 5.894 | |
| 2,100.0 | 2,057.9 | 2,092.6 | 2,041.2 | 7.9 | 8.6 | -24.99 | 371.0 | 167.9 | 67.1 | 55.4 | 11.67 | 5.751 | |
| 2,200.0 | 2,154.3 | 2,192.5 | 2,137.0 | 8.4 | 9.2 | -25.40 | 396.7 | 180.0 | 69.7 | 57.3 | 12.40 | 5.622 | |
| 2,300.0 | 2,250.8 | 2,292.5 | 2,232.8 | 9.0 | 9.7 | -25.78 | 422.5 | 192.2 | 72.3 | 59.2 | 13.14 | 5.506 | |
| 2,400.0 | 2,347.3 | 2,392.5 | 2,328.6 | 9.5 | 10.3 | -26.13 | 448.2 | 204.3 | 75.0 | 61.1 | 13.88 | 5.400 | |
| 2,500.0 | 2,443.7 | 2,492.4 | 2,424.5 | 10.0 | 10.9 | -26.46 | 474.0 | 216.4 | 77.6 | 63.0 | 14.63 | 5.304 | |
| 2,600.0 | 2,540.2 | 2,592.4 | 2,520.3 | 10.6 | 11.4 | -26.77 | 499.7 | 228.5 | 80.2 | 64.8 | 15.38 | 5.215 | |
| 2,700.0 | 2,636.7 | 2,692.4 | 2,616.1 | 11.1 | 12.0 | -27.06 | 525.5 | 240.7 | 82.9 | 66.7 | 16.14 | 5.135 | |
| 2,800.0 | 2,733.1 | 2,792.3 | 2,711.9 | 11.6 | 12.6 | -27.33 | 551.2 | 252.8 | 85.5 | 68.6 | 16.89 | 5.060 | |
| 2,900.0 | 2,829.6 | 2,892.3 | 2,807.8 | 12.2 | 13.2 | -27.58 | 577.0 | 264.9 | 88.1 | 70.5 | 17.65 | 4.991 | |
| 3,000.0 | 2,926.0 | 2,992.2 | 2,903.6 | 12.7 | 13.7 | -27.82 | 602.7 | 277.0 | 90.8 | 72.3 | 18.42 | 4.928 | |
| 3,100.0 | 3,022.5 | 3,092.2 | 2,999.4 | 13.2 | 14.3 | -28.05 | 628.5 | 289.2 | 93.4 | 74.2 | 19.18 | 4.869 | |
| 3,200.0 | 3,119.0 | 3,192.2 | 3,095.2 | 13.8 | 14.9 | -28.26 | 654.3 | 301.3 | 96.0 | 76.1 | 19.95 | 4.814 | |
| 3,300.0 | 3,215.4 | 3,292.1 | 3,191.1 | 14.3 | 15.5 | -28.46 | 680.0 | 313.4 | 98.7 | 78.0 | 20.72 | 4.762 | |
| 3,400.0 | 3,311.9 | 3,392.1 | 3,286.9 | 14.9 | 16.0 | -28.65 | 705.8 | 325.5 | 101.3 | 79.8 | 21.49 | 4.714 | |
| 3,500.0 | 3,408.4 | 3,492.1 | 3,382.7 | 15.4 | 16.6 | -28.84 | 731.5 | 337.7 | 104.0 | 81.7 | 22.26 | 4.669 | |
| 3,600.0 | 3,504.8 | 3,592.0 | 3,478.5 | 15.9 | 17.2 | -29.01 | 757.3 | 349.8 | 106.6 | 83.6 | 23.04 | 4.627 | |
| 3,700.0 | 3,601.3 | 3,692.0 | 3,574.4 | 16.5 | 17.8 | -29.17 | 783.0 | 361.9 | 109.2 | 85.4 | 23.81 | 4.587 | |
| 3,800.0 | 3,697.7 | 3,792.0 | 3,670.2 | 17.0 | 18.3 | -29.33 | 808.8 | 374.0 | 111.9 | 87.3 | 24.59 | 4.550 | |
| 3,900.0 | 3,794.2 | 3,891.9 | 3,766.0 | 17.5 | 18.9 | -29.48 | 834.5 | 386.2 | 114.5 | 89.2 | 25.37 | 4.515 | |
| 4,000.0 | 3,890.7 | 3,991.9 | 3,861.8 | 18.1 | 19.5 | -29.62 | 860.3 | 398.3 | 117.2 | 91.0 | 26.15 | 4.481 | |
| 4,100.0 | 3,987.1 | 4,091.9 | 3,957.7 | 18.6 | 20.1 | -29.76 | 886.1 | 410.4 | 119.8 | 92.9 | 26.93 | 4.450 | |
| 4,200.0 | 4,083.6 | 4,191.8 | 4,053.5 | 19.2 | 20.6 | -29.89 | 911.8 | 422.5 | 122.5 | 94.8 | 27.71 | 4.420 | |
| 4,300.0 | 4,180.1 | 4,291.8 | 4,149.3 | 19.7 | 21.2 | -30.01 | 937.6 | 434.7 | 125.1 | 96.6 | 28.49 | 4.391 | |
| 4,400.0 | 4,276.5 | 4,391.8 | 4,245.1 | 20.2 | 21.8 | -30.13 | 963.3 | 446.8 | 127.8 | 98.5 | 29.28 | 4.364 | |
| 4,500.0 | 4,373.0 | 4,491.7 | 4,341.0 | 20.8 | 22.4 | -30.25 | 989.1 | 458.9 | 130.4 | 100.4 | 30.06 | 4.339 | |
| 4,600.0 | 4,469.5 | 4,591.7 | 4,436.8 | 21.3 | 22.9 | -30.36 | 1,014.8 | 471.0 | 133.1 | 102.2 | 30.84 | 4.314 | |
| 4,700.0 | 4,565.9 | 4,691.6 | 4,532.6 | 21.9 | 23.5 | -30.46 | 1,040.6 | 483.2 | 135.7 | 104.1 | 31.63 | 4.291 | |
| 4,800.0 | 4,662.4 | 4,791.6 | 4,628.4 | 22.4 | 24.1 | -30.56 | 1,066.3 | 495.3 | 138.4 | 106.0 | 32.42 | 4.269 | |
| 4,900.0 | 4,758.8 | 4,891.6 | 4,724.3 | 22.9 | 24.7 | -30.66 | 1,092.1 | 507.4 | 141.0 | 107.8 | 33.20 | 4.247 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21N-334 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,000.0 | 4,855.3 | 4,991.5 | 4,820.1 | 23.5 | 25.2 | -30.76 | 1,117.8 | 519.5 | 143.7 | 109.7 | 33.99 | 4.227 | |
| 5,100.0 | 4,951.8 | 5,091.5 | 4,915.9 | 24.0 | 25.8 | -30.85 | 1,143.6 | 531.7 | 146.3 | 111.5 | 34.78 | 4.207 | |
| 5,200.0 | 5,048.2 | 5,191.5 | 5,011.7 | 24.6 | 26.4 | -30.94 | 1,169.4 | 543.8 | 149.0 | 113.4 | 35.57 | 4.189 | |
| 5,300.0 | 5,144.7 | 5,291.4 | 5,107.6 | 25.1 | 27.0 | -31.02 | 1,195.1 | 555.9 | 151.6 | 115.3 | 36.35 | 4.171 | |
| 5,400.0 | 5,241.2 | 5,391.4 | 5,203.4 | 25.6 | 27.5 | -31.10 | 1,220.9 | 568.1 | 154.3 | 117.1 | 37.14 | 4.154 | |
| 5,500.0 | 5,337.6 | 5,491.4 | 5,299.2 | 26.2 | 28.1 | -31.18 | 1,246.6 | 580.2 | 156.9 | 119.0 | 37.93 | 4.137 | |
| 5,600.0 | 5,434.1 | 5,591.3 | 5,395.0 | 26.7 | 28.7 | -31.26 | 1,272.4 | 592.3 | 159.6 | 120.9 | 38.72 | 4.121 | |
| 5,700.0 | 5,530.5 | 5,691.3 | 5,490.9 | 27.3 | 29.3 | -31.33 | 1,298.1 | 604.4 | 162.2 | 122.7 | 39.51 | 4.106 | |
| 5,757.1 | 5,585.6 | 5,748.4 | 5,545.6 | 27.6 | 29.6 | -31.37 | 1,312.8 | 611.4 | 163.8 | 123.8 | 39.97 | 4.097 | |
| 5,800.0 | 5,627.1 | 5,791.2 | 5,586.7 | 27.8 | 29.9 | -31.36 | 1,323.9 | 616.6 | 165.2 | 124.9 | 40.27 | 4.102 | |
| 5,900.0 | 5,724.4 | 5,893.9 | 5,685.2 | 28.2 | 30.4 | -30.97 | 1,349.9 | 628.8 | 170.2 | 129.5 | 40.73 | 4.179 | |
| 6,000.0 | 5,822.4 | 5,999.4 | 5,787.4 | 28.5 | 30.8 | -30.51 | 1,373.7 | 640.0 | 175.3 | 134.3 | 41.03 | 4.273 | |
| 6,100.0 | 5,921.0 | 6,105.1 | 5,890.6 | 28.8 | 31.2 | -30.04 | 1,394.1 | 649.6 | 180.3 | 139.0 | 41.27 | 4.368 | |
| 6,200.0 | 6,020.2 | 6,211.0 | 5,994.9 | 29.0 | 31.5 | -29.57 | 1,411.0 | 657.6 | 184.9 | 143.5 | 41.42 | 4.464 | |
| 6,300.0 | 6,119.7 | 6,317.1 | 6,099.9 | 29.3 | 31.8 | -29.09 | 1,424.5 | 663.9 | 189.3 | 147.8 | 41.51 | 4.561 | |
| 6,400.0 | 6,219.5 | 6,423.4 | 6,205.6 | 29.4 | 32.1 | -28.62 | 1,434.5 | 668.6 | 193.4 | 151.9 | 41.51 | 4.660 | |
| 6,500.0 | 6,319.5 | 6,529.9 | 6,311.9 | 29.5 | 32.2 | -28.13 | 1,440.9 | 671.7 | 197.3 | 155.8 | 41.44 | 4.760 | |
| 6,521.3 | 6,340.8 | 6,552.6 | 6,334.6 | 29.6 | 32.3 | 0.32 | 1,441.8 | 672.1 | 198.1 | 140.7 | 57.33 | 3.455 | |
| 6,551.3 | 6,370.8 | 6,584.6 | 6,366.5 | 29.6 | 32.3 | 0.45 | 1,442.8 | 672.6 | 199.0 | 141.6 | 57.45 | 3.464 | |
| 6,600.0 | 6,419.5 | 6,636.5 | 6,418.5 | 29.6 | 32.4 | 91.01 | 1,443.8 | 673.0 | 199.9 | 158.6 | 41.31 | 4.839 | |
| 6,650.0 | 6,469.2 | 6,688.2 | 6,470.2 | 29.6 | 32.4 | 92.51 | 1,443.9 | 673.1 | 200.2 | 159.5 | 40.73 | 4.917 | |
| 6,700.0 | 6,518.4 | 6,738.4 | 6,520.4 | 29.6 | 32.4 | 94.62 | 1,443.9 | 671.9 | 200.7 | 160.8 | 39.87 | 5.034 | |
| 6,750.0 | 6,567.0 | 6,789.3 | 6,571.0 | 29.6 | 32.5 | 96.72 | 1,443.9 | 667.3 | 201.5 | 162.4 | 39.00 | 5.165 | |
| 6,800.0 | 6,614.5 | 6,840.7 | 6,621.7 | 29.6 | 32.5 | 98.79 | 1,443.9 | 658.9 | 202.5 | 164.3 | 38.17 | 5.305 | |
| 6,850.0 | 6,660.9 | 6,892.7 | 6,672.3 | 29.5 | 32.4 | 100.80 | 1,443.9 | 646.8 | 203.7 | 166.4 | 37.37 | 5.452 | |
| 6,900.0 | 6,705.9 | 6,945.3 | 6,722.4 | 29.4 | 32.4 | 102.75 | 1,443.9 | 630.8 | 205.2 | 168.6 | 36.61 | 5.605 | |
| 6,950.0 | 6,749.2 | 6,998.5 | 6,771.7 | 29.3 | 32.3 | 104.61 | 1,443.9 | 610.9 | 206.8 | 170.9 | 35.91 | 5.760 | |
| 7,000.0 | 6,790.7 | 7,052.2 | 6,819.9 | 29.2 | 32.3 | 106.39 | 1,443.9 | 587.2 | 208.7 | 173.4 | 35.27 | 5.917 | |
| 7,050.0 | 6,830.2 | 7,106.6 | 6,866.7 | 29.1 | 32.2 | 108.07 | 1,443.9 | 559.6 | 210.6 | 175.9 | 34.68 | 6.071 | |
| 7,100.0 | 6,867.4 | 7,161.5 | 6,911.7 | 29.0 | 32.1 | 109.64 | 1,443.9 | 528.2 | 212.6 | 178.4 | 34.17 | 6.221 | |
| 7,150.0 | 6,902.2 | 7,216.9 | 6,954.6 | 28.9 | 31.9 | 111.09 | 1,443.9 | 493.1 | 214.6 | 180.8 | 33.73 | 6.361 | |
| 7,200.0 | 6,934.4 | 7,272.9 | 6,995.1 | 28.7 | 31.8 | 112.42 | 1,443.9 | 454.4 | 216.6 | 183.2 | 33.39 | 6.486 | |
| 7,250.0 | 6,963.8 | 7,329.4 | 7,032.7 | 28.6 | 31.7 | 113.62 | 1,443.9 | 412.2 | 218.5 | 185.3 | 33.16 | 6.590 | |
| 7,300.0 | 6,990.4 | 7,386.4 | 7,067.1 | 28.5 | 31.5 | 114.70 | 1,443.9 | 366.9 | 220.3 | 187.3 | 33.06 | 6.665 | |
| 7,350.0 | 7,013.9 | 7,443.8 | 7,098.0 | 28.4 | 31.4 | 115.64 | 1,443.9 | 318.5 | 222.0 | 188.9 | 33.11 | 6.704 | |
| 7,400.0 | 7,034.4 | 7,501.6 | 7,125.2 | 28.2 | 31.3 | 116.44 | 1,443.9 | 267.5 | 223.5 | 190.1 | 33.35 | 6.702 | |
| 7,450.0 | 7,051.5 | 7,559.7 | 7,148.2 | 28.1 | 31.1 | 117.11 | 1,443.9 | 214.2 | 224.8 | 191.0 | 33.80 | 6.651 | |
| 7,500.0 | 7,065.4 | 7,618.1 | 7,167.0 | 28.0 | 31.0 | 117.63 | 1,443.9 | 158.9 | 225.8 | 191.4 | 34.45 | 6.555 | |
| 7,550.0 | 7,075.9 | 7,676.8 | 7,181.2 | 27.9 | 30.9 | 118.02 | 1,443.9 | 102.0 | 226.6 | 191.3 | 35.32 | 6.416 | |
| 7,600.0 | 7,082.9 | 7,735.5 | 7,190.7 | 27.8 | 30.8 | 118.27 | 1,443.9 | 44.0 | 227.1 | 190.7 | 36.40 | 6.240 | |
| 7,650.0 | 7,086.5 | 7,794.4 | 7,195.5 | 27.7 | 30.7 | 118.37 | 1,443.9 | -14.6 | 227.3 | 189.7 | 37.67 | 6.035 | |
| 7,677.7 | 7,087.0 | 7,827.0 | 7,196.0 | 27.6 | 30.6 | 118.37 | 1,443.9 | -47.2 | 227.3 | 188.9 | 38.45 | 5.912 | |
| 7,700.0 | 7,087.0 | 7,849.6 | 7,195.8 | 27.6 | 30.6 | 118.34 | 1,443.9 | -69.8 | 227.3 | 188.3 | 39.02 | 5.825 | |
| 7,800.0 | 7,086.8 | 7,949.5 | 7,195.0 | 27.5 | 30.6 | 118.20 | 1,443.9 | -169.8 | 227.0 | 185.2 | 41.78 | 5.432 | |
| 7,900.0 | 7,086.6 | 8,049.5 | 7,194.2 | 27.9 | 30.7 | 118.06 | 1,443.9 | -269.8 | 226.7 | 181.8 | 44.93 | 5.045 | |
| 8,000.0 | 7,086.4 | 8,149.5 | 7,193.4 | 29.5 | 31.4 | 117.93 | 1,443.9 | -369.7 | 226.4 | 178.0 | 48.41 | 4.676 | |
| 8,100.0 | 7,086.2 | 8,249.5 | 7,192.6 | 31.5 | 32.9 | 117.79 | 1,443.9 | -469.7 | 226.1 | 174.0 | 52.16 | 4.335 | |
| 8,200.0 | 7,086.0 | 8,349.5 | 7,191.8 | 33.7 | 34.8 | 117.65 | 1,443.9 | -569.7 | 225.8 | 169.7 | 56.12 | 4.024 | |
| 8,300.0 | 7,085.8 | 8,449.5 | 7,191.0 | 36.0 | 36.9 | 117.52 | 1,443.9 | -669.7 | 225.5 | 165.3 | 60.26 | 3.743 | |
| 8,400.0 | 7,085.6 | 8,549.5 | 7,190.2 | 38.3 | 39.1 | 117.38 | 1,443.9 | -769.7 | 225.3 | 160.7 | 64.54 | 3.490 | |
| 8,500.0 | 7,085.4 | 8,649.5 | 7,189.4 | 40.7 | 41.5 | 117.24 | 1,443.9 | -869.7 | 225.0 | 156.0 | 68.94 | 3.263 | |
| 8,600.0 | 7,085.2 | 8,749.5 | 7,188.6 | 43.1 | 43.9 | 117.10 | 1,443.9 | -969.7 | 224.7 | 151.3 | 73.45 | 3.059 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21N-334 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference | | Offset | | Semi Major Axis | | | Offset Wellbore Centre | | Distance | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
| 8,700.0 | 7,085.0 | 8,849.5 | 7,187.8 | 45.6 | 46.3 | 116.96 | 1,443.9 | -1,069.7 | 224.4 | 146.4 | 78.04 | 2.876 | |
| 8,800.0 | 7,084.8 | 8,949.5 | 7,187.0 | 48.1 | 48.8 | 116.82 | 1,443.9 | -1,169.7 | 224.2 | 141.4 | 82.70 | 2.710 | |
| 8,900.0 | 7,084.6 | 9,049.5 | 7,186.2 | 50.7 | 51.3 | 116.68 | 1,443.9 | -1,269.7 | 223.9 | 136.4 | 87.43 | 2.561 | |
| 9,000.0 | 7,084.4 | 9,149.5 | 7,185.3 | 53.2 | 53.8 | 116.54 | 1,443.9 | -1,369.7 | 223.6 | 131.4 | 92.21 | 2.425 | |
| 9,100.0 | 7,084.2 | 9,249.5 | 7,184.5 | 55.8 | 56.4 | 116.40 | 1,443.9 | -1,469.7 | 223.3 | 126.3 | 97.04 | 2.301 | |
| 9,200.0 | 7,084.0 | 9,349.5 | 7,183.7 | 58.4 | 59.0 | 116.26 | 1,443.9 | -1,569.7 | 223.1 | 121.1 | 101.92 | 2.189 | |
| 9,300.0 | 7,083.8 | 9,449.5 | 7,182.9 | 61.1 | 61.6 | 116.12 | 1,443.9 | -1,669.7 | 222.8 | 115.9 | 106.84 | 2.085 | |
| 9,400.0 | 7,083.7 | 9,549.5 | 7,182.1 | 63.7 | 64.2 | 115.98 | 1,443.9 | -1,769.7 | 222.5 | 110.7 | 111.79 | 1.991 | |
| 9,500.0 | 7,083.5 | 9,649.5 | 7,181.3 | 66.3 | 66.8 | 115.84 | 1,443.9 | -1,869.7 | 222.2 | 105.5 | 116.77 | 1.903 | |
| 9,600.0 | 7,083.3 | 9,749.5 | 7,180.5 | 69.0 | 69.5 | 115.69 | 1,443.9 | -1,969.7 | 222.0 | 100.2 | 121.79 | 1.823 | |
| 9,700.0 | 7,083.1 | 9,849.5 | 7,179.7 | 71.7 | 72.1 | 115.55 | 1,443.9 | -2,069.7 | 221.7 | 94.9 | 126.83 | 1.748 | |
| 9,800.0 | 7,082.9 | 9,949.5 | 7,178.9 | 74.4 | 74.8 | 115.41 | 1,443.9 | -2,169.7 | 221.5 | 89.6 | 131.90 | 1.679 | |
| 9,900.0 | 7,082.7 | 10,049.5 | 7,178.1 | 77.1 | 77.5 | 115.26 | 1,443.9 | -2,269.7 | 221.2 | 84.2 | 136.99 | 1.615 | |
| 10,000.0 | 7,082.5 | 10,149.5 | 7,177.3 | 79.7 | 80.1 | 115.12 | 1,443.9 | -2,369.6 | 220.9 | 78.8 | 142.10 | 1.555 | |
| 10,100.0 | 7,082.3 | 10,249.5 | 7,176.5 | 82.5 | 82.8 | 114.98 | 1,443.9 | -2,469.6 | 220.7 | 73.4 | 147.24 | 1.499 | Level 3 |
| 10,200.0 | 7,082.1 | 10,349.5 | 7,175.6 | 85.2 | 85.5 | 114.83 | 1,443.9 | -2,569.6 | 220.4 | 68.0 | 152.40 | 1.446 | Level 3 |
| 10,300.0 | 7,081.9 | 10,449.5 | 7,174.8 | 87.9 | 88.2 | 114.69 | 1,443.9 | -2,669.6 | 220.2 | 62.6 | 157.57 | 1.397 | Level 3 |
| 10,400.0 | 7,081.7 | 10,549.5 | 7,174.0 | 90.6 | 91.0 | 114.54 | 1,443.9 | -2,769.6 | 219.9 | 57.1 | 162.77 | 1.351 | Level 3 |
| 10,500.0 | 7,081.5 | 10,649.5 | 7,173.2 | 93.3 | 93.7 | 114.40 | 1,443.9 | -2,869.6 | 219.6 | 51.7 | 167.98 | 1.308 | Level 3 |
| 10,600.0 | 7,081.3 | 10,749.5 | 7,172.4 | 96.1 | 96.4 | 114.25 | 1,443.9 | -2,969.6 | 219.4 | 46.2 | 173.21 | 1.267 | Level 3 |
| 10,700.0 | 7,081.1 | 10,849.5 | 7,171.6 | 98.8 | 99.1 | 114.11 | 1,443.9 | -3,069.6 | 219.1 | 40.7 | 178.45 | 1.228 | Level 2 |
| 10,800.0 | 7,080.9 | 10,949.5 | 7,170.8 | 101.5 | 101.9 | 113.96 | 1,443.9 | -3,169.6 | 218.9 | 35.2 | 183.72 | 1.191 | Level 2 |
| 10,900.0 | 7,080.7 | 11,049.5 | 7,170.0 | 104.3 | 104.6 | 113.82 | 1,443.9 | -3,269.6 | 218.6 | 29.7 | 188.99 | 1.157 | Level 2 |
| 11,000.0 | 7,080.5 | 11,149.5 | 7,169.2 | 107.0 | 107.3 | 113.67 | 1,443.9 | -3,369.6 | 218.4 | 24.1 | 194.28 | 1.124 | Level 2 |
| 11,100.0 | 7,080.3 | 11,249.5 | 7,168.4 | 109.8 | 110.1 | 113.52 | 1,443.9 | -3,469.6 | 218.2 | 18.6 | 199.59 | 1.093 | Level 2 |
| 11,200.0 | 7,080.1 | 11,349.5 | 7,167.6 | 112.5 | 112.8 | 113.37 | 1,443.9 | -3,569.6 | 217.9 | 13.0 | 204.91 | 1.063 | Level 2 |
| 11,300.0 | 7,079.9 | 11,449.5 | 7,166.7 | 115.3 | 115.6 | 113.23 | 1,443.9 | -3,669.6 | 217.7 | 7.4 | 210.24 | 1.035 | Level 2 |
| 11,400.0 | 7,079.7 | 11,549.5 | 7,165.9 | 118.0 | 118.3 | 113.08 | 1,443.9 | -3,769.6 | 217.4 | 1.8 | 215.59 | 1.009 | Level 2 |
| 11,500.0 | 7,079.5 | 11,649.5 | 7,165.1 | 120.8 | 121.1 | 112.93 | 1,443.9 | -3,869.6 | 217.2 | -3.8 | 220.95 | 0.983 | Level 1 |
| 11,600.0 | 7,079.3 | 11,749.5 | 7,164.3 | 123.6 | 123.8 | 112.78 | 1,443.9 | -3,969.6 | 216.9 | -9.4 | 226.33 | 0.959 | Level 1 |
| 11,700.0 | 7,079.1 | 11,849.5 | 7,163.5 | 126.3 | 126.6 | 112.63 | 1,443.9 | -4,069.6 | 216.7 | -15.0 | 231.71 | 0.935 | Level 1 |
| 11,800.0 | 7,078.9 | 11,949.5 | 7,162.7 | 129.1 | 129.3 | 112.48 | 1,443.9 | -4,169.6 | 216.5 | -20.6 | 237.11 | 0.913 | Level 1 |
| 11,900.0 | 7,078.7 | 12,049.5 | 7,161.9 | 131.9 | 132.1 | 112.33 | 1,443.9 | -4,269.6 | 216.2 | -26.3 | 242.52 | 0.892 | Level 1 |
| 12,000.0 | 7,078.5 | 12,149.5 | 7,161.1 | 134.6 | 134.9 | 112.18 | 1,443.9 | -4,369.5 | 216.0 | -31.9 | 247.94 | 0.871 | Level 1 |
| 12,100.0 | 7,078.3 | 12,249.5 | 7,160.2 | 137.4 | 137.6 | 112.03 | 1,443.9 | -4,469.5 | 215.8 | -37.6 | 253.37 | 0.852 | Level 1 |
| 12,200.0 | 7,078.1 | 12,349.5 | 7,159.4 | 140.2 | 140.4 | 111.88 | 1,443.9 | -4,569.5 | 215.6 | -43.3 | 258.82 | 0.833 | Level 1 |
| 12,300.0 | 7,077.9 | 12,449.5 | 7,158.6 | 142.9 | 143.2 | 111.73 | 1,443.9 | -4,669.5 | 215.3 | -48.9 | 264.27 | 0.815 | Level 1 |
| 12,400.0 | 7,077.7 | 12,549.5 | 7,157.8 | 145.7 | 145.9 | 111.58 | 1,443.9 | -4,769.5 | 215.1 | -54.6 | 269.74 | 0.797 | Level 1 |
| 12,500.0 | 7,077.5 | 12,649.5 | 7,157.0 | 148.5 | 148.7 | 111.43 | 1,443.9 | -4,869.5 | 214.9 | -60.3 | 275.22 | 0.781 | Level 1 |
| 12,600.0 | 7,077.3 | 12,749.5 | 7,156.2 | 151.3 | 151.5 | 111.28 | 1,443.9 | -4,969.5 | 214.7 | -66.1 | 280.70 | 0.765 | Level 1 |
| 12,700.0 | 7,077.1 | 12,849.5 | 7,155.4 | 154.0 | 154.3 | 111.13 | 1,443.9 | -5,069.5 | 214.4 | -71.8 | 286.20 | 0.749 | Level 1 |
| 12,800.0 | 7,076.9 | 12,949.5 | 7,154.6 | 156.8 | 157.0 | 110.97 | 1,443.9 | -5,169.5 | 214.2 | -77.5 | 291.71 | 0.734 | Level 1 |
| 12,900.0 | 7,076.7 | 13,049.5 | 7,153.8 | 159.6 | 159.8 | 110.82 | 1,443.9 | -5,269.5 | 214.0 | -83.2 | 297.23 | 0.720 | Level 1 |
| 13,000.0 | 7,076.5 | 13,149.5 | 7,152.9 | 162.4 | 162.6 | 110.67 | 1,443.9 | -5,369.5 | 213.8 | -89.0 | 302.76 | 0.706 | Level 1 |
| 13,100.0 | 7,076.3 | 13,249.5 | 7,152.1 | 165.2 | 165.4 | 110.52 | 1,443.9 | -5,469.5 | 213.6 | -94.7 | 308.30 | 0.693 | Level 1 |
| 13,200.0 | 7,076.1 | 13,349.5 | 7,151.3 | 168.0 | 168.1 | 110.36 | 1,443.9 | -5,569.5 | 213.3 | -100.5 | 313.84 | 0.680 | Level 1 |
| 13,300.0 | 7,075.9 | 13,449.5 | 7,150.5 | 170.7 | 170.9 | 110.21 | 1,443.9 | -5,669.5 | 213.1 | -106.3 | 319.40 | 0.667 | Level 1 |
| 13,400.0 | 7,075.7 | 13,549.5 | 7,149.7 | 173.5 | 173.7 | 110.05 | 1,443.9 | -5,769.5 | 212.9 | -112.0 | 324.97 | 0.655 | Level 1 |
| 13,500.0 | 7,075.5 | 13,649.5 | 7,148.9 | 176.3 | 176.5 | 109.90 | 1,443.9 | -5,869.5 | 212.7 | -117.8 | 330.54 | 0.644 | Level 1 |
| 13,600.0 | 7,075.3 | 13,749.4 | 7,148.1 | 179.1 | 179.3 | 109.74 | 1,443.9 | -5,969.5 | 212.5 | -123.6 | 336.13 | 0.632 | Level 1 |
| 13,700.0 | 7,075.1 | 13,849.4 | 7,147.2 | 181.9 | 182.1 | 109.59 | 1,443.9 | -6,069.5 | 212.3 | -129.4 | 341.72 | 0.621 | Level 1 |
| 13,800.0 | 7,074.9 | 13,949.4 | 7,146.4 | 184.7 | 184.8 | 109.43 | 1,443.9 | -6,169.5 | 212.1 | -135.2 | 347.32 | 0.611 | Level 1 |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21N-334 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.0 | 7,074.7 | 14,049.4 | 7,145.6 | 187.5 | 187.6 | 109.28 | 1,443.9 | -6,269.5 | 211.9 | -141.0 | 352.93 | 0.600 | Level 1 |
| 14,000.0 | 7,074.5 | 14,149.4 | 7,144.8 | 190.2 | 190.4 | 109.12 | 1,443.9 | -6,369.4 | 211.7 | -146.9 | 358.55 | 0.590 | Level 1 |
| 14,100.0 | 7,074.2 | 14,249.4 | 7,144.0 | 193.0 | 193.2 | 108.97 | 1,443.9 | -6,469.4 | 211.5 | -152.7 | 364.18 | 0.581 | Level 1 |
| 14,200.0 | 7,074.0 | 14,349.4 | 7,143.2 | 195.8 | 196.0 | 108.81 | 1,443.9 | -6,569.4 | 211.3 | -158.5 | 369.81 | 0.571 | Level 1 |
| 14,219.5 | 7,074.0 | 14,369.0 | 7,143.0 | 196.4 | 196.5 | 108.78 | 1,443.9 | -6,589.0 | 211.3 | -159.7 | 370.92 | 0.570 | Level 1 |
| 14,221.4 | 7,074.0 | 14,370.2 | 7,143.0 | 196.4 | 196.6 | 108.78 | 1,443.9 | -6,590.2 | 211.2 | -159.8 | 371.00 | 0.569 | Level 1, ES, SF |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-204 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -179.73 | -60.1 | -0.3 | 60.1 | | | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | -179.73 | -60.1 | -0.3 | 60.1 | 59.9 | 0.19 | 310.730 | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.3 | 0.3 | -179.73 | -60.1 | -0.3 | 60.1 | 59.5 | 0.64 | 93.673 | |
| 300.0 | 300.0 | 299.0 | 299.0 | 0.5 | 0.5 | -179.73 | -60.1 | -0.3 | 60.1 | 59.0 | 1.09 | 55.085 | |
| 400.0 | 400.0 | 399.0 | 399.0 | 0.8 | 0.8 | -179.73 | -60.1 | -0.3 | 60.1 | 58.6 | 1.54 | 39.014 | CC, ES |
| 500.0 | 500.0 | 499.0 | 499.0 | 1.0 | 1.0 | 152.67 | -60.1 | -0.3 | 61.7 | 59.7 | 1.99 | 30.953 | |
| 600.0 | 599.8 | 598.8 | 598.8 | 1.2 | 1.2 | 154.71 | -60.1 | -0.3 | 66.3 | 63.9 | 2.45 | 27.129 | |
| 700.0 | 699.5 | 698.5 | 698.5 | 1.5 | 1.4 | 157.51 | -60.1 | -0.3 | 74.3 | 71.4 | 2.90 | 25.612 | |
| 800.0 | 798.7 | 797.7 | 797.7 | 1.7 | 1.7 | 160.55 | -60.1 | -0.3 | 85.7 | 82.4 | 3.36 | 25.514 | |
| 900.0 | 897.5 | 898.9 | 898.8 | 2.0 | 1.9 | 162.79 | -59.2 | 1.2 | 99.5 | 95.6 | 3.81 | 26.077 | |
| 1,000.0 | 995.6 | 1,000.4 | 1,000.2 | 2.4 | 2.1 | 163.68 | -56.3 | 5.6 | 114.1 | 109.9 | 4.27 | 26.746 | |
| 1,100.0 | 1,093.1 | 1,102.3 | 1,101.7 | 2.8 | 2.3 | 163.65 | -51.5 | 13.1 | 129.7 | 125.0 | 4.74 | 27.356 | |
| 1,164.2 | 1,155.2 | 1,167.8 | 1,166.8 | 3.1 | 2.5 | 163.28 | -47.4 | 19.6 | 140.1 | 135.0 | 5.06 | 27.682 | |
| 1,200.0 | 1,189.7 | 1,204.4 | 1,203.0 | 3.2 | 2.6 | 162.99 | -44.8 | 23.7 | 145.9 | 140.6 | 5.25 | 27.783 | |
| 1,300.0 | 1,286.2 | 1,307.1 | 1,304.4 | 3.7 | 2.9 | 161.64 | -36.0 | 37.4 | 160.3 | 154.5 | 5.82 | 27.555 | |
| 1,400.0 | 1,382.6 | 1,409.8 | 1,405.2 | 4.2 | 3.2 | 159.60 | -25.3 | 54.2 | 172.4 | 166.0 | 6.44 | 26.756 | |
| 1,500.0 | 1,479.1 | 1,508.9 | 1,502.2 | 4.7 | 3.6 | 157.55 | -14.2 | 71.6 | 183.8 | 176.7 | 7.12 | 25.836 | |
| 1,600.0 | 1,575.6 | 1,608.1 | 1,599.1 | 5.3 | 4.0 | 155.74 | -3.1 | 88.9 | 195.4 | 187.6 | 7.82 | 24.983 | |
| 1,700.0 | 1,672.0 | 1,707.2 | 1,696.1 | 5.8 | 4.4 | 154.13 | 8.0 | 106.3 | 207.2 | 198.7 | 8.56 | 24.215 | |
| 1,800.0 | 1,768.5 | 1,806.4 | 1,793.1 | 6.3 | 4.8 | 152.70 | 19.1 | 123.7 | 219.2 | 209.8 | 9.32 | 23.521 | |
| 1,900.0 | 1,864.9 | 1,905.5 | 1,890.1 | 6.8 | 5.2 | 151.42 | 30.2 | 141.0 | 231.2 | 221.1 | 10.10 | 22.900 | |
| 2,000.0 | 1,961.4 | 2,004.6 | 1,987.1 | 7.4 | 5.6 | 150.26 | 41.3 | 158.4 | 243.4 | 232.5 | 10.89 | 22.344 | |
| 2,100.0 | 2,057.9 | 2,103.8 | 2,084.0 | 7.9 | 6.0 | 149.21 | 52.4 | 175.8 | 255.6 | 243.9 | 11.70 | 21.846 | |
| 2,200.0 | 2,154.3 | 2,202.9 | 2,181.0 | 8.4 | 6.4 | 148.26 | 63.4 | 193.1 | 267.9 | 255.4 | 12.52 | 21.398 | |
| 2,300.0 | 2,250.8 | 2,302.1 | 2,278.0 | 9.0 | 6.9 | 147.39 | 74.5 | 210.5 | 280.3 | 266.9 | 13.35 | 20.996 | |
| 2,400.0 | 2,347.3 | 2,401.2 | 2,375.0 | 9.5 | 7.3 | 146.60 | 85.6 | 227.9 | 292.7 | 278.5 | 14.19 | 20.633 | |
| 2,500.0 | 2,443.7 | 2,500.4 | 2,471.9 | 10.0 | 7.7 | 145.87 | 96.7 | 245.2 | 305.2 | 290.2 | 15.03 | 20.304 | |
| 2,600.0 | 2,540.2 | 2,599.5 | 2,568.9 | 10.6 | 8.2 | 145.20 | 107.8 | 262.6 | 317.8 | 301.9 | 15.88 | 20.006 | |
| 2,700.0 | 2,636.7 | 2,698.7 | 2,665.9 | 11.1 | 8.6 | 144.58 | 118.9 | 280.0 | 330.3 | 313.6 | 16.74 | 19.734 | |
| 2,800.0 | 2,733.1 | 2,797.8 | 2,762.9 | 11.6 | 9.0 | 144.00 | 130.0 | 297.3 | 343.0 | 325.4 | 17.60 | 19.486 | |
| 2,900.0 | 2,829.6 | 2,896.9 | 2,859.9 | 12.2 | 9.5 | 143.47 | 141.1 | 314.7 | 355.6 | 337.1 | 18.46 | 19.259 | |
| 3,000.0 | 2,926.0 | 2,996.1 | 2,956.8 | 12.7 | 9.9 | 142.97 | 152.2 | 332.1 | 368.3 | 348.9 | 19.33 | 19.050 | |
| 3,100.0 | 3,022.5 | 3,095.2 | 3,053.8 | 13.2 | 10.3 | 142.50 | 163.3 | 349.5 | 381.0 | 360.8 | 20.20 | 18.857 | |
| 3,200.0 | 3,119.0 | 3,194.4 | 3,150.8 | 13.8 | 10.8 | 142.07 | 174.4 | 366.8 | 393.7 | 372.6 | 21.08 | 18.679 | |
| 3,300.0 | 3,215.4 | 3,293.5 | 3,247.8 | 14.3 | 11.2 | 141.66 | 185.5 | 384.2 | 406.4 | 384.5 | 21.95 | 18.515 | |
| 3,400.0 | 3,311.9 | 3,392.7 | 3,344.8 | 14.9 | 11.7 | 141.28 | 196.6 | 401.6 | 419.2 | 396.4 | 22.83 | 18.362 | |
| 3,500.0 | 3,408.4 | 3,491.8 | 3,441.7 | 15.4 | 12.1 | 140.92 | 207.7 | 418.9 | 432.0 | 408.3 | 23.71 | 18.220 | |
| 3,600.0 | 3,504.8 | 3,591.0 | 3,538.7 | 15.9 | 12.6 | 140.58 | 218.8 | 436.3 | 444.8 | 420.2 | 24.59 | 18.087 | |
| 3,700.0 | 3,601.3 | 3,690.1 | 3,635.7 | 16.5 | 13.0 | 140.26 | 229.9 | 453.7 | 457.6 | 432.1 | 25.47 | 17.963 | |
| 3,800.0 | 3,697.7 | 3,789.2 | 3,732.7 | 17.0 | 13.4 | 139.95 | 241.0 | 471.0 | 470.4 | 444.0 | 26.36 | 17.847 | |
| 3,900.0 | 3,794.2 | 3,888.4 | 3,829.7 | 17.5 | 13.9 | 139.67 | 252.1 | 488.4 | 483.2 | 456.0 | 27.24 | 17.738 | |
| 4,000.0 | 3,890.7 | 3,987.5 | 3,926.6 | 18.1 | 14.3 | 139.40 | 263.2 | 505.8 | 496.1 | 468.0 | 28.13 | 17.636 | |
| 4,100.0 | 3,987.1 | 4,086.7 | 4,023.6 | 18.6 | 14.8 | 139.14 | 274.3 | 523.1 | 508.9 | 479.9 | 29.02 | 17.539 | |
| 4,200.0 | 4,083.6 | 4,185.8 | 4,120.6 | 19.2 | 15.2 | 138.89 | 285.4 | 540.5 | 521.8 | 491.9 | 29.91 | 17.449 | |
| 4,300.0 | 4,180.1 | 4,285.0 | 4,217.6 | 19.7 | 15.7 | 138.66 | 296.5 | 557.9 | 534.7 | 503.9 | 30.79 | 17.363 | |
| 4,400.0 | 4,276.5 | 4,384.1 | 4,314.5 | 20.2 | 16.1 | 138.43 | 307.5 | 575.2 | 547.6 | 515.9 | 31.68 | 17.282 | |
| 4,500.0 | 4,373.0 | 4,483.3 | 4,411.5 | 20.8 | 16.6 | 138.22 | 318.6 | 592.6 | 560.5 | 527.9 | 32.58 | 17.205 | |
| 4,600.0 | 4,469.5 | 4,582.4 | 4,508.5 | 21.3 | 17.0 | 138.02 | 329.7 | 610.0 | 573.4 | 539.9 | 33.47 | 17.132 | |
| 4,700.0 | 4,565.9 | 4,681.5 | 4,605.5 | 21.9 | 17.5 | 137.82 | 340.8 | 627.3 | 586.3 | 551.9 | 34.36 | 17.063 | |
| 4,800.0 | 4,662.4 | 4,774.6 | 4,696.8 | 22.4 | 17.8 | 137.77 | 350.6 | 642.6 | 599.6 | 564.5 | 35.10 | 17.085 | |
| 4,900.0 | 4,758.8 | 4,867.0 | 4,788.0 | 22.9 | 18.1 | 137.99 | 358.6 | 655.2 | 614.1 | 578.3 | 35.74 | 17.184 | |
| 5,000.0 | 4,855.3 | 4,958.9 | 4,879.1 | 23.5 | 18.3 | 138.45 | 365.1 | 665.3 | 629.6 | 593.3 | 36.28 | 17.353 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-204 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 5,050.1 | 4,969.8 | 24.0 | 18.5 | 139.13 | 369.9 | 672.8 | 646.3 | 609.6 | 36.74 | 17.590 | |
| 5,200.0 | 5,048.2 | 5,140.4 | 5,059.9 | 24.6 | 18.7 | 140.00 | 373.2 | 677.9 | 664.3 | 627.1 | 37.11 | 17.898 | |
| 5,300.0 | 5,144.7 | 5,229.6 | 5,149.1 | 25.1 | 18.8 | 141.05 | 374.9 | 680.6 | 683.6 | 646.1 | 37.40 | 18.275 | |
| 5,400.0 | 5,241.2 | 5,320.7 | 5,240.2 | 25.6 | 18.9 | 142.26 | 375.2 | 681.1 | 704.2 | 666.6 | 37.62 | 18.719 | |
| 5,500.0 | 5,337.6 | 5,417.2 | 5,336.6 | 26.2 | 19.0 | 143.52 | 375.2 | 681.1 | 725.5 | 687.7 | 37.83 | 19.180 | |
| 5,600.0 | 5,434.1 | 5,513.7 | 5,433.1 | 26.7 | 19.2 | 144.71 | 375.2 | 681.1 | 747.2 | 709.1 | 38.04 | 19.641 | |
| 5,700.0 | 5,530.5 | 5,610.1 | 5,529.5 | 27.3 | 19.3 | 145.83 | 375.2 | 681.1 | 769.1 | 730.8 | 38.26 | 20.100 | |
| 5,757.1 | 5,585.6 | 5,665.2 | 5,584.6 | 27.6 | 19.4 | 146.44 | 375.2 | 681.1 | 781.7 | 743.3 | 38.39 | 20.361 | |
| 5,800.0 | 5,627.1 | 5,706.7 | 5,626.1 | 27.8 | 19.4 | 146.98 | 375.2 | 681.1 | 791.0 | 752.5 | 38.48 | 20.557 | |
| 5,900.0 | 5,724.4 | 5,803.9 | 5,723.4 | 28.2 | 19.6 | 148.08 | 375.2 | 681.1 | 810.7 | 772.1 | 38.65 | 20.978 | |
| 6,000.0 | 5,822.4 | 5,901.9 | 5,821.4 | 28.5 | 19.7 | 148.98 | 375.2 | 681.1 | 827.7 | 788.9 | 38.83 | 21.317 | |
| 6,100.0 | 5,921.0 | 6,000.6 | 5,920.0 | 28.8 | 19.8 | 149.70 | 375.2 | 681.1 | 841.9 | 802.8 | 39.02 | 21.577 | |
| 6,200.0 | 6,020.2 | 6,099.7 | 6,019.2 | 29.0 | 20.0 | 150.25 | 375.2 | 681.1 | 853.1 | 813.9 | 39.21 | 21.759 | |
| 6,300.0 | 6,119.7 | 6,199.3 | 6,118.7 | 29.3 | 20.1 | 150.64 | 375.2 | 681.1 | 861.3 | 821.9 | 39.39 | 21.864 | |
| 6,400.0 | 6,219.5 | 6,299.1 | 6,218.5 | 29.4 | 20.3 | 150.88 | 375.2 | 681.1 | 866.5 | 826.9 | 39.58 | 21.894 | |
| 6,500.0 | 6,319.5 | 6,399.1 | 6,318.5 | 29.5 | 20.4 | 150.99 | 375.2 | 681.1 | 868.7 | 828.9 | 39.76 | 21.850 | |
| 6,521.3 | 6,340.8 | 6,420.4 | 6,339.8 | 29.6 | 20.5 | 179.33 | 375.2 | 681.1 | 868.8 | 825.3 | 43.46 | 19.990 | |
| 6,551.3 | 6,370.8 | 6,450.4 | 6,369.8 | 29.6 | 20.5 | 179.33 | 375.2 | 681.1 | 868.8 | 825.2 | 43.54 | 19.952 | |
| 6,600.0 | 6,419.5 | 6,499.6 | 6,419.1 | 29.6 | 20.6 | -90.70 | 375.2 | 680.0 | 868.8 | 828.8 | 40.01 | 21.714 | |
| 6,650.0 | 6,469.2 | 6,550.4 | 6,469.6 | 29.6 | 20.6 | -90.74 | 375.2 | 675.3 | 868.8 | 828.7 | 40.07 | 21.683 | |
| 6,700.0 | 6,518.4 | 6,601.2 | 6,519.7 | 29.6 | 20.6 | -90.77 | 375.2 | 667.1 | 868.8 | 828.7 | 40.06 | 21.685 | |
| 6,750.0 | 6,567.0 | 6,652.1 | 6,569.2 | 29.6 | 20.6 | -90.80 | 375.2 | 655.4 | 868.8 | 828.8 | 40.00 | 21.718 | |
| 6,800.0 | 6,614.5 | 6,703.0 | 6,617.7 | 29.6 | 20.5 | -90.83 | 375.2 | 640.1 | 868.8 | 828.9 | 39.89 | 21.777 | |
| 6,850.0 | 6,660.9 | 6,753.9 | 6,665.1 | 29.5 | 20.4 | -90.85 | 375.2 | 621.4 | 868.8 | 829.1 | 39.74 | 21.860 | |
| 6,900.0 | 6,705.9 | 6,804.8 | 6,711.0 | 29.4 | 20.3 | -90.87 | 375.2 | 599.4 | 868.8 | 829.2 | 39.57 | 21.958 | |
| 6,950.0 | 6,749.2 | 6,855.7 | 6,755.2 | 29.3 | 20.2 | -90.88 | 375.2 | 574.2 | 868.8 | 829.4 | 39.37 | 22.067 | |
| 7,000.0 | 6,790.7 | 6,906.7 | 6,797.6 | 29.2 | 20.1 | -90.89 | 375.2 | 545.9 | 868.8 | 829.6 | 39.18 | 22.175 | |
| 7,050.0 | 6,830.2 | 6,957.6 | 6,837.8 | 29.1 | 20.0 | -90.89 | 375.2 | 514.7 | 868.8 | 829.8 | 39.01 | 22.273 | |
| 7,100.0 | 6,867.4 | 7,008.6 | 6,875.8 | 29.0 | 19.9 | -90.89 | 375.2 | 480.6 | 868.8 | 829.9 | 38.87 | 22.349 | |
| 7,150.0 | 6,902.2 | 7,059.6 | 6,911.2 | 28.9 | 19.9 | -90.89 | 375.2 | 444.0 | 868.8 | 830.0 | 38.81 | 22.389 | |
| 7,200.0 | 6,934.4 | 7,110.5 | 6,943.9 | 28.7 | 19.8 | -90.88 | 375.2 | 405.0 | 868.8 | 830.0 | 38.82 | 22.378 | |
| 7,250.0 | 6,963.8 | 7,161.5 | 6,973.7 | 28.6 | 19.8 | -90.87 | 375.2 | 363.7 | 868.8 | 829.9 | 38.95 | 22.306 | |
| 7,300.0 | 6,990.4 | 7,212.4 | 7,000.5 | 28.5 | 19.8 | -90.85 | 375.2 | 320.4 | 868.8 | 829.6 | 39.20 | 22.161 | |
| 7,350.0 | 7,013.9 | 7,263.3 | 7,024.2 | 28.4 | 19.9 | -90.83 | 375.2 | 275.4 | 868.8 | 829.2 | 39.60 | 21.937 | |
| 7,400.0 | 7,034.4 | 7,314.2 | 7,044.6 | 28.2 | 20.1 | -90.80 | 375.2 | 228.8 | 868.8 | 828.6 | 40.16 | 21.633 | |
| 7,450.0 | 7,051.5 | 7,365.0 | 7,061.7 | 28.1 | 20.3 | -90.77 | 375.2 | 180.9 | 868.8 | 827.9 | 40.88 | 21.252 | |
| 7,500.0 | 7,065.4 | 7,415.8 | 7,075.3 | 28.0 | 20.7 | -90.74 | 375.2 | 131.9 | 868.8 | 827.0 | 41.76 | 20.803 | |
| 7,550.0 | 7,075.9 | 7,466.6 | 7,085.3 | 27.9 | 21.2 | -90.70 | 375.2 | 82.2 | 868.8 | 826.0 | 42.80 | 20.299 | |
| 7,600.0 | 7,082.9 | 7,517.3 | 7,091.9 | 27.8 | 21.7 | -90.66 | 375.2 | 31.9 | 868.8 | 824.8 | 43.98 | 19.752 | |
| 7,650.0 | 7,086.5 | 7,568.0 | 7,094.8 | 27.7 | 22.4 | -90.61 | 375.2 | -18.7 | 868.8 | 823.5 | 45.29 | 19.182 | |
| 7,677.7 | 7,087.0 | 7,595.9 | 7,095.0 | 27.6 | 22.8 | -90.59 | 375.2 | -46.6 | 868.8 | 822.7 | 46.06 | 18.860 | |
| 7,700.0 | 7,087.0 | 7,618.2 | 7,094.9 | 27.6 | 23.1 | -90.59 | 375.2 | -68.9 | 868.8 | 822.0 | 46.73 | 18.592 | |
| 7,800.0 | 7,086.8 | 7,718.2 | 7,094.7 | 27.5 | 24.7 | -90.59 | 375.2 | -168.9 | 868.8 | 818.8 | 49.92 | 17.403 | |
| 7,900.0 | 7,086.6 | 7,818.2 | 7,094.4 | 27.9 | 26.6 | -90.58 | 375.2 | -268.9 | 868.8 | 815.2 | 53.51 | 16.235 | |
| 8,000.0 | 7,086.4 | 7,918.2 | 7,094.2 | 29.5 | 28.6 | -90.58 | 375.2 | -368.9 | 868.8 | 811.3 | 57.43 | 15.128 | |
| 8,100.0 | 7,086.2 | 8,018.2 | 7,094.0 | 31.5 | 30.7 | -90.58 | 375.2 | -468.9 | 868.8 | 807.1 | 61.61 | 14.101 | |
| 8,200.0 | 7,086.0 | 8,118.2 | 7,093.7 | 33.7 | 33.0 | -90.57 | 375.2 | -568.9 | 868.8 | 802.8 | 66.00 | 13.163 | |
| 8,300.0 | 7,085.8 | 8,218.2 | 7,093.5 | 36.0 | 35.3 | -90.57 | 375.2 | -668.9 | 868.8 | 798.2 | 70.57 | 12.311 | |
| 8,400.0 | 7,085.6 | 8,318.2 | 7,093.2 | 38.3 | 37.7 | -90.57 | 375.2 | -768.9 | 868.8 | 793.5 | 75.28 | 11.540 | |
| 8,500.0 | 7,085.4 | 8,418.2 | 7,093.0 | 40.7 | 40.1 | -90.57 | 375.2 | -868.9 | 868.8 | 788.6 | 80.11 | 10.845 | |
| 8,600.0 | 7,085.2 | 8,518.2 | 7,092.7 | 43.1 | 42.6 | -90.56 | 375.2 | -968.9 | 868.8 | 783.7 | 85.03 | 10.217 | |
| 8,700.0 | 7,085.0 | 8,618.2 | 7,092.5 | 45.6 | 45.2 | -90.56 | 375.2 | -1,068.9 | 868.8 | 778.7 | 90.04 | 9.649 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-204 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.0 | 7,084.8 | 8,718.2 | 7,092.3 | 48.1 | 47.7 | -90.56 | 375.2 | -1,168.9 | 868.8 | 773.6 | 95.11 | 9.134 | |
| 8,900.0 | 7,084.6 | 8,818.2 | 7,092.0 | 50.7 | 50.3 | -90.55 | 375.2 | -1,268.9 | 868.8 | 768.5 | 100.24 | 8.667 | |
| 9,000.0 | 7,084.4 | 8,918.2 | 7,091.8 | 53.2 | 52.9 | -90.55 | 375.2 | -1,368.9 | 868.8 | 763.3 | 105.42 | 8.241 | |
| 9,100.0 | 7,084.2 | 9,018.2 | 7,091.5 | 55.8 | 55.5 | -90.55 | 375.2 | -1,468.9 | 868.7 | 758.1 | 110.65 | 7.852 | |
| 9,200.0 | 7,084.0 | 9,118.2 | 7,091.3 | 58.4 | 58.2 | -90.54 | 375.2 | -1,568.9 | 868.7 | 752.8 | 115.91 | 7.495 | |
| 9,300.0 | 7,083.8 | 9,218.2 | 7,091.0 | 61.1 | 60.8 | -90.54 | 375.2 | -1,668.9 | 868.7 | 747.5 | 121.20 | 7.168 | |
| 9,400.0 | 7,083.7 | 9,318.2 | 7,090.8 | 63.7 | 63.5 | -90.54 | 375.2 | -1,768.9 | 868.7 | 742.2 | 126.52 | 6.867 | |
| 9,500.0 | 7,083.5 | 9,418.2 | 7,090.6 | 66.3 | 66.2 | -90.53 | 375.2 | -1,868.9 | 868.7 | 736.9 | 131.86 | 6.588 | |
| 9,600.0 | 7,083.3 | 9,518.2 | 7,090.3 | 69.0 | 68.9 | -90.53 | 375.2 | -1,968.9 | 868.7 | 731.5 | 137.23 | 6.331 | |
| 9,700.0 | 7,083.1 | 9,618.2 | 7,090.1 | 71.7 | 71.6 | -90.53 | 375.2 | -2,068.9 | 868.7 | 726.1 | 142.62 | 6.091 | |
| 9,800.0 | 7,082.9 | 9,718.2 | 7,089.8 | 74.4 | 74.3 | -90.52 | 375.2 | -2,168.9 | 868.7 | 720.7 | 148.02 | 5.869 | |
| 9,900.0 | 7,082.7 | 9,818.2 | 7,089.6 | 77.1 | 77.0 | -90.52 | 375.2 | -2,268.9 | 868.7 | 715.3 | 153.44 | 5.662 | |
| 10,000.0 | 7,082.5 | 9,918.2 | 7,089.3 | 79.7 | 79.7 | -90.52 | 375.2 | -2,368.9 | 868.7 | 709.9 | 158.87 | 5.468 | |
| 10,100.0 | 7,082.3 | 10,018.2 | 7,089.1 | 82.5 | 82.5 | -90.52 | 375.2 | -2,468.9 | 868.7 | 704.4 | 164.32 | 5.287 | |
| 10,200.0 | 7,082.1 | 10,118.2 | 7,088.9 | 85.2 | 85.2 | -90.51 | 375.2 | -2,568.9 | 868.7 | 699.0 | 169.77 | 5.117 | |
| 10,300.0 | 7,081.9 | 10,218.2 | 7,088.6 | 87.9 | 87.9 | -90.51 | 375.2 | -2,668.9 | 868.7 | 693.5 | 175.24 | 4.957 | |
| 10,400.0 | 7,081.7 | 10,318.2 | 7,088.4 | 90.6 | 90.7 | -90.51 | 375.2 | -2,768.9 | 868.7 | 688.0 | 180.72 | 4.807 | |
| 10,500.0 | 7,081.5 | 10,418.2 | 7,088.1 | 93.3 | 93.4 | -90.50 | 375.2 | -2,868.9 | 868.7 | 682.5 | 186.20 | 4.666 | |
| 10,600.0 | 7,081.3 | 10,518.2 | 7,087.9 | 96.1 | 96.2 | -90.50 | 375.2 | -2,968.9 | 868.7 | 677.1 | 191.69 | 4.532 | |
| 10,700.0 | 7,081.1 | 10,618.2 | 7,087.6 | 98.8 | 98.9 | -90.50 | 375.2 | -3,068.9 | 868.7 | 671.6 | 197.19 | 4.406 | |
| 10,800.0 | 7,080.9 | 10,718.2 | 7,087.4 | 101.5 | 101.7 | -90.49 | 375.2 | -3,168.9 | 868.7 | 666.0 | 202.69 | 4.286 | |
| 10,900.0 | 7,080.7 | 10,818.2 | 7,087.2 | 104.3 | 104.4 | -90.49 | 375.2 | -3,268.9 | 868.7 | 660.5 | 208.21 | 4.173 | |
| 11,000.0 | 7,080.5 | 10,918.2 | 7,086.9 | 107.0 | 107.2 | -90.49 | 375.2 | -3,368.9 | 868.7 | 655.0 | 213.72 | 4.065 | |
| 11,100.0 | 7,080.3 | 11,018.2 | 7,086.7 | 109.8 | 110.0 | -90.49 | 375.2 | -3,468.9 | 868.7 | 649.5 | 219.24 | 3.962 | |
| 11,200.0 | 7,080.1 | 11,118.2 | 7,086.4 | 112.5 | 112.7 | -90.48 | 375.2 | -3,568.9 | 868.7 | 644.0 | 224.77 | 3.865 | |
| 11,300.0 | 7,079.9 | 11,218.2 | 7,086.2 | 115.3 | 115.5 | -90.48 | 375.2 | -3,668.9 | 868.7 | 638.4 | 230.30 | 3.772 | |
| 11,400.0 | 7,079.7 | 11,318.2 | 7,085.9 | 118.0 | 118.3 | -90.48 | 375.2 | -3,768.9 | 868.7 | 632.9 | 235.84 | 3.684 | |
| 11,500.0 | 7,079.5 | 11,418.2 | 7,085.7 | 120.8 | 121.0 | -90.47 | 375.2 | -3,868.9 | 868.7 | 627.4 | 241.38 | 3.599 | |
| 11,600.0 | 7,079.3 | 11,518.2 | 7,085.5 | 123.6 | 123.8 | -90.47 | 375.2 | -3,968.9 | 868.7 | 621.8 | 246.92 | 3.518 | |
| 11,700.0 | 7,079.1 | 11,618.5 | 7,085.2 | 126.3 | 126.6 | -90.47 | 375.2 | -4,069.2 | 868.7 | 616.3 | 252.47 | 3.441 | |
| 11,766.5 | 7,079.0 | 11,685.1 | 7,085.0 | 128.2 | 128.4 | -90.47 | 375.2 | -4,135.8 | 868.7 | 612.5 | 256.16 | 3.391 | |
| 11,800.0 | 7,078.9 | 11,702.4 | 7,085.0 | 129.1 | 128.9 | -90.47 | 375.2 | -4,153.1 | 868.8 | 611.3 | 257.57 | 3.373 | |
| 11,900.0 | 7,078.7 | 11,702.4 | 7,085.0 | 131.9 | 128.9 | -90.47 | 375.2 | -4,153.1 | 876.4 | 616.0 | 260.35 | 3.366 SF | |
| 12,000.0 | 7,078.5 | 11,702.4 | 7,085.0 | 134.6 | 128.9 | -90.47 | 375.2 | -4,153.1 | 895.1 | 632.0 | 263.12 | 3.402 | |
| 12,100.0 | 7,078.3 | 11,702.4 | 7,085.0 | 137.4 | 128.9 | -90.47 | 375.2 | -4,153.1 | 924.3 | 658.4 | 265.90 | 3.476 | |
| 12,200.0 | 7,078.1 | 11,702.4 | 7,085.0 | 140.2 | 128.9 | -90.47 | 375.2 | -4,153.1 | 963.1 | 694.4 | 268.68 | 3.584 | |
| 12,300.0 | 7,077.9 | 11,702.4 | 7,085.0 | 142.9 | 128.9 | -90.47 | 375.2 | -4,153.1 | 1,010.3 | 738.8 | 271.46 | 3.722 | |
| 12,400.0 | 7,077.7 | 11,702.4 | 7,085.0 | 145.7 | 128.9 | -90.47 | 375.2 | -4,153.1 | 1,064.8 | 790.6 | 274.24 | 3.883 | |
| 12,500.0 | 7,077.5 | 11,702.4 | 7,085.0 | 148.5 | 128.9 | -90.47 | 375.2 | -4,153.1 | 1,125.6 | 848.6 | 277.02 | 4.063 | |
| 12,600.0 | 7,077.3 | 11,702.4 | 7,085.0 | 151.3 | 128.9 | -90.47 | 375.2 | -4,153.1 | 1,191.7 | 911.9 | 279.80 | 4.259 | |
| 12,700.0 | 7,077.1 | 11,702.4 | 7,085.0 | 154.0 | 128.9 | -90.47 | 375.2 | -4,153.1 | 1,262.3 | 979.7 | 282.58 | 4.467 | |
| 12,800.0 | 7,076.9 | 11,702.4 | 7,085.0 | 156.8 | 128.9 | -90.47 | 375.2 | -4,153.1 | 1,336.6 | 1,051.2 | 285.37 | 4.684 | |
| 12,900.0 | 7,076.7 | 11,702.4 | 7,085.0 | 159.6 | 128.9 | -90.47 | 375.2 | -4,153.1 | 1,414.1 | 1,125.9 | 288.15 | 4.907 | |
| 13,000.0 | 7,076.5 | 11,702.4 | 7,085.0 | 162.4 | 128.9 | -90.47 | 375.2 | -4,153.1 | 1,494.2 | 1,203.3 | 290.94 | 5.136 | |
| 13,100.0 | 7,076.3 | 11,702.4 | 7,085.0 | 165.2 | 128.9 | -90.47 | 375.2 | -4,153.1 | 1,576.7 | 1,282.9 | 293.72 | 5.368 | |
| 13,200.0 | 7,076.1 | 11,702.4 | 7,085.0 | 168.0 | 128.9 | -90.46 | 375.2 | -4,153.1 | 1,661.0 | 1,364.5 | 296.51 | 5.602 | |
| 13,300.0 | 7,075.9 | 11,702.4 | 7,085.0 | 170.7 | 128.9 | -90.46 | 375.2 | -4,153.1 | 1,747.1 | 1,447.8 | 299.30 | 5.837 | |
| 13,400.0 | 7,075.7 | 11,702.4 | 7,085.0 | 173.5 | 128.9 | -90.46 | 375.2 | -4,153.1 | 1,834.5 | 1,532.4 | 302.09 | 6.073 | |
| 13,500.0 | 7,075.5 | 11,702.4 | 7,085.0 | 176.3 | 128.9 | -90.46 | 375.2 | -4,153.1 | 1,923.2 | 1,618.3 | 304.88 | 6.308 | |
| 13,600.0 | 7,075.3 | 11,702.4 | 7,085.0 | 179.1 | 128.9 | -90.46 | 375.2 | -4,153.1 | 2,012.9 | 1,705.2 | 307.67 | 6.542 | |
| 13,700.0 | 7,075.1 | 11,702.4 | 7,085.0 | 181.9 | 128.9 | -90.46 | 375.2 | -4,153.1 | 2,103.5 | 1,793.1 | 310.46 | 6.776 | |
| 13,800.0 | 7,074.9 | 11,702.4 | 7,085.0 | 184.7 | 128.9 | -90.46 | 375.2 | -4,153.1 | 2,195.0 | 1,881.7 | 313.25 | 7.007 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-204 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.0 | 7,074.7 | 11,702.4 | 7,085.0 | 187.5 | 128.9 | -90.46 | 375.2 | -4,153.1 | 2,287.2 | 1,971.1 | 316.04 | 7.237 | |
| 14,000.0 | 7,074.5 | 11,702.4 | 7,085.0 | 190.2 | 128.9 | -90.46 | 375.2 | -4,153.1 | 2,380.0 | 2,061.1 | 318.83 | 7.465 | |
| 14,100.0 | 7,074.2 | 11,702.4 | 7,085.0 | 193.0 | 128.9 | -90.46 | 375.2 | -4,153.1 | 2,473.3 | 2,151.7 | 321.63 | 7.690 | |
| 14,200.0 | 7,074.0 | 11,702.4 | 7,085.0 | 195.8 | 128.9 | -90.46 | 375.2 | -4,153.1 | 2,567.2 | 2,242.8 | 324.42 | 7.913 | |
| 14,221.4 | 7,074.0 | 11,702.4 | 7,085.0 | 196.4 | 128.9 | -90.46 | 375.2 | -4,153.1 | 2,587.3 | 2,262.3 | 325.02 | 7.961 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-214 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -179.47 | -30.2 | -0.3 | 30.2 | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -179.47 | -30.2 | -0.3 | 30.2 | 30.0 | 0.19 | 155.530 | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -179.47 | -30.2 | -0.3 | 30.2 | 29.6 | 0.64 | 46.958 | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | -179.47 | -30.2 | -0.3 | 30.2 | 29.1 | 1.09 | 27.653 | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -179.47 | -30.2 | -0.3 | 30.2 | 28.7 | 1.54 | 19.597 | CC, ES |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 153.64 | -30.2 | -0.3 | 31.8 | 29.8 | 1.99 | 15.942 | |
| 600.0 | 599.8 | 599.8 | 599.8 | 1.2 | 1.2 | 157.25 | -30.2 | -0.3 | 36.6 | 34.1 | 2.45 | 14.932 | |
| 700.0 | 699.5 | 700.8 | 700.8 | 1.5 | 1.4 | 160.43 | -28.9 | 0.8 | 43.2 | 40.3 | 2.90 | 14.898 | |
| 800.0 | 798.7 | 802.0 | 801.8 | 1.7 | 1.7 | 162.04 | -24.7 | 4.2 | 50.2 | 46.8 | 3.35 | 14.972 | |
| 900.0 | 897.5 | 903.4 | 902.8 | 2.0 | 1.9 | 162.62 | -17.8 | 9.8 | 57.4 | 53.6 | 3.81 | 15.048 | |
| 1,000.0 | 995.6 | 1,005.0 | 1,003.7 | 2.4 | 2.2 | 162.51 | -8.0 | 17.7 | 64.8 | 60.5 | 4.29 | 15.094 | |
| 1,100.0 | 1,093.1 | 1,106.9 | 1,104.2 | 2.8 | 2.5 | 161.91 | 4.5 | 27.9 | 72.4 | 67.6 | 4.80 | 15.088 | |
| 1,164.2 | 1,155.2 | 1,172.4 | 1,168.6 | 3.1 | 2.7 | 161.33 | 14.0 | 35.6 | 77.3 | 72.2 | 5.14 | 15.045 | |
| 1,200.0 | 1,189.7 | 1,208.7 | 1,204.2 | 3.2 | 2.8 | 160.93 | 19.8 | 40.3 | 80.0 | 74.6 | 5.35 | 14.958 | |
| 1,300.0 | 1,286.2 | 1,308.5 | 1,301.7 | 3.7 | 3.2 | 159.84 | 35.9 | 53.4 | 87.0 | 81.0 | 5.94 | 14.640 | |
| 1,400.0 | 1,382.6 | 1,408.2 | 1,399.3 | 4.2 | 3.6 | 158.90 | 52.0 | 66.4 | 94.0 | 87.5 | 6.56 | 14.330 | |
| 1,500.0 | 1,479.1 | 1,508.0 | 1,496.9 | 4.7 | 4.0 | 158.10 | 68.1 | 79.5 | 101.1 | 93.9 | 7.20 | 14.042 | |
| 1,600.0 | 1,575.6 | 1,607.7 | 1,594.4 | 5.3 | 4.4 | 157.40 | 84.3 | 92.6 | 108.2 | 100.3 | 7.85 | 13.777 | |
| 1,700.0 | 1,672.0 | 1,707.5 | 1,692.0 | 5.8 | 4.8 | 156.79 | 100.4 | 105.6 | 115.3 | 106.7 | 8.52 | 13.534 | |
| 1,800.0 | 1,768.5 | 1,807.2 | 1,789.5 | 6.3 | 5.2 | 156.25 | 116.5 | 118.7 | 122.4 | 113.2 | 9.19 | 13.313 | |
| 1,900.0 | 1,864.9 | 1,906.9 | 1,887.1 | 6.8 | 5.7 | 155.77 | 132.6 | 131.7 | 129.5 | 119.6 | 9.88 | 13.112 | |
| 2,000.0 | 1,961.4 | 2,006.7 | 1,984.7 | 7.4 | 6.1 | 155.34 | 148.7 | 144.8 | 136.6 | 126.0 | 10.57 | 12.929 | |
| 2,100.0 | 2,057.9 | 2,106.4 | 2,082.2 | 7.9 | 6.5 | 154.95 | 164.8 | 157.9 | 143.7 | 132.5 | 11.26 | 12.763 | |
| 2,200.0 | 2,154.3 | 2,206.2 | 2,179.8 | 8.4 | 7.0 | 154.60 | 180.9 | 170.9 | 150.9 | 138.9 | 11.96 | 12.611 | |
| 2,300.0 | 2,250.8 | 2,305.9 | 2,277.3 | 9.0 | 7.4 | 154.28 | 197.0 | 184.0 | 158.0 | 145.3 | 12.67 | 12.471 | |
| 2,400.0 | 2,347.3 | 2,405.6 | 2,374.9 | 9.5 | 7.8 | 153.99 | 213.2 | 197.1 | 165.2 | 151.8 | 13.38 | 12.344 | |
| 2,500.0 | 2,443.7 | 2,505.4 | 2,472.5 | 10.0 | 8.3 | 153.72 | 229.3 | 210.1 | 172.3 | 158.2 | 14.09 | 12.226 | |
| 2,600.0 | 2,540.2 | 2,605.1 | 2,570.0 | 10.6 | 8.7 | 153.47 | 245.4 | 223.2 | 179.5 | 164.7 | 14.81 | 12.118 | |
| 2,700.0 | 2,636.7 | 2,704.9 | 2,667.6 | 11.1 | 9.1 | 153.25 | 261.5 | 236.3 | 186.6 | 171.1 | 15.53 | 12.018 | |
| 2,800.0 | 2,733.1 | 2,804.6 | 2,765.1 | 11.6 | 9.6 | 153.04 | 277.6 | 249.3 | 193.8 | 177.5 | 16.25 | 11.926 | |
| 2,900.0 | 2,829.6 | 2,904.3 | 2,862.7 | 12.2 | 10.0 | 152.84 | 293.7 | 262.4 | 200.9 | 184.0 | 16.97 | 11.840 | |
| 3,000.0 | 2,926.0 | 3,004.1 | 2,960.3 | 12.7 | 10.5 | 152.66 | 309.8 | 275.5 | 208.1 | 190.4 | 17.70 | 11.760 | |
| 3,100.0 | 3,022.5 | 3,103.8 | 3,057.8 | 13.2 | 10.9 | 152.49 | 325.9 | 288.5 | 215.3 | 196.8 | 18.42 | 11.685 | |
| 3,200.0 | 3,119.0 | 3,203.6 | 3,155.4 | 13.8 | 11.3 | 152.33 | 342.1 | 301.6 | 222.4 | 203.3 | 19.15 | 11.615 | |
| 3,300.0 | 3,215.4 | 3,303.3 | 3,252.9 | 14.3 | 11.8 | 152.18 | 358.2 | 314.6 | 229.6 | 209.7 | 19.88 | 11.550 | |
| 3,400.0 | 3,311.9 | 3,403.0 | 3,350.5 | 14.9 | 12.2 | 152.04 | 374.3 | 327.7 | 236.8 | 216.2 | 20.61 | 11.489 | |
| 3,500.0 | 3,408.4 | 3,502.8 | 3,448.1 | 15.4 | 12.7 | 151.91 | 390.4 | 340.8 | 243.9 | 222.6 | 21.34 | 11.431 | |
| 3,600.0 | 3,504.8 | 3,602.5 | 3,545.6 | 15.9 | 13.1 | 151.78 | 406.5 | 353.8 | 251.1 | 229.0 | 22.07 | 11.377 | |
| 3,700.0 | 3,601.3 | 3,702.3 | 3,643.2 | 16.5 | 13.6 | 151.67 | 422.6 | 366.9 | 258.3 | 235.5 | 22.81 | 11.326 | |
| 3,800.0 | 3,697.7 | 3,802.0 | 3,740.7 | 17.0 | 14.0 | 151.55 | 438.7 | 380.0 | 265.5 | 241.9 | 23.54 | 11.277 | |
| 3,900.0 | 3,794.2 | 3,901.8 | 3,838.3 | 17.5 | 14.5 | 151.45 | 454.8 | 393.0 | 272.6 | 248.4 | 24.27 | 11.232 | |
| 4,000.0 | 3,890.7 | 4,001.5 | 3,935.9 | 18.1 | 14.9 | 151.35 | 471.0 | 406.1 | 279.8 | 254.8 | 25.01 | 11.188 | |
| 4,100.0 | 3,987.1 | 4,101.2 | 4,033.4 | 18.6 | 15.3 | 151.25 | 487.1 | 419.2 | 287.0 | 261.2 | 25.75 | 11.147 | |
| 4,200.0 | 4,083.6 | 4,201.0 | 4,131.0 | 19.2 | 15.8 | 151.16 | 503.2 | 432.2 | 294.2 | 267.7 | 26.48 | 11.108 | |
| 4,300.0 | 4,180.1 | 4,300.7 | 4,228.5 | 19.7 | 16.2 | 151.08 | 519.3 | 445.3 | 301.4 | 274.1 | 27.22 | 11.071 | |
| 4,400.0 | 4,276.5 | 4,400.5 | 4,326.1 | 20.2 | 16.7 | 151.00 | 535.4 | 458.3 | 308.5 | 280.6 | 27.96 | 11.036 | |
| 4,500.0 | 4,373.0 | 4,500.2 | 4,423.7 | 20.8 | 17.1 | 150.92 | 551.5 | 471.4 | 315.7 | 287.0 | 28.70 | 11.002 | |
| 4,600.0 | 4,469.5 | 4,599.9 | 4,521.2 | 21.3 | 17.6 | 150.84 | 567.6 | 484.5 | 322.9 | 293.5 | 29.43 | 10.970 | |
| 4,700.0 | 4,565.9 | 4,699.7 | 4,618.8 | 21.9 | 18.0 | 150.77 | 583.7 | 497.5 | 330.1 | 299.9 | 30.17 | 10.939 | |
| 4,800.0 | 4,662.4 | 4,799.4 | 4,716.3 | 22.4 | 18.5 | 150.70 | 599.9 | 510.6 | 337.3 | 306.3 | 30.91 | 10.910 | |
| 4,900.0 | 4,758.8 | 4,899.2 | 4,813.9 | 22.9 | 18.9 | 150.64 | 616.0 | 523.7 | 344.4 | 312.8 | 31.65 | 10.882 | |
| 5,000.0 | 4,855.3 | 4,998.9 | 4,911.5 | 23.5 | 19.4 | 150.57 | 632.1 | 536.7 | 351.6 | 319.2 | 32.39 | 10.855 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-214 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 5,098.6 | 5,009.0 | 24.0 | 19.8 | 150.51 | 648.2 | 549.8 | 358.8 | 325.7 | 33.13 | 10.829 | |
| 5,200.0 | 5,048.2 | 5,198.4 | 5,106.6 | 24.6 | 20.3 | 150.46 | 664.3 | 562.9 | 366.0 | 332.1 | 33.87 | 10.805 | |
| 5,300.0 | 5,144.7 | 5,298.1 | 5,204.1 | 25.1 | 20.7 | 150.40 | 680.4 | 575.9 | 373.2 | 338.6 | 34.61 | 10.781 | |
| 5,400.0 | 5,241.2 | 5,397.9 | 5,301.7 | 25.6 | 21.1 | 150.35 | 696.5 | 589.0 | 380.4 | 345.0 | 35.35 | 10.758 | |
| 5,500.0 | 5,337.6 | 5,497.6 | 5,399.3 | 26.2 | 21.6 | 150.29 | 712.6 | 602.1 | 387.5 | 351.4 | 36.10 | 10.736 | |
| 5,600.0 | 5,434.1 | 5,597.3 | 5,496.8 | 26.7 | 22.0 | 150.24 | 728.8 | 615.1 | 394.7 | 357.9 | 36.84 | 10.715 | |
| 5,700.0 | 5,530.5 | 5,697.1 | 5,594.4 | 27.3 | 22.5 | 150.20 | 744.9 | 628.2 | 401.9 | 364.3 | 37.58 | 10.695 | |
| 5,757.1 | 5,585.6 | 5,754.1 | 5,650.1 | 27.6 | 22.7 | 150.17 | 754.1 | 635.6 | 406.0 | 368.0 | 38.00 | 10.684 | |
| 5,800.0 | 5,627.1 | 5,793.3 | 5,688.6 | 27.8 | 22.9 | 150.18 | 760.3 | 640.7 | 409.0 | 370.7 | 38.29 | 10.682 | |
| 5,900.0 | 5,724.4 | 5,883.3 | 5,777.0 | 28.2 | 23.2 | 150.22 | 773.0 | 651.0 | 415.4 | 376.6 | 38.81 | 10.703 | |
| 6,000.0 | 5,822.4 | 5,973.1 | 5,865.8 | 28.5 | 23.4 | 150.29 | 783.5 | 659.5 | 421.2 | 381.9 | 39.26 | 10.729 | |
| 6,100.0 | 5,921.0 | 6,062.8 | 5,954.9 | 28.8 | 23.7 | 150.38 | 791.8 | 666.2 | 426.3 | 386.7 | 39.63 | 10.759 | |
| 6,200.0 | 6,020.2 | 6,152.5 | 6,044.2 | 29.0 | 23.8 | 150.51 | 798.0 | 671.2 | 430.9 | 390.9 | 39.92 | 10.794 | |
| 6,300.0 | 6,119.7 | 6,242.0 | 6,133.6 | 29.3 | 24.0 | 150.66 | 801.9 | 674.5 | 434.7 | 394.6 | 40.13 | 10.833 | |
| 6,400.0 | 6,219.5 | 6,331.5 | 6,223.0 | 29.4 | 24.1 | 150.84 | 803.7 | 675.9 | 438.0 | 397.7 | 40.27 | 10.875 | |
| 6,500.0 | 6,319.5 | 6,428.0 | 6,319.5 | 29.5 | 24.2 | 151.00 | 803.9 | 676.0 | 440.0 | 399.6 | 40.38 | 10.897 | |
| 6,521.3 | 6,340.8 | 6,449.3 | 6,340.8 | 29.6 | 24.3 | 179.35 | 803.9 | 676.0 | 440.1 | 391.9 | 48.13 | 9.143 | |
| 6,551.3 | 6,370.8 | 6,479.3 | 6,370.8 | 29.6 | 24.3 | 179.35 | 803.9 | 676.0 | 440.1 | 391.9 | 48.20 | 9.129 | |
| 6,600.0 | 6,419.5 | 6,528.3 | 6,419.8 | 29.6 | 24.3 | -90.65 | 803.9 | 674.3 | 440.1 | 399.5 | 40.59 | 10.841 | |
| 6,650.0 | 6,469.2 | 6,578.7 | 6,469.9 | 29.6 | 24.4 | -90.65 | 803.9 | 669.1 | 440.1 | 399.4 | 40.63 | 10.830 | |
| 6,700.0 | 6,518.4 | 6,629.0 | 6,519.4 | 29.6 | 24.4 | -90.64 | 803.9 | 660.4 | 440.1 | 399.5 | 40.61 | 10.837 | |
| 6,750.0 | 6,567.0 | 6,679.4 | 6,568.3 | 29.6 | 24.3 | -90.63 | 803.9 | 648.3 | 440.1 | 399.5 | 40.53 | 10.858 | |
| 6,800.0 | 6,614.5 | 6,729.7 | 6,616.1 | 29.6 | 24.3 | -90.61 | 803.9 | 632.7 | 440.1 | 399.7 | 40.40 | 10.892 | |
| 6,850.0 | 6,660.9 | 6,780.0 | 6,662.8 | 29.5 | 24.2 | -90.60 | 803.9 | 613.8 | 440.1 | 399.8 | 40.23 | 10.938 | |
| 6,900.0 | 6,705.9 | 6,830.3 | 6,708.0 | 29.4 | 24.1 | -90.58 | 803.9 | 591.7 | 440.1 | 400.0 | 40.04 | 10.991 | |
| 6,950.0 | 6,749.2 | 6,880.7 | 6,751.5 | 29.3 | 24.0 | -90.55 | 803.9 | 566.5 | 440.1 | 400.2 | 39.82 | 11.050 | |
| 7,000.0 | 6,790.7 | 6,930.9 | 6,793.1 | 29.2 | 23.9 | -90.53 | 803.9 | 538.3 | 440.1 | 400.4 | 39.61 | 11.109 | |
| 7,050.0 | 6,830.2 | 6,981.2 | 6,832.6 | 29.1 | 23.8 | -90.50 | 803.9 | 507.2 | 440.1 | 400.6 | 39.42 | 11.163 | |
| 7,100.0 | 6,867.4 | 7,031.5 | 6,869.9 | 29.0 | 23.6 | -90.47 | 803.9 | 473.5 | 440.1 | 400.8 | 39.27 | 11.207 | |
| 7,150.0 | 6,902.2 | 7,081.7 | 6,904.7 | 28.9 | 23.5 | -90.44 | 803.9 | 437.2 | 440.1 | 400.9 | 39.17 | 11.233 | |
| 7,200.0 | 6,934.4 | 7,132.0 | 6,936.8 | 28.7 | 23.4 | -90.40 | 803.9 | 398.7 | 440.0 | 400.9 | 39.16 | 11.236 | |
| 7,250.0 | 6,963.8 | 7,182.2 | 6,966.2 | 28.6 | 23.2 | -90.36 | 803.9 | 357.9 | 440.0 | 400.8 | 39.26 | 11.209 | |
| 7,300.0 | 6,990.4 | 7,232.3 | 6,992.6 | 28.5 | 23.1 | -90.33 | 803.9 | 315.3 | 440.0 | 400.6 | 39.48 | 11.146 | |
| 7,350.0 | 7,013.9 | 7,282.5 | 7,015.9 | 28.4 | 23.0 | -90.29 | 803.9 | 270.9 | 440.0 | 400.2 | 39.84 | 11.045 | |
| 7,400.0 | 7,034.4 | 7,332.6 | 7,036.1 | 28.2 | 22.9 | -90.24 | 803.9 | 225.0 | 440.0 | 399.7 | 40.36 | 10.904 | |
| 7,450.0 | 7,051.5 | 7,382.8 | 7,053.0 | 28.1 | 22.8 | -90.20 | 803.9 | 177.8 | 440.0 | 399.0 | 41.03 | 10.724 | |
| 7,500.0 | 7,065.4 | 7,432.9 | 7,066.6 | 28.0 | 22.7 | -90.16 | 803.9 | 129.6 | 440.0 | 398.2 | 41.87 | 10.510 | |
| 7,550.0 | 7,075.9 | 7,482.9 | 7,076.7 | 27.9 | 22.7 | -90.11 | 803.9 | 80.6 | 440.0 | 397.2 | 42.86 | 10.267 | |
| 7,600.0 | 7,082.9 | 7,533.0 | 7,083.5 | 27.8 | 22.7 | -90.07 | 803.9 | 31.0 | 440.0 | 396.0 | 44.00 | 10.001 | |
| 7,650.0 | 7,086.5 | 7,583.0 | 7,086.7 | 27.7 | 22.9 | -90.02 | 803.9 | -18.9 | 440.0 | 394.8 | 45.26 | 9.722 | |
| 7,672.9 | 7,087.0 | 7,605.9 | 7,087.0 | 27.7 | 23.0 | -90.00 | 803.9 | -41.8 | 440.0 | 394.2 | 45.88 | 9.592 | |
| 7,677.7 | 7,087.0 | 7,610.7 | 7,087.0 | 27.6 | 23.0 | -90.00 | 803.9 | -46.6 | 440.0 | 394.0 | 46.01 | 9.563 | |
| 7,700.0 | 7,087.0 | 7,633.0 | 7,086.9 | 27.6 | 23.2 | -90.00 | 803.9 | -68.9 | 440.0 | 393.4 | 46.66 | 9.430 | |
| 7,800.0 | 7,086.8 | 7,733.0 | 7,086.8 | 27.5 | 24.7 | -90.00 | 803.9 | -168.9 | 440.0 | 390.2 | 49.79 | 8.838 | |
| 7,900.0 | 7,086.6 | 7,833.0 | 7,086.6 | 27.9 | 26.5 | -90.00 | 803.9 | -268.9 | 440.0 | 386.7 | 53.32 | 8.252 | |
| 8,000.0 | 7,086.4 | 7,933.0 | 7,086.4 | 29.5 | 28.5 | -90.00 | 803.9 | -368.9 | 440.0 | 382.8 | 57.19 | 7.694 | |
| 8,100.0 | 7,086.2 | 8,033.0 | 7,086.2 | 31.5 | 30.6 | -90.00 | 803.9 | -468.9 | 440.0 | 378.7 | 61.33 | 7.175 | |
| 8,200.0 | 7,086.0 | 8,133.0 | 7,086.0 | 33.7 | 32.9 | -90.00 | 803.9 | -568.9 | 440.0 | 374.3 | 65.69 | 6.698 | |
| 8,300.0 | 7,085.8 | 8,233.0 | 7,085.8 | 36.0 | 35.2 | -90.00 | 803.9 | -668.9 | 440.0 | 369.8 | 70.23 | 6.266 | |
| 8,400.0 | 7,085.6 | 8,333.0 | 7,085.6 | 38.3 | 37.6 | -90.00 | 803.9 | -768.9 | 440.0 | 365.1 | 74.92 | 5.874 | |
| 8,500.0 | 7,085.4 | 8,433.0 | 7,085.4 | 40.7 | 40.0 | -90.00 | 803.9 | -868.9 | 440.0 | 360.3 | 79.72 | 5.520 | |
| 8,600.0 | 7,085.2 | 8,533.0 | 7,085.2 | 43.1 | 42.5 | -90.00 | 803.9 | -968.9 | 440.0 | 355.4 | 84.63 | 5.200 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-214 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.0 | 7,085.0 | 8,633.0 | 7,085.0 | 45.6 | 45.0 | -90.00 | 803.9 | -1,068.9 | 440.0 | 350.4 | 89.62 | 4.910 | |
| 8,800.0 | 7,084.8 | 8,733.0 | 7,084.8 | 48.1 | 47.5 | -90.00 | 803.9 | -1,168.9 | 440.0 | 345.4 | 94.68 | 4.648 | |
| 8,900.0 | 7,084.6 | 8,833.0 | 7,084.6 | 50.7 | 50.1 | -90.00 | 803.9 | -1,268.9 | 440.0 | 340.2 | 99.80 | 4.409 | |
| 9,000.0 | 7,084.4 | 8,933.0 | 7,084.4 | 53.2 | 52.7 | -90.00 | 803.9 | -1,368.9 | 440.0 | 335.1 | 104.97 | 4.192 | |
| 9,100.0 | 7,084.2 | 9,033.0 | 7,084.2 | 55.8 | 55.3 | -90.00 | 803.9 | -1,468.9 | 440.0 | 329.9 | 110.18 | 3.994 | |
| 9,200.0 | 7,084.0 | 9,133.0 | 7,084.0 | 58.4 | 58.0 | -90.00 | 803.9 | -1,568.9 | 440.0 | 324.6 | 115.43 | 3.812 | |
| 9,300.0 | 7,083.8 | 9,233.0 | 7,083.8 | 61.1 | 60.6 | -90.00 | 803.9 | -1,668.9 | 440.0 | 319.3 | 120.72 | 3.645 | |
| 9,400.0 | 7,083.7 | 9,333.0 | 7,083.6 | 63.7 | 63.3 | -90.00 | 803.9 | -1,768.9 | 440.0 | 314.0 | 126.03 | 3.491 | |
| 9,500.0 | 7,083.5 | 9,433.0 | 7,083.4 | 66.3 | 65.9 | -90.00 | 803.9 | -1,868.9 | 440.0 | 308.7 | 131.37 | 3.350 | |
| 9,600.0 | 7,083.3 | 9,533.0 | 7,083.3 | 69.0 | 68.6 | -90.00 | 803.9 | -1,968.9 | 440.0 | 303.3 | 136.73 | 3.218 | |
| 9,700.0 | 7,083.1 | 9,633.0 | 7,083.1 | 71.7 | 71.3 | -90.00 | 803.9 | -2,068.9 | 440.0 | 297.9 | 142.12 | 3.096 | |
| 9,800.0 | 7,082.9 | 9,733.0 | 7,082.9 | 74.4 | 74.0 | -90.00 | 803.9 | -2,168.9 | 440.0 | 292.5 | 147.51 | 2.983 | |
| 9,900.0 | 7,082.7 | 9,833.0 | 7,082.7 | 77.1 | 76.7 | -90.00 | 803.9 | -2,268.9 | 440.0 | 287.1 | 152.93 | 2.877 | |
| 10,000.0 | 7,082.5 | 9,933.0 | 7,082.5 | 79.7 | 79.4 | -90.00 | 803.9 | -2,368.9 | 440.0 | 281.7 | 158.36 | 2.779 | |
| 10,100.0 | 7,082.3 | 10,033.0 | 7,082.3 | 82.5 | 82.2 | -90.00 | 803.9 | -2,468.9 | 440.0 | 276.2 | 163.80 | 2.686 | |
| 10,200.0 | 7,082.1 | 10,133.0 | 7,082.1 | 85.2 | 84.9 | -90.00 | 803.9 | -2,568.9 | 440.0 | 270.8 | 169.25 | 2.600 | |
| 10,300.0 | 7,081.9 | 10,233.0 | 7,081.9 | 87.9 | 87.6 | -90.00 | 803.9 | -2,668.9 | 440.0 | 265.3 | 174.71 | 2.519 | |
| 10,400.0 | 7,081.7 | 10,333.0 | 7,081.7 | 90.6 | 90.3 | -90.00 | 803.9 | -2,768.9 | 440.0 | 259.9 | 180.19 | 2.442 | |
| 10,500.0 | 7,081.5 | 10,433.0 | 7,081.5 | 93.3 | 93.1 | -90.00 | 803.9 | -2,868.9 | 440.0 | 254.4 | 185.67 | 2.370 | |
| 10,600.0 | 7,081.3 | 10,533.0 | 7,081.3 | 96.1 | 95.8 | -90.00 | 803.9 | -2,968.9 | 440.0 | 248.9 | 191.16 | 2.302 | |
| 10,700.0 | 7,081.1 | 10,633.0 | 7,081.1 | 98.8 | 98.6 | -90.00 | 803.9 | -3,068.9 | 440.0 | 243.4 | 196.65 | 2.238 | |
| 10,800.0 | 7,080.9 | 10,733.0 | 7,080.9 | 101.5 | 101.3 | -90.00 | 803.9 | -3,168.9 | 440.0 | 237.9 | 202.16 | 2.177 | |
| 10,900.0 | 7,080.7 | 10,833.0 | 7,080.7 | 104.3 | 104.1 | -90.00 | 803.9 | -3,268.9 | 440.0 | 232.4 | 207.67 | 2.119 | |
| 11,000.0 | 7,080.5 | 10,933.0 | 7,080.5 | 107.0 | 106.8 | -90.00 | 803.9 | -3,368.9 | 440.0 | 226.9 | 213.18 | 2.064 | |
| 11,100.0 | 7,080.3 | 11,033.0 | 7,080.3 | 109.8 | 109.6 | -90.00 | 803.8 | -3,468.9 | 440.0 | 221.3 | 218.70 | 2.012 | |
| 11,200.0 | 7,080.1 | 11,133.0 | 7,080.1 | 112.5 | 112.4 | -90.00 | 803.8 | -3,568.9 | 440.0 | 215.8 | 224.23 | 1.963 | |
| 11,300.0 | 7,079.9 | 11,233.0 | 7,079.9 | 115.3 | 115.1 | -90.00 | 803.8 | -3,668.9 | 440.1 | 210.3 | 229.76 | 1.915 | |
| 11,400.0 | 7,079.7 | 11,333.0 | 7,079.7 | 118.0 | 117.9 | -90.00 | 803.8 | -3,768.9 | 440.1 | 204.8 | 235.29 | 1.870 | |
| 11,500.0 | 7,079.5 | 11,433.0 | 7,079.5 | 120.8 | 120.6 | -90.00 | 803.8 | -3,868.9 | 440.1 | 199.2 | 240.83 | 1.827 | |
| 11,600.0 | 7,079.3 | 11,533.0 | 7,079.3 | 123.6 | 123.4 | -90.00 | 803.8 | -3,968.9 | 440.1 | 193.7 | 246.37 | 1.786 | |
| 11,700.0 | 7,079.1 | 11,633.0 | 7,079.1 | 126.3 | 126.2 | -90.00 | 803.8 | -4,068.9 | 440.1 | 188.1 | 251.91 | 1.747 | |
| 11,800.0 | 7,078.9 | 11,733.0 | 7,078.9 | 129.1 | 129.0 | -90.00 | 803.8 | -4,168.9 | 440.1 | 182.6 | 257.46 | 1.709 | |
| 11,900.0 | 7,078.7 | 11,833.0 | 7,078.7 | 131.9 | 131.7 | -90.00 | 803.8 | -4,268.9 | 440.1 | 177.0 | 263.01 | 1.673 | |
| 12,000.0 | 7,078.5 | 11,933.0 | 7,078.5 | 134.6 | 134.5 | -90.00 | 803.8 | -4,368.9 | 440.1 | 171.5 | 268.56 | 1.639 | |
| 12,100.0 | 7,078.3 | 12,033.0 | 7,078.3 | 137.4 | 137.3 | -90.00 | 803.8 | -4,468.9 | 440.1 | 165.9 | 274.12 | 1.605 | |
| 12,200.0 | 7,078.1 | 12,133.0 | 7,078.1 | 140.2 | 140.1 | -90.00 | 803.8 | -4,568.9 | 440.1 | 160.4 | 279.68 | 1.573 | |
| 12,300.0 | 7,077.9 | 12,233.0 | 7,077.9 | 142.9 | 142.8 | -90.00 | 803.8 | -4,668.9 | 440.1 | 154.8 | 285.24 | 1.543 | |
| 12,400.0 | 7,077.7 | 12,333.0 | 7,077.7 | 145.7 | 145.6 | -90.00 | 803.8 | -4,768.9 | 440.1 | 149.3 | 290.80 | 1.513 | |
| 12,500.0 | 7,077.5 | 12,433.0 | 7,077.5 | 148.5 | 148.4 | -90.00 | 803.8 | -4,868.9 | 440.1 | 143.7 | 296.37 | 1.485 | Level 3 |
| 12,600.0 | 7,077.3 | 12,533.0 | 7,077.3 | 151.3 | 151.2 | -90.00 | 803.8 | -4,968.9 | 440.1 | 138.1 | 301.93 | 1.457 | Level 3 |
| 12,700.0 | 7,077.1 | 12,633.0 | 7,077.1 | 154.0 | 154.0 | -90.00 | 803.8 | -5,068.9 | 440.1 | 132.6 | 307.50 | 1.431 | Level 3 |
| 12,800.0 | 7,076.9 | 12,733.0 | 7,076.9 | 156.8 | 156.8 | -90.00 | 803.8 | -5,168.9 | 440.1 | 127.0 | 313.07 | 1.406 | Level 3 |
| 12,900.0 | 7,076.7 | 12,833.0 | 7,076.7 | 159.6 | 159.5 | -90.00 | 803.8 | -5,268.9 | 440.1 | 121.4 | 318.64 | 1.381 | Level 3 |
| 13,000.0 | 7,076.5 | 12,933.0 | 7,076.5 | 162.4 | 162.3 | -90.00 | 803.8 | -5,368.9 | 440.1 | 115.8 | 324.22 | 1.357 | Level 3 |
| 13,100.0 | 7,076.3 | 13,033.0 | 7,076.3 | 165.2 | 165.1 | -90.00 | 803.8 | -5,468.9 | 440.1 | 110.3 | 329.79 | 1.334 | Level 3 |
| 13,200.0 | 7,076.1 | 13,133.0 | 7,076.1 | 168.0 | 167.9 | -90.00 | 803.8 | -5,568.9 | 440.1 | 104.7 | 335.37 | 1.312 | Level 3 |
| 13,300.0 | 7,075.9 | 13,233.0 | 7,075.9 | 170.7 | 170.7 | -90.00 | 803.8 | -5,668.9 | 440.1 | 99.1 | 340.95 | 1.291 | Level 3 |
| 13,400.0 | 7,075.7 | 13,333.0 | 7,075.7 | 173.5 | 173.5 | -90.00 | 803.8 | -5,768.9 | 440.1 | 93.5 | 346.53 | 1.270 | Level 3 |
| 13,500.0 | 7,075.5 | 13,433.0 | 7,075.5 | 176.3 | 176.3 | -90.00 | 803.8 | -5,868.9 | 440.1 | 88.0 | 352.11 | 1.250 | Level 2 |
| 13,600.0 | 7,075.3 | 13,533.0 | 7,075.3 | 179.1 | 179.1 | -90.00 | 803.8 | -5,968.9 | 440.1 | 82.4 | 357.69 | 1.230 | Level 2 |
| 13,700.0 | 7,075.1 | 13,633.0 | 7,075.1 | 181.9 | 181.8 | -90.00 | 803.8 | -6,068.9 | 440.1 | 76.8 | 363.27 | 1.211 | Level 2 |
| 13,800.0 | 7,074.9 | 13,733.0 | 7,074.9 | 184.7 | 184.6 | -90.00 | 803.8 | -6,168.9 | 440.1 | 71.2 | 368.85 | 1.193 | Level 2 |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-214 - ORIGINAL WELLBORE - PROPOSAL #1 **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.0 | 7,074.7 | 13,833.0 | 7,074.7 | 187.5 | 187.4 | -90.00 | 803.8 | -6,268.9 | 440.1 | 65.6 | 374.44 | 1.175 | Level 2 |
| 14,000.0 | 7,074.5 | 13,933.0 | 7,074.5 | 190.2 | 190.2 | -90.00 | 803.8 | -6,368.9 | 440.1 | 60.1 | 380.02 | 1.158 | Level 2 |
| 14,100.0 | 7,074.2 | 14,033.0 | 7,074.2 | 193.0 | 193.0 | -90.00 | 803.8 | -6,468.9 | 440.1 | 54.5 | 385.61 | 1.141 | Level 2 |
| 14,200.0 | 7,074.0 | 14,133.0 | 7,074.0 | 195.8 | 195.8 | -90.00 | 803.8 | -6,568.9 | 440.1 | 48.9 | 391.20 | 1.125 | Level 2 |
| 14,221.4 | 7,074.0 | 14,154.4 | 7,074.0 | 196.4 | 196.4 | -90.00 | 803.8 | -6,590.3 | 440.1 | 47.7 | 392.39 | 1.122 | Level 2, SF |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-234 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -179.64 | -90.0 | -0.6 | 90.0 | | | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | -179.64 | -90.0 | -0.6 | 90.0 | 89.8 | 0.19 | 465.115 | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.3 | 0.3 | -179.64 | -90.0 | -0.6 | 90.0 | 89.3 | 0.64 | 140.215 | |
| 300.0 | 300.0 | 299.0 | 299.0 | 0.5 | 0.5 | -179.64 | -90.0 | -0.6 | 90.0 | 88.9 | 1.09 | 82.454 | |
| 400.0 | 400.0 | 399.0 | 399.0 | 0.8 | 0.8 | -179.64 | -90.0 | -0.6 | 90.0 | 88.4 | 1.54 | 58.397 | CC, ES |
| 500.0 | 500.0 | 499.0 | 499.0 | 1.0 | 1.0 | 152.51 | -90.0 | -0.6 | 91.5 | 89.5 | 1.99 | 45.946 | |
| 600.0 | 599.8 | 598.6 | 598.6 | 1.2 | 1.2 | 152.89 | -90.1 | 1.1 | 96.3 | 93.9 | 2.43 | 39.593 | |
| 700.0 | 699.5 | 698.0 | 697.8 | 1.5 | 1.4 | 152.17 | -90.6 | 6.2 | 104.5 | 101.6 | 2.88 | 36.326 | |
| 800.0 | 798.7 | 796.9 | 796.4 | 1.7 | 1.6 | 150.63 | -91.5 | 14.7 | 116.0 | 112.7 | 3.35 | 34.668 | |
| 900.0 | 897.5 | 895.1 | 893.9 | 2.0 | 1.9 | 148.60 | -92.6 | 26.5 | 131.1 | 127.2 | 3.86 | 33.969 | |
| 1,000.0 | 995.6 | 992.5 | 990.1 | 2.4 | 2.2 | 146.37 | -94.1 | 41.5 | 149.7 | 145.3 | 4.43 | 33.827 | |
| 1,100.0 | 1,093.1 | 1,088.8 | 1,084.7 | 2.8 | 2.5 | 144.12 | -95.8 | 59.5 | 171.9 | 166.9 | 5.06 | 33.986 | |
| 1,164.2 | 1,155.2 | 1,150.7 | 1,145.2 | 3.1 | 2.8 | 142.84 | -97.1 | 72.2 | 188.0 | 182.5 | 5.50 | 34.175 | |
| 1,200.0 | 1,189.7 | 1,185.2 | 1,179.0 | 3.2 | 2.9 | 142.39 | -97.8 | 79.4 | 197.3 | 191.6 | 5.76 | 34.270 | |
| 1,300.0 | 1,286.2 | 1,281.7 | 1,273.4 | 3.7 | 3.3 | 141.32 | -99.7 | 99.3 | 223.3 | 216.9 | 6.50 | 34.381 | |
| 1,400.0 | 1,382.6 | 1,378.2 | 1,367.8 | 4.2 | 3.7 | 140.47 | -101.7 | 119.3 | 249.4 | 242.2 | 7.26 | 34.366 | |
| 1,500.0 | 1,479.1 | 1,474.7 | 1,462.1 | 4.7 | 4.1 | 139.78 | -103.6 | 139.3 | 275.6 | 267.5 | 8.04 | 34.284 | |
| 1,600.0 | 1,575.6 | 1,571.2 | 1,556.5 | 5.3 | 4.5 | 139.21 | -105.5 | 159.2 | 301.7 | 292.9 | 8.83 | 34.169 | |
| 1,700.0 | 1,672.0 | 1,667.6 | 1,650.9 | 5.8 | 5.0 | 138.73 | -107.5 | 179.2 | 327.9 | 318.3 | 9.63 | 34.043 | |
| 1,800.0 | 1,768.5 | 1,764.1 | 1,745.2 | 6.3 | 5.4 | 138.33 | -109.4 | 199.1 | 354.1 | 343.7 | 10.44 | 33.912 | |
| 1,900.0 | 1,864.9 | 1,860.6 | 1,839.6 | 6.8 | 5.8 | 137.98 | -111.4 | 219.1 | 380.3 | 369.1 | 11.26 | 33.784 | |
| 2,000.0 | 1,961.4 | 1,957.1 | 1,934.0 | 7.4 | 6.3 | 137.67 | -113.3 | 239.1 | 406.6 | 394.5 | 12.08 | 33.661 | |
| 2,100.0 | 2,057.9 | 2,053.5 | 2,028.3 | 7.9 | 6.7 | 137.40 | -115.3 | 259.0 | 432.8 | 419.9 | 12.90 | 33.544 | |
| 2,200.0 | 2,154.3 | 2,150.0 | 2,122.7 | 8.4 | 7.1 | 137.16 | -117.2 | 279.0 | 459.0 | 445.3 | 13.73 | 33.434 | |
| 2,300.0 | 2,250.8 | 2,246.5 | 2,217.1 | 9.0 | 7.6 | 136.95 | -119.2 | 298.9 | 485.3 | 470.7 | 14.56 | 33.331 | |
| 2,400.0 | 2,347.3 | 2,343.0 | 2,311.5 | 9.5 | 8.0 | 136.76 | -121.1 | 318.9 | 511.6 | 496.2 | 15.39 | 33.234 | |
| 2,500.0 | 2,443.7 | 2,439.5 | 2,405.8 | 10.0 | 8.4 | 136.59 | -123.1 | 338.8 | 537.8 | 521.6 | 16.23 | 33.144 | |
| 2,600.0 | 2,540.2 | 2,535.9 | 2,500.2 | 10.6 | 8.9 | 136.43 | -125.0 | 358.8 | 564.1 | 547.0 | 17.06 | 33.060 | |
| 2,700.0 | 2,636.7 | 2,632.4 | 2,594.6 | 11.1 | 9.3 | 136.29 | -126.9 | 378.8 | 590.4 | 572.5 | 17.90 | 32.981 | |
| 2,800.0 | 2,733.1 | 2,728.9 | 2,688.9 | 11.6 | 9.8 | 136.16 | -128.9 | 398.7 | 616.6 | 597.9 | 18.74 | 32.908 | |
| 2,900.0 | 2,829.6 | 2,825.4 | 2,783.3 | 12.2 | 10.2 | 136.04 | -130.8 | 418.7 | 642.9 | 623.3 | 19.58 | 32.839 | |
| 3,000.0 | 2,926.0 | 2,921.8 | 2,877.7 | 12.7 | 10.6 | 135.93 | -132.8 | 438.6 | 669.2 | 648.8 | 20.42 | 32.774 | |
| 3,100.0 | 3,022.5 | 3,018.3 | 2,972.1 | 13.2 | 11.1 | 135.83 | -134.7 | 458.6 | 695.5 | 674.2 | 21.26 | 32.713 | |
| 3,200.0 | 3,119.0 | 3,114.8 | 3,066.4 | 13.8 | 11.5 | 135.73 | -136.7 | 478.5 | 721.8 | 699.6 | 22.10 | 32.656 | |
| 3,300.0 | 3,215.4 | 3,211.3 | 3,160.8 | 14.3 | 12.0 | 135.65 | -138.6 | 498.5 | 748.0 | 725.1 | 22.94 | 32.602 | |
| 3,400.0 | 3,311.9 | 3,307.8 | 3,255.2 | 14.9 | 12.4 | 135.56 | -140.6 | 518.5 | 774.3 | 750.5 | 23.79 | 32.552 | |
| 3,500.0 | 3,408.4 | 3,404.2 | 3,349.5 | 15.4 | 12.8 | 135.49 | -142.5 | 538.4 | 800.6 | 776.0 | 24.63 | 32.504 | |
| 3,600.0 | 3,504.8 | 3,500.7 | 3,443.9 | 15.9 | 13.3 | 135.42 | -144.4 | 558.4 | 826.9 | 801.4 | 25.48 | 32.459 | |
| 3,700.0 | 3,601.3 | 3,597.2 | 3,538.3 | 16.5 | 13.7 | 135.35 | -146.4 | 578.3 | 853.2 | 826.9 | 26.32 | 32.416 | |
| 3,800.0 | 3,697.7 | 3,693.7 | 3,632.7 | 17.0 | 14.2 | 135.29 | -148.3 | 598.3 | 879.5 | 852.3 | 27.17 | 32.375 | |
| 3,900.0 | 3,794.2 | 3,790.1 | 3,727.0 | 17.5 | 14.6 | 135.23 | -150.3 | 618.3 | 905.8 | 877.8 | 28.01 | 32.336 | |
| 4,000.0 | 3,890.7 | 3,895.1 | 3,829.9 | 18.1 | 15.0 | 135.22 | -152.3 | 639.0 | 931.8 | 902.9 | 28.84 | 32.305 | |
| 4,100.0 | 3,987.1 | 4,004.6 | 3,937.8 | 18.6 | 15.4 | 135.45 | -154.0 | 656.9 | 956.5 | 927.0 | 29.57 | 32.349 | |
| 4,200.0 | 4,083.6 | 4,114.4 | 4,046.8 | 19.2 | 15.6 | 135.89 | -155.4 | 670.6 | 980.0 | 949.8 | 30.23 | 32.419 | |
| 4,300.0 | 4,180.1 | 4,224.2 | 4,156.2 | 19.7 | 15.9 | 136.55 | -156.3 | 680.2 | 1,002.3 | 971.5 | 30.83 | 32.517 | |
| 4,400.0 | 4,276.5 | 4,333.7 | 4,265.5 | 20.2 | 16.0 | 137.39 | -156.8 | 685.6 | 1,023.5 | 992.2 | 31.35 | 32.646 | |
| 4,500.0 | 4,373.0 | 4,440.2 | 4,372.0 | 20.8 | 16.2 | 138.39 | -157.0 | 686.9 | 1,043.8 | 1,012.0 | 31.82 | 32.807 | |
| 4,600.0 | 4,469.5 | 4,536.6 | 4,468.5 | 21.3 | 16.3 | 139.32 | -157.0 | 686.9 | 1,064.0 | 1,031.7 | 32.26 | 32.983 | |
| 4,700.0 | 4,565.9 | 4,633.1 | 4,564.9 | 21.9 | 16.4 | 140.21 | -157.0 | 686.9 | 1,084.4 | 1,051.7 | 32.70 | 33.163 | |
| 4,800.0 | 4,662.4 | 4,729.6 | 4,661.4 | 22.4 | 16.5 | 141.08 | -157.0 | 686.9 | 1,105.0 | 1,071.9 | 33.13 | 33.352 | |
| 4,900.0 | 4,758.8 | 4,826.0 | 4,757.8 | 22.9 | 16.7 | 141.91 | -157.0 | 686.9 | 1,126.0 | 1,092.4 | 33.56 | 33.546 | |
| 5,000.0 | 4,855.3 | 4,922.5 | 4,854.3 | 23.5 | 16.8 | 142.71 | -157.0 | 686.9 | 1,147.1 | 1,113.1 | 33.99 | 33.746 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-234 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 5,018.9 | 4,950.8 | 24.0 | 16.9 | 143.48 | -157.0 | 686.9 | 1,168.4 | 1,134.0 | 34.42 | 33.950 | |
| 5,200.0 | 5,048.2 | 5,115.4 | 5,047.2 | 24.6 | 17.1 | 144.23 | -157.0 | 686.9 | 1,190.0 | 1,155.2 | 34.84 | 34.157 | |
| 5,300.0 | 5,144.7 | 5,211.9 | 5,143.7 | 25.1 | 17.2 | 144.95 | -157.0 | 686.9 | 1,211.7 | 1,176.5 | 35.26 | 34.368 | |
| 5,400.0 | 5,241.2 | 5,308.3 | 5,240.2 | 25.6 | 17.3 | 145.64 | -157.0 | 686.9 | 1,233.7 | 1,198.0 | 35.68 | 34.580 | |
| 5,500.0 | 5,337.6 | 5,404.8 | 5,336.6 | 26.2 | 17.5 | 146.32 | -157.0 | 686.9 | 1,255.7 | 1,219.7 | 36.09 | 34.793 | |
| 5,600.0 | 5,434.1 | 5,501.3 | 5,433.1 | 26.7 | 17.6 | 146.96 | -157.0 | 686.9 | 1,278.0 | 1,241.5 | 36.51 | 35.008 | |
| 5,700.0 | 5,530.5 | 5,597.7 | 5,529.5 | 27.3 | 17.7 | 147.59 | -157.0 | 686.9 | 1,300.4 | 1,263.5 | 36.92 | 35.222 | |
| 5,757.1 | 5,585.6 | 5,652.8 | 5,584.6 | 27.6 | 17.8 | 147.94 | -157.0 | 686.9 | 1,313.3 | 1,276.1 | 37.16 | 35.344 | |
| 5,800.0 | 5,627.1 | 5,694.3 | 5,626.1 | 27.8 | 17.9 | 148.29 | -157.0 | 686.9 | 1,322.7 | 1,285.3 | 37.35 | 35.416 | |
| 5,900.0 | 5,724.4 | 5,791.5 | 5,723.4 | 28.2 | 18.0 | 149.02 | -157.0 | 686.9 | 1,342.7 | 1,304.9 | 37.74 | 35.580 | |
| 6,000.0 | 5,822.4 | 5,889.5 | 5,821.4 | 28.5 | 18.2 | 149.62 | -157.0 | 686.9 | 1,359.8 | 1,321.7 | 38.10 | 35.689 | |
| 6,100.0 | 5,921.0 | 5,988.2 | 5,920.0 | 28.8 | 18.3 | 150.11 | -157.0 | 686.9 | 1,374.0 | 1,335.6 | 38.44 | 35.745 | |
| 6,200.0 | 6,020.2 | 6,087.3 | 6,019.2 | 29.0 | 18.5 | 150.49 | -157.0 | 686.9 | 1,385.3 | 1,346.5 | 38.75 | 35.749 | |
| 6,300.0 | 6,119.7 | 6,186.9 | 6,118.7 | 29.3 | 18.6 | 150.76 | -157.0 | 686.9 | 1,393.5 | 1,354.5 | 39.03 | 35.704 | |
| 6,400.0 | 6,219.5 | 6,286.7 | 6,218.5 | 29.4 | 18.8 | 150.93 | -157.0 | 686.9 | 1,398.7 | 1,359.4 | 39.28 | 35.609 | |
| 6,500.0 | 6,319.5 | 6,386.7 | 6,318.5 | 29.5 | 18.9 | 151.00 | -157.0 | 686.9 | 1,400.9 | 1,361.4 | 39.50 | 35.465 | |
| 6,521.3 | 6,340.8 | 6,408.0 | 6,339.8 | 29.6 | 19.0 | 179.35 | -157.0 | 686.9 | 1,401.0 | 1,359.6 | 41.39 | 33.852 | |
| 6,551.3 | 6,370.8 | 6,438.0 | 6,369.8 | 29.6 | 19.0 | 179.35 | -157.0 | 686.9 | 1,401.0 | 1,359.5 | 41.48 | 33.778 | |
| 6,600.0 | 6,419.5 | 6,487.6 | 6,419.4 | 29.6 | 19.1 | -90.67 | -157.0 | 685.8 | 1,401.0 | 1,361.2 | 39.74 | 35.249 | |
| 6,650.0 | 6,469.2 | 6,538.8 | 6,470.4 | 29.6 | 19.1 | -90.70 | -157.0 | 681.1 | 1,401.0 | 1,361.2 | 39.80 | 35.204 | |
| 6,700.0 | 6,518.4 | 6,590.0 | 6,520.9 | 29.6 | 19.1 | -90.71 | -157.0 | 672.7 | 1,401.0 | 1,361.2 | 39.79 | 35.211 | |
| 6,750.0 | 6,567.0 | 6,641.3 | 6,570.7 | 29.6 | 19.1 | -90.73 | -157.0 | 660.7 | 1,401.0 | 1,361.3 | 39.73 | 35.266 | |
| 6,800.0 | 6,614.5 | 6,692.6 | 6,619.6 | 29.6 | 19.0 | -90.74 | -157.0 | 645.2 | 1,401.0 | 1,361.4 | 39.62 | 35.363 | |
| 6,850.0 | 6,660.9 | 6,743.9 | 6,667.2 | 29.5 | 19.0 | -90.75 | -157.0 | 626.3 | 1,401.0 | 1,361.5 | 39.47 | 35.493 | |
| 6,900.0 | 6,705.9 | 6,795.2 | 6,713.4 | 29.4 | 18.9 | -90.75 | -157.0 | 604.0 | 1,401.0 | 1,361.7 | 39.30 | 35.646 | |
| 6,950.0 | 6,749.2 | 6,846.5 | 6,757.9 | 29.3 | 18.8 | -90.75 | -157.0 | 578.4 | 1,401.0 | 1,361.9 | 39.12 | 35.811 | |
| 7,000.0 | 6,790.7 | 6,897.8 | 6,800.4 | 29.2 | 18.7 | -90.74 | -157.0 | 549.7 | 1,401.0 | 1,362.0 | 38.95 | 35.971 | |
| 7,050.0 | 6,830.2 | 6,949.1 | 6,840.8 | 29.1 | 18.7 | -90.74 | -157.0 | 518.0 | 1,401.0 | 1,362.2 | 38.80 | 36.108 | |
| 7,100.0 | 6,867.4 | 7,000.4 | 6,878.7 | 29.0 | 18.7 | -90.72 | -157.0 | 483.6 | 1,401.0 | 1,362.3 | 38.70 | 36.204 | |
| 7,150.0 | 6,902.2 | 7,051.6 | 6,914.1 | 28.9 | 18.7 | -90.71 | -157.0 | 446.5 | 1,401.0 | 1,362.3 | 38.66 | 36.234 | |
| 7,200.0 | 6,934.4 | 7,102.8 | 6,946.8 | 28.7 | 18.7 | -90.69 | -157.0 | 407.1 | 1,401.0 | 1,362.3 | 38.72 | 36.180 | |
| 7,250.0 | 6,963.8 | 7,154.0 | 6,976.5 | 28.6 | 18.9 | -90.67 | -157.0 | 365.4 | 1,401.0 | 1,362.1 | 38.89 | 36.020 | |
| 7,300.0 | 6,990.4 | 7,205.2 | 7,003.1 | 28.5 | 19.1 | -90.64 | -157.0 | 321.7 | 1,401.0 | 1,361.8 | 39.20 | 35.742 | |
| 7,350.0 | 7,013.9 | 7,256.3 | 7,026.5 | 28.4 | 19.3 | -90.61 | -157.0 | 276.3 | 1,401.0 | 1,361.3 | 39.65 | 35.337 | |
| 7,400.0 | 7,034.4 | 7,307.3 | 7,046.6 | 28.2 | 19.7 | -90.58 | -157.0 | 229.5 | 1,400.9 | 1,360.7 | 40.25 | 34.805 | |
| 7,450.0 | 7,051.5 | 7,358.3 | 7,063.4 | 28.1 | 20.1 | -90.55 | -157.0 | 181.3 | 1,400.9 | 1,359.9 | 41.02 | 34.154 | |
| 7,500.0 | 7,065.4 | 7,409.2 | 7,076.6 | 28.0 | 20.7 | -90.51 | -157.0 | 132.1 | 1,400.9 | 1,359.0 | 41.95 | 33.399 | |
| 7,550.0 | 7,075.9 | 7,460.0 | 7,086.3 | 27.9 | 21.3 | -90.47 | -157.0 | 82.2 | 1,400.9 | 1,357.9 | 43.02 | 32.561 | |
| 7,600.0 | 7,082.9 | 7,510.8 | 7,092.4 | 27.8 | 21.9 | -90.43 | -157.0 | 31.9 | 1,400.9 | 1,356.7 | 44.24 | 31.665 | |
| 7,650.0 | 7,086.5 | 7,561.5 | 7,094.9 | 27.7 | 22.6 | -90.38 | -157.0 | -18.8 | 1,400.9 | 1,355.3 | 45.58 | 30.735 | |
| 7,677.7 | 7,087.0 | 7,589.3 | 7,095.0 | 27.6 | 23.1 | -90.37 | -157.0 | -46.6 | 1,400.9 | 1,354.5 | 46.37 | 30.213 | |
| 7,700.0 | 7,087.0 | 7,611.6 | 7,094.9 | 27.6 | 23.4 | -90.37 | -157.0 | -68.9 | 1,400.9 | 1,353.9 | 47.04 | 29.784 | |
| 7,800.0 | 7,086.8 | 7,711.6 | 7,094.7 | 27.5 | 25.1 | -90.36 | -157.0 | -168.9 | 1,400.9 | 1,350.6 | 50.27 | 27.869 | |
| 7,900.0 | 7,086.6 | 7,811.6 | 7,094.4 | 27.9 | 27.0 | -90.36 | -157.0 | -268.9 | 1,400.9 | 1,347.0 | 53.89 | 25.995 | |
| 8,000.0 | 7,086.4 | 7,911.6 | 7,094.2 | 29.5 | 29.0 | -90.36 | -157.0 | -368.9 | 1,400.9 | 1,343.1 | 57.83 | 24.223 | |
| 8,100.0 | 7,086.2 | 8,011.6 | 7,094.0 | 31.5 | 31.2 | -90.36 | -157.0 | -468.9 | 1,400.9 | 1,338.9 | 62.04 | 22.582 | |
| 8,185.9 | 7,086.0 | 8,097.5 | 7,093.8 | 33.4 | 33.1 | -90.36 | -157.0 | -554.8 | 1,400.9 | 1,335.1 | 65.82 | 21.285 | |
| 8,200.0 | 7,086.0 | 8,111.6 | 7,093.7 | 33.7 | 33.4 | -90.36 | -157.0 | -568.9 | 1,400.9 | 1,334.5 | 66.45 | 21.083 | |
| 8,300.0 | 7,085.8 | 8,211.6 | 7,093.5 | 36.0 | 35.8 | -90.36 | -157.0 | -668.9 | 1,400.9 | 1,329.9 | 71.03 | 19.723 | |
| 8,400.0 | 7,085.6 | 8,311.6 | 7,093.2 | 38.3 | 38.2 | -90.35 | -157.0 | -768.9 | 1,400.9 | 1,325.2 | 75.75 | 18.494 | |
| 8,500.0 | 7,085.4 | 8,411.6 | 7,093.0 | 40.7 | 40.6 | -90.35 | -157.0 | -868.9 | 1,400.9 | 1,320.3 | 80.59 | 17.384 | |
| 8,600.0 | 7,085.2 | 8,511.6 | 7,092.8 | 43.1 | 43.1 | -90.35 | -157.0 | -968.9 | 1,400.9 | 1,315.4 | 85.52 | 16.381 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-234 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.0 | 7,085.0 | 8,611.6 | 7,092.5 | 45.6 | 45.6 | -90.35 | -157.0 | -1,068.9 | 1,400.9 | 1,310.4 | 90.53 | 15.475 | |
| 8,800.0 | 7,084.8 | 8,711.6 | 7,092.3 | 48.1 | 48.2 | -90.35 | -157.0 | -1,168.9 | 1,400.9 | 1,305.3 | 95.61 | 14.652 | |
| 8,900.0 | 7,084.6 | 8,811.6 | 7,092.0 | 50.7 | 50.8 | -90.34 | -157.0 | -1,268.9 | 1,400.9 | 1,300.2 | 100.75 | 13.905 | |
| 9,000.0 | 7,084.4 | 8,911.6 | 7,091.8 | 53.2 | 53.4 | -90.34 | -157.0 | -1,368.9 | 1,400.9 | 1,295.0 | 105.93 | 13.225 | |
| 9,100.0 | 7,084.2 | 9,011.6 | 7,091.6 | 55.8 | 56.0 | -90.34 | -157.0 | -1,468.9 | 1,400.9 | 1,289.7 | 111.16 | 12.603 | |
| 9,200.0 | 7,084.0 | 9,111.6 | 7,091.3 | 58.4 | 58.7 | -90.34 | -157.0 | -1,568.9 | 1,400.9 | 1,284.5 | 116.42 | 12.033 | |
| 9,300.0 | 7,083.8 | 9,211.6 | 7,091.1 | 61.1 | 61.3 | -90.34 | -157.0 | -1,668.9 | 1,400.9 | 1,279.2 | 121.72 | 11.510 | |
| 9,400.0 | 7,083.7 | 9,311.6 | 7,090.8 | 63.7 | 64.0 | -90.33 | -157.0 | -1,768.9 | 1,400.9 | 1,273.9 | 127.04 | 11.027 | |
| 9,500.0 | 7,083.5 | 9,411.6 | 7,090.6 | 66.3 | 66.7 | -90.33 | -157.0 | -1,868.9 | 1,400.9 | 1,268.5 | 132.39 | 10.582 | |
| 9,600.0 | 7,083.3 | 9,511.6 | 7,090.3 | 69.0 | 69.4 | -90.33 | -157.0 | -1,968.9 | 1,400.9 | 1,263.2 | 137.75 | 10.170 | |
| 9,700.0 | 7,083.1 | 9,611.6 | 7,090.1 | 71.7 | 72.1 | -90.33 | -157.0 | -2,068.9 | 1,400.9 | 1,257.8 | 143.14 | 9.787 | |
| 9,800.0 | 7,082.9 | 9,711.6 | 7,089.9 | 74.4 | 74.8 | -90.33 | -157.0 | -2,168.9 | 1,400.9 | 1,252.4 | 148.55 | 9.431 | |
| 9,900.0 | 7,082.7 | 9,811.6 | 7,089.6 | 77.1 | 77.5 | -90.32 | -157.0 | -2,268.9 | 1,400.9 | 1,246.9 | 153.97 | 9.099 | |
| 10,000.0 | 7,082.5 | 9,911.6 | 7,089.4 | 79.7 | 80.2 | -90.32 | -157.0 | -2,368.9 | 1,400.9 | 1,241.5 | 159.40 | 8.789 | |
| 10,100.0 | 7,082.3 | 10,011.6 | 7,089.1 | 82.5 | 83.0 | -90.32 | -157.0 | -2,468.9 | 1,400.9 | 1,236.1 | 164.85 | 8.498 | |
| 10,200.0 | 7,082.1 | 10,111.6 | 7,088.9 | 85.2 | 85.7 | -90.32 | -157.0 | -2,568.9 | 1,400.9 | 1,230.6 | 170.30 | 8.226 | |
| 10,300.0 | 7,081.9 | 10,211.6 | 7,088.6 | 87.9 | 88.4 | -90.32 | -157.0 | -2,668.9 | 1,400.9 | 1,225.1 | 175.77 | 7.970 | |
| 10,400.0 | 7,081.7 | 10,311.6 | 7,088.4 | 90.6 | 91.2 | -90.32 | -157.0 | -2,768.9 | 1,400.9 | 1,219.7 | 181.25 | 7.729 | |
| 10,500.0 | 7,081.5 | 10,411.6 | 7,088.2 | 93.3 | 93.9 | -90.31 | -157.0 | -2,868.9 | 1,400.9 | 1,214.2 | 186.73 | 7.502 | |
| 10,600.0 | 7,081.3 | 10,511.6 | 7,087.9 | 96.1 | 96.7 | -90.31 | -157.0 | -2,968.9 | 1,400.9 | 1,208.7 | 192.22 | 7.288 | |
| 10,700.0 | 7,081.1 | 10,611.6 | 7,087.7 | 98.8 | 99.4 | -90.31 | -157.0 | -3,068.9 | 1,400.9 | 1,203.2 | 197.72 | 7.085 | |
| 10,800.0 | 7,080.9 | 10,711.6 | 7,087.4 | 101.5 | 102.2 | -90.31 | -157.0 | -3,168.9 | 1,400.9 | 1,197.7 | 203.23 | 6.893 | |
| 10,900.0 | 7,080.7 | 10,811.6 | 7,087.2 | 104.3 | 104.9 | -90.31 | -157.0 | -3,268.9 | 1,400.9 | 1,192.2 | 208.74 | 6.711 | |
| 11,000.0 | 7,080.5 | 10,911.6 | 7,086.9 | 107.0 | 107.7 | -90.30 | -157.0 | -3,368.9 | 1,400.9 | 1,186.7 | 214.26 | 6.538 | |
| 11,100.0 | 7,080.3 | 11,011.6 | 7,086.7 | 109.8 | 110.5 | -90.30 | -157.0 | -3,468.9 | 1,400.9 | 1,181.1 | 219.78 | 6.374 | |
| 11,200.0 | 7,080.1 | 11,111.6 | 7,086.4 | 112.5 | 113.2 | -90.30 | -157.0 | -3,568.9 | 1,400.9 | 1,175.6 | 225.31 | 6.218 | |
| 11,300.0 | 7,079.9 | 11,211.6 | 7,086.2 | 115.3 | 116.0 | -90.30 | -157.0 | -3,668.9 | 1,400.9 | 1,170.1 | 230.84 | 6.069 | |
| 11,400.0 | 7,079.7 | 11,311.6 | 7,085.9 | 118.0 | 118.8 | -90.30 | -157.0 | -3,768.9 | 1,400.9 | 1,164.6 | 236.37 | 5.927 | |
| 11,500.0 | 7,079.5 | 11,411.6 | 7,085.7 | 120.8 | 121.5 | -90.29 | -157.0 | -3,868.9 | 1,400.9 | 1,159.0 | 241.91 | 5.791 | |
| 11,600.0 | 7,079.3 | 11,511.6 | 7,085.4 | 123.6 | 124.3 | -90.29 | -157.0 | -3,968.9 | 1,400.9 | 1,153.5 | 247.46 | 5.661 | |
| 11,700.0 | 7,079.1 | 11,611.6 | 7,085.2 | 126.3 | 127.1 | -90.29 | -157.0 | -4,068.9 | 1,400.9 | 1,147.9 | 253.00 | 5.537 | |
| 11,753.2 | 7,079.0 | 11,664.8 | 7,085.1 | 127.8 | 128.6 | -90.29 | -157.0 | -4,122.1 | 1,400.9 | 1,145.0 | 255.95 | 5.473 | |
| 11,800.0 | 7,078.9 | 11,692.6 | 7,085.0 | 129.1 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,401.1 | 1,143.0 | 258.02 | 5.430 | |
| 11,900.0 | 7,078.7 | 11,692.6 | 7,085.0 | 131.9 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,406.0 | 1,145.2 | 260.80 | 5.391 | |
| 12,000.0 | 7,078.5 | 11,692.6 | 7,085.0 | 134.6 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,418.0 | 1,154.4 | 263.57 | 5.380 SF | |
| 12,100.0 | 7,078.3 | 11,692.6 | 7,085.0 | 137.4 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,436.8 | 1,170.5 | 266.35 | 5.394 | |
| 12,200.0 | 7,078.1 | 11,692.6 | 7,085.0 | 140.2 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,462.3 | 1,193.1 | 269.13 | 5.433 | |
| 12,300.0 | 7,077.9 | 11,692.6 | 7,085.0 | 142.9 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,494.0 | 1,222.1 | 271.91 | 5.495 | |
| 12,400.0 | 7,077.7 | 11,692.6 | 7,085.0 | 145.7 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,531.6 | 1,256.9 | 274.69 | 5.576 | |
| 12,500.0 | 7,077.5 | 11,692.6 | 7,085.0 | 148.5 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,574.7 | 1,297.2 | 277.47 | 5.675 | |
| 12,600.0 | 7,077.3 | 11,692.6 | 7,085.0 | 151.3 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,622.8 | 1,342.5 | 280.25 | 5.791 | |
| 12,700.0 | 7,077.1 | 11,692.6 | 7,085.0 | 154.0 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,675.5 | 1,392.5 | 283.03 | 5.920 | |
| 12,800.0 | 7,076.9 | 11,692.6 | 7,085.0 | 156.8 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,732.4 | 1,446.5 | 285.82 | 6.061 | |
| 12,900.0 | 7,076.7 | 11,692.6 | 7,085.0 | 159.6 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,793.0 | 1,504.4 | 288.60 | 6.213 | |
| 13,000.0 | 7,076.5 | 11,692.6 | 7,085.0 | 162.4 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,857.1 | 1,565.7 | 291.39 | 6.373 | |
| 13,100.0 | 7,076.3 | 11,692.6 | 7,085.0 | 165.2 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,924.2 | 1,630.0 | 294.18 | 6.541 | |
| 13,200.0 | 7,076.1 | 11,692.6 | 7,085.0 | 168.0 | 129.3 | -90.29 | -157.0 | -4,149.9 | 1,994.1 | 1,697.1 | 296.96 | 6.715 | |
| 13,300.0 | 7,075.9 | 11,692.6 | 7,085.0 | 170.7 | 129.3 | -90.29 | -157.0 | -4,149.9 | 2,066.4 | 1,766.7 | 299.75 | 6.894 | |
| 13,400.0 | 7,075.7 | 11,692.6 | 7,085.0 | 173.5 | 129.3 | -90.29 | -157.0 | -4,149.9 | 2,141.0 | 1,838.5 | 302.54 | 7.077 | |
| 13,500.0 | 7,075.5 | 11,692.6 | 7,085.0 | 176.3 | 129.3 | -90.29 | -157.0 | -4,149.9 | 2,217.6 | 1,912.3 | 305.33 | 7.263 | |
| 13,600.0 | 7,075.3 | 11,692.6 | 7,085.0 | 179.1 | 129.3 | -90.29 | -157.0 | -4,149.9 | 2,296.0 | 1,987.9 | 308.12 | 7.452 | |
| 13,700.0 | 7,075.1 | 11,692.6 | 7,085.0 | 181.9 | 129.3 | -90.29 | -157.0 | -4,149.9 | 2,376.0 | 2,065.1 | 310.91 | 7.642 | |

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|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-234 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.0 | 7,074.9 | 11,692.6 | 7,085.0 | 184.7 | 129.3 | -90.29 | -157.0 | -4,149.9 | 2,457.5 | 2,143.8 | 313.70 | 7.834 | |
| 13,900.0 | 7,074.7 | 11,692.6 | 7,085.0 | 187.5 | 129.3 | -90.29 | -157.0 | -4,149.9 | 2,540.3 | 2,223.8 | 316.49 | 8.026 | |
| 14,000.0 | 7,074.5 | 11,692.6 | 7,085.0 | 190.2 | 129.3 | -90.29 | -157.0 | -4,149.9 | 2,624.3 | 2,305.0 | 319.28 | 8.219 | |
| 14,100.0 | 7,074.2 | 11,692.6 | 7,085.0 | 193.0 | 129.3 | -90.29 | -157.0 | -4,149.9 | 2,709.3 | 2,387.3 | 322.08 | 8.412 | |
| 14,200.0 | 7,074.0 | 11,692.6 | 7,085.0 | 195.8 | 129.3 | -90.29 | -157.0 | -4,149.9 | 2,795.4 | 2,470.5 | 324.87 | 8.605 | |
| 14,221.4 | 7,074.0 | 11,692.6 | 7,085.0 | 196.4 | 129.3 | -90.29 | -157.0 | -4,149.9 | 2,813.9 | 2,488.5 | 325.47 | 8.646 | |

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|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-304 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -179.65 | -45.2 | -0.3 | 45.2 | | | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | -179.65 | -45.2 | -0.3 | 45.2 | 45.0 | 0.19 | 233.520 | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.3 | 0.3 | -179.65 | -45.2 | -0.3 | 45.2 | 44.5 | 0.64 | 70.398 | |
| 300.0 | 300.0 | 299.0 | 299.0 | 0.5 | 0.5 | -179.65 | -45.2 | -0.3 | 45.2 | 44.1 | 1.09 | 41.398 | |
| 400.0 | 400.0 | 399.0 | 399.0 | 0.8 | 0.8 | -179.65 | -45.2 | -0.3 | 45.2 | 43.6 | 1.54 | 29.320 | CC, ES |
| 500.0 | 500.0 | 499.0 | 499.0 | 1.0 | 1.0 | 153.00 | -45.2 | -0.3 | 46.7 | 44.7 | 1.99 | 23.456 | |
| 600.0 | 599.8 | 598.8 | 598.8 | 1.2 | 1.2 | 155.61 | -45.2 | -0.3 | 51.4 | 49.0 | 2.45 | 21.033 | |
| 700.0 | 699.5 | 698.5 | 698.5 | 1.5 | 1.4 | 159.02 | -45.2 | -0.3 | 59.5 | 56.6 | 2.90 | 20.501 | |
| 800.0 | 798.7 | 799.7 | 799.7 | 1.7 | 1.7 | 161.71 | -44.0 | 1.0 | 69.6 | 66.3 | 3.35 | 20.754 | |
| 900.0 | 897.5 | 901.3 | 901.1 | 2.0 | 1.9 | 162.97 | -40.3 | 4.8 | 80.3 | 76.5 | 3.81 | 21.095 | |
| 1,000.0 | 995.6 | 1,003.1 | 1,002.6 | 2.4 | 2.1 | 163.27 | -34.1 | 11.3 | 91.4 | 87.2 | 4.27 | 21.395 | |
| 1,100.0 | 1,093.1 | 1,105.3 | 1,104.0 | 2.8 | 2.4 | 162.91 | -25.4 | 20.4 | 103.0 | 98.2 | 4.76 | 21.619 | |
| 1,164.2 | 1,155.2 | 1,171.1 | 1,168.9 | 3.1 | 2.6 | 162.43 | -18.5 | 27.7 | 110.6 | 105.5 | 5.10 | 21.704 | |
| 1,200.0 | 1,189.7 | 1,207.8 | 1,205.2 | 3.2 | 2.7 | 162.08 | -14.2 | 32.2 | 114.7 | 109.4 | 5.29 | 21.672 | |
| 1,300.0 | 1,286.2 | 1,310.4 | 1,305.8 | 3.7 | 3.0 | 160.56 | -0.5 | 46.6 | 124.3 | 118.4 | 5.88 | 21.120 | |
| 1,400.0 | 1,382.6 | 1,410.0 | 1,403.2 | 4.2 | 3.4 | 158.91 | 13.8 | 61.6 | 132.8 | 126.3 | 6.51 | 20.389 | |
| 1,500.0 | 1,479.1 | 1,509.5 | 1,500.6 | 4.7 | 3.8 | 157.46 | 28.1 | 76.5 | 141.4 | 134.3 | 7.18 | 19.713 | |
| 1,600.0 | 1,575.6 | 1,609.1 | 1,598.0 | 5.3 | 4.2 | 156.18 | 42.4 | 91.5 | 150.2 | 142.3 | 7.86 | 19.108 | |
| 1,700.0 | 1,672.0 | 1,708.7 | 1,695.4 | 5.8 | 4.6 | 155.03 | 56.7 | 106.5 | 158.9 | 150.4 | 8.56 | 18.559 | |
| 1,800.0 | 1,768.5 | 1,808.2 | 1,792.7 | 6.3 | 5.0 | 154.01 | 71.0 | 121.5 | 167.8 | 158.5 | 9.29 | 18.066 | |
| 1,900.0 | 1,864.9 | 1,907.8 | 1,890.1 | 6.8 | 5.4 | 153.09 | 85.2 | 136.4 | 176.6 | 166.6 | 10.02 | 17.624 | |
| 2,000.0 | 1,961.4 | 2,007.4 | 1,987.5 | 7.4 | 5.8 | 152.26 | 99.5 | 151.4 | 185.6 | 174.8 | 10.77 | 17.226 | |
| 2,100.0 | 2,057.9 | 2,106.9 | 2,084.9 | 7.9 | 6.3 | 151.51 | 113.8 | 166.4 | 194.5 | 183.0 | 11.53 | 16.868 | |
| 2,200.0 | 2,154.3 | 2,206.5 | 2,182.3 | 8.4 | 6.7 | 150.82 | 128.1 | 181.4 | 203.5 | 191.2 | 12.30 | 16.544 | |
| 2,300.0 | 2,250.8 | 2,306.1 | 2,279.7 | 9.0 | 7.1 | 150.19 | 142.4 | 196.3 | 212.5 | 199.4 | 13.08 | 16.251 | |
| 2,400.0 | 2,347.3 | 2,405.6 | 2,377.1 | 9.5 | 7.6 | 149.61 | 156.7 | 211.3 | 221.5 | 207.7 | 13.86 | 15.985 | |
| 2,500.0 | 2,443.7 | 2,505.2 | 2,474.5 | 10.0 | 8.0 | 149.08 | 170.9 | 226.3 | 230.6 | 216.0 | 14.65 | 15.742 | |
| 2,600.0 | 2,540.2 | 2,604.8 | 2,571.9 | 10.6 | 8.4 | 148.59 | 185.2 | 241.3 | 239.7 | 224.2 | 15.44 | 15.520 | |
| 2,700.0 | 2,636.7 | 2,704.3 | 2,669.3 | 11.1 | 8.9 | 148.13 | 199.5 | 256.3 | 248.8 | 232.5 | 16.24 | 15.317 | |
| 2,800.0 | 2,733.1 | 2,803.9 | 2,766.7 | 11.6 | 9.3 | 147.70 | 213.8 | 271.2 | 257.9 | 240.8 | 17.04 | 15.130 | |
| 2,900.0 | 2,829.6 | 2,903.5 | 2,864.1 | 12.2 | 9.7 | 147.31 | 228.1 | 286.2 | 267.0 | 249.1 | 17.85 | 14.958 | |
| 3,000.0 | 2,926.0 | 3,003.0 | 2,961.5 | 12.7 | 10.2 | 146.94 | 242.4 | 301.2 | 276.1 | 257.5 | 18.66 | 14.799 | |
| 3,100.0 | 3,022.5 | 3,102.6 | 3,058.8 | 13.2 | 10.6 | 146.59 | 256.7 | 316.2 | 285.3 | 265.8 | 19.47 | 14.651 | |
| 3,200.0 | 3,119.0 | 3,202.2 | 3,156.2 | 13.8 | 11.1 | 146.27 | 270.9 | 331.1 | 294.4 | 274.1 | 20.28 | 14.514 | |
| 3,300.0 | 3,215.4 | 3,301.7 | 3,253.6 | 14.3 | 11.5 | 145.96 | 285.2 | 346.1 | 303.6 | 282.5 | 21.10 | 14.386 | |
| 3,400.0 | 3,311.9 | 3,401.3 | 3,351.0 | 14.9 | 12.0 | 145.68 | 299.5 | 361.1 | 312.7 | 290.8 | 21.92 | 14.267 | |
| 3,500.0 | 3,408.4 | 3,500.9 | 3,448.4 | 15.4 | 12.4 | 145.41 | 313.8 | 376.1 | 321.9 | 299.2 | 22.74 | 14.156 | |
| 3,600.0 | 3,504.8 | 3,600.4 | 3,545.8 | 15.9 | 12.8 | 145.15 | 328.1 | 391.0 | 331.1 | 307.5 | 23.56 | 14.052 | |
| 3,700.0 | 3,601.3 | 3,700.0 | 3,643.2 | 16.5 | 13.3 | 144.91 | 342.4 | 406.0 | 340.3 | 315.9 | 24.38 | 13.954 | |
| 3,800.0 | 3,697.7 | 3,799.6 | 3,740.6 | 17.0 | 13.7 | 144.68 | 356.7 | 421.0 | 349.5 | 324.3 | 25.21 | 13.862 | |
| 3,900.0 | 3,794.2 | 3,899.1 | 3,838.0 | 17.5 | 14.2 | 144.46 | 370.9 | 436.0 | 358.7 | 332.6 | 26.04 | 13.776 | |
| 4,000.0 | 3,890.7 | 3,998.7 | 3,935.4 | 18.1 | 14.6 | 144.25 | 385.2 | 450.9 | 367.9 | 341.0 | 26.86 | 13.694 | |
| 4,100.0 | 3,987.1 | 4,098.3 | 4,032.8 | 18.6 | 15.1 | 144.06 | 399.5 | 465.9 | 377.1 | 349.4 | 27.69 | 13.617 | |
| 4,200.0 | 4,083.6 | 4,197.8 | 4,130.2 | 19.2 | 15.5 | 143.87 | 413.8 | 480.9 | 386.3 | 357.8 | 28.52 | 13.544 | |
| 4,300.0 | 4,180.1 | 4,297.4 | 4,227.6 | 19.7 | 16.0 | 143.69 | 428.1 | 495.9 | 395.5 | 366.2 | 29.35 | 13.475 | |
| 4,400.0 | 4,276.5 | 4,397.0 | 4,324.9 | 20.2 | 16.4 | 143.52 | 442.4 | 510.8 | 404.7 | 374.5 | 30.18 | 13.409 | |
| 4,500.0 | 4,373.0 | 4,496.5 | 4,422.3 | 20.8 | 16.9 | 143.36 | 456.6 | 525.8 | 413.9 | 382.9 | 31.01 | 13.347 | |
| 4,600.0 | 4,469.5 | 4,596.1 | 4,519.7 | 21.3 | 17.3 | 143.20 | 470.9 | 540.8 | 423.2 | 391.3 | 31.85 | 13.288 | |
| 4,700.0 | 4,565.9 | 4,695.7 | 4,617.1 | 21.9 | 17.7 | 143.06 | 485.2 | 555.8 | 432.4 | 399.7 | 32.68 | 13.231 | |
| 4,800.0 | 4,662.4 | 4,795.2 | 4,714.5 | 22.4 | 18.2 | 142.91 | 499.5 | 570.8 | 441.6 | 408.1 | 33.51 | 13.178 | |
| 4,900.0 | 4,758.8 | 4,894.8 | 4,811.9 | 22.9 | 18.6 | 142.78 | 513.8 | 585.7 | 450.9 | 416.5 | 34.35 | 13.126 | |
| 5,000.0 | 4,855.3 | 4,994.4 | 4,909.3 | 23.5 | 19.1 | 142.64 | 528.1 | 600.7 | 460.1 | 424.9 | 35.18 | 13.077 | |

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|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-304 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 5,093.9 | 5,006.7 | 24.0 | 19.5 | 142.52 | 542.4 | 615.7 | 469.3 | 433.3 | 36.02 | 13.031 | |
| 5,200.0 | 5,048.2 | 5,193.5 | 5,104.1 | 24.6 | 20.0 | 142.40 | 556.6 | 630.7 | 478.6 | 441.7 | 36.85 | 12.986 | |
| 5,300.0 | 5,144.7 | 5,286.7 | 5,195.4 | 25.1 | 20.4 | 142.36 | 569.5 | 644.1 | 488.3 | 450.7 | 37.60 | 12.985 | |
| 5,400.0 | 5,241.2 | 5,377.1 | 5,284.5 | 25.6 | 20.6 | 142.59 | 580.1 | 655.3 | 499.7 | 461.5 | 38.19 | 13.085 | |
| 5,500.0 | 5,337.6 | 5,466.9 | 5,373.4 | 26.2 | 20.9 | 143.06 | 588.7 | 664.3 | 513.0 | 474.3 | 38.67 | 13.267 | |
| 5,600.0 | 5,434.1 | 5,556.0 | 5,462.0 | 26.7 | 21.1 | 143.76 | 595.4 | 671.2 | 528.1 | 489.1 | 39.04 | 13.526 | |
| 5,700.0 | 5,530.5 | 5,644.2 | 5,550.0 | 27.3 | 21.3 | 144.65 | 600.1 | 676.2 | 545.2 | 505.8 | 39.32 | 13.863 | |
| 5,757.1 | 5,585.6 | 5,694.2 | 5,599.8 | 27.6 | 21.3 | 145.23 | 601.9 | 678.1 | 555.8 | 516.3 | 39.45 | 14.089 | |
| 5,800.0 | 5,627.1 | 5,731.5 | 5,637.1 | 27.8 | 21.4 | 145.78 | 602.9 | 679.1 | 564.0 | 524.5 | 39.50 | 14.278 | |
| 5,900.0 | 5,724.4 | 5,818.2 | 5,723.8 | 28.2 | 21.5 | 147.01 | 603.8 | 680.1 | 582.5 | 542.9 | 39.54 | 14.730 | |
| 6,000.0 | 5,822.4 | 5,915.8 | 5,821.4 | 28.5 | 21.6 | 148.21 | 603.8 | 680.1 | 599.3 | 559.7 | 39.56 | 15.149 | |
| 6,100.0 | 5,921.0 | 6,014.4 | 5,920.0 | 28.8 | 21.8 | 149.16 | 603.8 | 680.1 | 613.3 | 573.7 | 39.62 | 15.478 | |
| 6,200.0 | 6,020.2 | 6,113.6 | 6,019.2 | 29.0 | 21.9 | 149.88 | 603.8 | 680.1 | 624.5 | 584.8 | 39.72 | 15.722 | |
| 6,300.0 | 6,119.7 | 6,213.1 | 6,118.7 | 29.3 | 22.0 | 150.39 | 603.8 | 680.1 | 632.7 | 592.9 | 39.84 | 15.882 | |
| 6,400.0 | 6,219.5 | 6,312.9 | 6,218.5 | 29.4 | 22.1 | 150.71 | 603.8 | 680.1 | 637.9 | 597.9 | 39.97 | 15.958 | |
| 6,500.0 | 6,319.5 | 6,412.9 | 6,318.5 | 29.5 | 22.3 | 150.84 | 603.8 | 680.1 | 640.1 | 599.9 | 40.12 | 15.952 | |
| 6,521.3 | 6,340.8 | 6,434.2 | 6,339.8 | 29.6 | 22.3 | 179.18 | 603.8 | 680.1 | 640.1 | 594.4 | 45.71 | 14.004 | |
| 6,551.3 | 6,370.8 | 6,464.2 | 6,369.8 | 29.6 | 22.3 | 179.18 | 603.8 | 680.1 | 640.1 | 594.4 | 45.79 | 13.981 | |
| 6,600.0 | 6,419.5 | 6,512.9 | 6,418.5 | 29.6 | 22.4 | -90.96 | 603.8 | 680.1 | 640.2 | 599.7 | 40.42 | 15.836 | |
| 6,650.0 | 6,469.2 | 6,562.6 | 6,468.2 | 29.6 | 22.5 | -91.41 | 603.8 | 680.1 | 640.3 | 599.6 | 40.67 | 15.742 | |
| 6,700.0 | 6,518.4 | 6,613.1 | 6,518.7 | 29.6 | 22.5 | -92.08 | 603.8 | 679.1 | 640.5 | 599.6 | 40.94 | 15.644 | |
| 6,750.0 | 6,567.0 | 6,664.5 | 6,569.9 | 29.6 | 22.6 | -92.75 | 603.8 | 674.4 | 640.8 | 599.7 | 41.15 | 15.575 | |
| 6,800.0 | 6,614.5 | 6,716.5 | 6,621.1 | 29.6 | 22.6 | -93.41 | 603.8 | 666.0 | 641.2 | 600.0 | 41.28 | 15.535 | |
| 6,850.0 | 6,660.9 | 6,769.0 | 6,672.2 | 29.5 | 22.5 | -94.06 | 603.8 | 653.8 | 641.7 | 600.4 | 41.34 | 15.525 | |
| 6,900.0 | 6,705.9 | 6,822.2 | 6,722.9 | 29.4 | 22.5 | -94.69 | 603.8 | 637.6 | 642.3 | 600.9 | 41.33 | 15.541 | |
| 6,950.0 | 6,749.2 | 6,876.0 | 6,772.7 | 29.3 | 22.4 | -95.29 | 603.8 | 617.5 | 642.9 | 601.6 | 41.26 | 15.582 | |
| 7,000.0 | 6,790.7 | 6,930.3 | 6,821.4 | 29.2 | 22.3 | -95.88 | 603.8 | 593.4 | 643.5 | 602.4 | 41.14 | 15.643 | |
| 7,050.0 | 6,830.2 | 6,985.3 | 6,868.7 | 29.1 | 22.2 | -96.44 | 603.8 | 565.4 | 644.2 | 603.2 | 40.98 | 15.719 | |
| 7,100.0 | 6,867.4 | 7,040.8 | 6,914.1 | 29.0 | 22.0 | -96.96 | 603.8 | 533.4 | 644.9 | 604.1 | 40.81 | 15.800 | |
| 7,150.0 | 6,902.2 | 7,096.8 | 6,957.3 | 28.9 | 21.9 | -97.45 | 603.8 | 497.7 | 645.6 | 604.9 | 40.66 | 15.879 | |
| 7,200.0 | 6,934.4 | 7,153.4 | 6,997.9 | 28.7 | 21.8 | -97.90 | 603.8 | 458.4 | 646.3 | 605.7 | 40.54 | 15.941 | |
| 7,250.0 | 6,963.8 | 7,210.5 | 7,035.7 | 28.6 | 21.6 | -98.31 | 603.8 | 415.6 | 646.9 | 606.4 | 40.50 | 15.974 | |
| 7,300.0 | 6,990.4 | 7,268.1 | 7,070.1 | 28.5 | 21.5 | -98.67 | 603.8 | 369.5 | 647.5 | 607.0 | 40.56 | 15.965 | |
| 7,350.0 | 7,013.9 | 7,326.0 | 7,101.0 | 28.4 | 21.4 | -98.99 | 603.8 | 320.5 | 648.1 | 607.3 | 40.76 | 15.900 | |
| 7,400.0 | 7,034.4 | 7,384.3 | 7,127.9 | 28.2 | 21.4 | -99.26 | 603.8 | 268.8 | 648.5 | 607.4 | 41.12 | 15.771 | |
| 7,450.0 | 7,051.5 | 7,442.9 | 7,150.6 | 28.1 | 21.4 | -99.47 | 603.8 | 214.8 | 648.9 | 607.3 | 41.67 | 15.573 | |
| 7,500.0 | 7,065.4 | 7,501.7 | 7,168.9 | 28.0 | 21.5 | -99.63 | 603.8 | 158.9 | 649.2 | 606.8 | 42.42 | 15.305 | |
| 7,550.0 | 7,075.9 | 7,560.7 | 7,182.7 | 27.9 | 21.7 | -99.73 | 603.8 | 101.6 | 649.4 | 606.0 | 43.38 | 14.971 | |
| 7,600.0 | 7,082.9 | 7,619.8 | 7,191.6 | 27.8 | 22.1 | -99.78 | 603.8 | 43.2 | 649.5 | 605.0 | 44.53 | 14.585 | |
| 7,650.0 | 7,086.5 | 7,678.9 | 7,195.7 | 27.7 | 22.6 | -99.77 | 603.8 | -15.8 | 649.5 | 603.6 | 45.86 | 14.162 | |
| 7,677.7 | 7,087.0 | 7,710.2 | 7,196.0 | 27.6 | 23.0 | -99.75 | 603.8 | -47.0 | 649.5 | 602.8 | 46.65 | 13.922 | |
| 7,700.0 | 7,087.0 | 7,732.5 | 7,195.9 | 27.6 | 23.3 | -99.74 | 603.8 | -69.3 | 649.4 | 602.1 | 47.30 | 13.731 | |
| 7,800.0 | 7,086.8 | 7,832.5 | 7,195.5 | 27.5 | 24.8 | -99.72 | 603.8 | -169.3 | 649.4 | 599.0 | 50.41 | 12.883 | |
| 7,900.0 | 7,086.6 | 7,932.5 | 7,195.0 | 27.9 | 26.6 | -99.71 | 603.8 | -269.3 | 649.4 | 595.5 | 53.90 | 12.048 | |
| 8,000.0 | 7,086.4 | 8,032.5 | 7,194.6 | 29.5 | 28.6 | -99.69 | 603.8 | -369.3 | 649.3 | 591.6 | 57.72 | 11.250 | |
| 8,100.0 | 7,086.2 | 8,132.5 | 7,194.2 | 31.5 | 30.8 | -99.67 | 603.8 | -469.3 | 649.3 | 587.5 | 61.81 | 10.505 | |
| 8,200.0 | 7,086.0 | 8,232.5 | 7,193.8 | 33.7 | 33.0 | -99.65 | 603.8 | -569.3 | 649.3 | 583.2 | 66.11 | 9.821 | |
| 8,300.0 | 7,085.8 | 8,332.5 | 7,193.4 | 36.0 | 35.3 | -99.63 | 603.8 | -669.3 | 649.2 | 578.6 | 70.58 | 9.198 | |
| 8,400.0 | 7,085.6 | 8,432.5 | 7,193.0 | 38.3 | 37.7 | -99.61 | 603.8 | -769.3 | 649.2 | 574.0 | 75.20 | 8.632 | |
| 8,500.0 | 7,085.4 | 8,532.5 | 7,192.6 | 40.7 | 40.1 | -99.59 | 603.8 | -869.3 | 649.1 | 569.2 | 79.94 | 8.120 | |
| 8,600.0 | 7,085.2 | 8,632.5 | 7,192.1 | 43.1 | 42.6 | -99.57 | 603.8 | -969.3 | 649.1 | 564.3 | 84.78 | 7.657 | |
| 8,700.0 | 7,085.0 | 8,732.5 | 7,191.7 | 45.6 | 45.1 | -99.55 | 603.8 | -1,069.3 | 649.1 | 559.4 | 89.70 | 7.236 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-304 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.0 | 7,084.8 | 8,832.5 | 7,191.3 | 48.1 | 47.7 | -99.53 | 603.8 | -1,169.3 | 649.0 | 554.3 | 94.69 | 6.854 | |
| 8,900.0 | 7,084.6 | 8,932.5 | 7,190.9 | 50.7 | 50.2 | -99.51 | 603.8 | -1,269.3 | 649.0 | 549.3 | 99.74 | 6.507 | |
| 9,000.0 | 7,084.4 | 9,032.5 | 7,190.5 | 53.2 | 52.8 | -99.50 | 603.8 | -1,369.3 | 649.0 | 544.1 | 104.84 | 6.190 | |
| 9,100.0 | 7,084.2 | 9,132.5 | 7,190.1 | 55.8 | 55.5 | -99.48 | 603.8 | -1,469.3 | 648.9 | 538.9 | 109.98 | 5.900 | |
| 9,200.0 | 7,084.0 | 9,232.5 | 7,189.7 | 58.4 | 58.1 | -99.46 | 603.8 | -1,569.3 | 648.9 | 533.7 | 115.17 | 5.634 | |
| 9,300.0 | 7,083.8 | 9,332.5 | 7,189.3 | 61.1 | 60.7 | -99.44 | 603.8 | -1,669.3 | 648.9 | 528.5 | 120.38 | 5.390 | |
| 9,400.0 | 7,083.7 | 9,432.5 | 7,188.8 | 63.7 | 63.4 | -99.42 | 603.8 | -1,769.3 | 648.8 | 523.2 | 125.63 | 5.165 | |
| 9,500.0 | 7,083.5 | 9,532.5 | 7,188.4 | 66.3 | 66.1 | -99.40 | 603.8 | -1,869.3 | 648.8 | 517.9 | 130.90 | 4.956 | |
| 9,600.0 | 7,083.3 | 9,632.5 | 7,188.0 | 69.0 | 68.8 | -99.38 | 603.8 | -1,969.3 | 648.8 | 512.6 | 136.20 | 4.763 | |
| 9,700.0 | 7,083.1 | 9,732.5 | 7,187.6 | 71.7 | 71.5 | -99.36 | 603.8 | -2,069.3 | 648.7 | 507.2 | 141.51 | 4.584 | |
| 9,800.0 | 7,082.9 | 9,832.5 | 7,187.2 | 74.4 | 74.2 | -99.34 | 603.8 | -2,169.3 | 648.7 | 501.8 | 146.84 | 4.417 | |
| 9,900.0 | 7,082.7 | 9,932.5 | 7,186.8 | 77.1 | 76.9 | -99.33 | 603.8 | -2,269.3 | 648.6 | 496.5 | 152.19 | 4.262 | |
| 10,000.0 | 7,082.5 | 10,032.5 | 7,186.4 | 79.7 | 79.6 | -99.31 | 603.8 | -2,369.3 | 648.6 | 491.1 | 157.56 | 4.117 | |
| 10,100.0 | 7,082.3 | 10,132.5 | 7,186.0 | 82.5 | 82.3 | -99.29 | 603.8 | -2,469.3 | 648.6 | 485.6 | 162.94 | 3.981 | |
| 10,200.0 | 7,082.1 | 10,232.5 | 7,185.5 | 85.2 | 85.0 | -99.27 | 603.8 | -2,569.3 | 648.5 | 480.2 | 168.33 | 3.853 | |
| 10,300.0 | 7,081.9 | 10,332.5 | 7,185.1 | 87.9 | 87.8 | -99.25 | 603.8 | -2,669.3 | 648.5 | 474.8 | 173.73 | 3.733 | |
| 10,400.0 | 7,081.7 | 10,432.5 | 7,184.7 | 90.6 | 90.5 | -99.23 | 603.8 | -2,769.3 | 648.5 | 469.3 | 179.14 | 3.620 | |
| 10,500.0 | 7,081.5 | 10,532.5 | 7,184.3 | 93.3 | 93.3 | -99.21 | 603.8 | -2,869.3 | 648.4 | 463.9 | 184.56 | 3.513 | |
| 10,600.0 | 7,081.3 | 10,632.5 | 7,183.9 | 96.1 | 96.0 | -99.19 | 603.8 | -2,969.3 | 648.4 | 458.4 | 189.99 | 3.413 | |
| 10,700.0 | 7,081.1 | 10,732.5 | 7,183.5 | 98.8 | 98.8 | -99.18 | 603.8 | -3,069.3 | 648.4 | 452.9 | 195.42 | 3.318 | |
| 10,800.0 | 7,080.9 | 10,832.5 | 7,183.1 | 101.5 | 101.5 | -99.16 | 603.8 | -3,169.3 | 648.3 | 447.5 | 200.87 | 3.228 | |
| 10,900.0 | 7,080.7 | 10,932.5 | 7,182.7 | 104.3 | 104.3 | -99.14 | 603.8 | -3,269.3 | 648.3 | 442.0 | 206.32 | 3.142 | |
| 11,000.0 | 7,080.5 | 11,032.5 | 7,182.2 | 107.0 | 107.0 | -99.12 | 603.8 | -3,369.3 | 648.3 | 436.5 | 211.77 | 3.061 | |
| 11,100.0 | 7,080.3 | 11,132.5 | 7,181.8 | 109.8 | 109.8 | -99.10 | 603.8 | -3,469.3 | 648.2 | 431.0 | 217.24 | 2.984 | |
| 11,200.0 | 7,080.1 | 11,232.5 | 7,181.4 | 112.5 | 112.5 | -99.08 | 603.8 | -3,569.3 | 648.2 | 425.5 | 222.71 | 2.911 | |
| 11,300.0 | 7,079.9 | 11,332.5 | 7,181.0 | 115.3 | 115.3 | -99.06 | 603.8 | -3,669.3 | 648.2 | 420.0 | 228.18 | 2.841 | |
| 11,400.0 | 7,079.7 | 11,432.5 | 7,180.6 | 118.0 | 118.1 | -99.05 | 603.8 | -3,769.3 | 648.1 | 414.5 | 233.66 | 2.774 | |
| 11,500.0 | 7,079.5 | 11,532.5 | 7,180.2 | 120.8 | 120.8 | -99.03 | 603.8 | -3,869.3 | 648.1 | 409.0 | 239.14 | 2.710 | |
| 11,600.0 | 7,079.3 | 11,632.5 | 7,179.8 | 123.6 | 123.6 | -99.01 | 603.8 | -3,969.3 | 648.1 | 403.4 | 244.62 | 2.649 | |
| 11,700.0 | 7,079.1 | 11,732.5 | 7,179.4 | 126.3 | 126.4 | -98.99 | 603.8 | -4,069.3 | 648.0 | 397.9 | 250.11 | 2.591 | |
| 11,800.0 | 7,078.9 | 11,832.5 | 7,178.9 | 129.1 | 129.2 | -98.97 | 603.8 | -4,169.3 | 648.0 | 392.4 | 255.61 | 2.535 | |
| 11,900.0 | 7,078.7 | 11,932.5 | 7,178.5 | 131.9 | 131.9 | -98.95 | 603.8 | -4,269.3 | 648.0 | 386.9 | 261.11 | 2.482 | |
| 12,000.0 | 7,078.5 | 12,032.5 | 7,178.1 | 134.6 | 134.7 | -98.93 | 603.8 | -4,369.3 | 647.9 | 381.3 | 266.61 | 2.430 | |
| 12,100.0 | 7,078.3 | 12,132.5 | 7,177.7 | 137.4 | 137.5 | -98.92 | 603.8 | -4,469.3 | 647.9 | 375.8 | 272.11 | 2.381 | |
| 12,200.0 | 7,078.1 | 12,232.5 | 7,177.3 | 140.2 | 140.3 | -98.90 | 603.8 | -4,569.3 | 647.9 | 370.3 | 277.62 | 2.334 | |
| 12,300.0 | 7,077.9 | 12,332.5 | 7,176.9 | 142.9 | 143.1 | -98.88 | 603.8 | -4,669.3 | 647.8 | 364.7 | 283.13 | 2.288 | |
| 12,400.0 | 7,077.7 | 12,432.5 | 7,176.5 | 145.7 | 145.8 | -98.86 | 603.8 | -4,769.3 | 647.8 | 359.2 | 288.64 | 2.244 | |
| 12,500.0 | 7,077.5 | 12,532.5 | 7,176.1 | 148.5 | 148.6 | -98.84 | 603.8 | -4,869.3 | 647.8 | 353.6 | 294.15 | 2.202 | |
| 12,600.0 | 7,077.3 | 12,632.5 | 7,175.7 | 151.3 | 151.4 | -98.82 | 603.8 | -4,969.3 | 647.7 | 348.1 | 299.67 | 2.162 | |
| 12,700.0 | 7,077.1 | 12,732.5 | 7,175.2 | 154.0 | 154.2 | -98.81 | 603.8 | -5,069.3 | 647.7 | 342.5 | 305.19 | 2.122 | |
| 12,800.0 | 7,076.9 | 12,832.5 | 7,174.8 | 156.8 | 157.0 | -98.79 | 603.8 | -5,169.3 | 647.7 | 337.0 | 310.71 | 2.085 | |
| 12,900.0 | 7,076.7 | 12,932.5 | 7,174.4 | 159.6 | 159.8 | -98.77 | 603.8 | -5,269.3 | 647.7 | 331.4 | 316.24 | 2.048 | |
| 13,000.0 | 7,076.5 | 13,032.5 | 7,174.0 | 162.4 | 162.5 | -98.75 | 603.8 | -5,369.3 | 647.6 | 325.9 | 321.76 | 2.013 | |
| 13,100.0 | 7,076.3 | 13,132.5 | 7,173.6 | 165.2 | 165.3 | -98.73 | 603.8 | -5,469.3 | 647.6 | 320.3 | 327.29 | 1.979 | |
| 13,200.0 | 7,076.1 | 13,232.5 | 7,173.2 | 168.0 | 168.1 | -98.71 | 603.8 | -5,569.3 | 647.6 | 314.7 | 332.82 | 1.946 | |
| 13,300.0 | 7,075.9 | 13,332.5 | 7,172.8 | 170.7 | 170.9 | -98.70 | 603.8 | -5,669.3 | 647.5 | 309.2 | 338.35 | 1.914 | |
| 13,400.0 | 7,075.7 | 13,432.5 | 7,172.4 | 173.5 | 173.7 | -98.68 | 603.8 | -5,769.3 | 647.5 | 303.6 | 343.89 | 1.883 | |
| 13,500.0 | 7,075.5 | 13,532.5 | 7,172.0 | 176.3 | 176.5 | -98.66 | 603.8 | -5,869.3 | 647.5 | 298.0 | 349.42 | 1.853 | |
| 13,600.0 | 7,075.3 | 13,632.5 | 7,171.5 | 179.1 | 179.3 | -98.64 | 603.8 | -5,969.3 | 647.4 | 292.5 | 354.96 | 1.824 | |
| 13,700.0 | 7,075.1 | 13,732.5 | 7,171.1 | 181.9 | 182.1 | -98.62 | 603.8 | -6,069.3 | 647.4 | 286.9 | 360.50 | 1.796 | |
| 13,800.0 | 7,074.9 | 13,832.5 | 7,170.7 | 184.7 | 184.9 | -98.61 | 603.8 | -6,169.3 | 647.4 | 281.3 | 366.04 | 1.769 | |
| 13,900.0 | 7,074.7 | 13,932.5 | 7,170.3 | 187.5 | 187.7 | -98.59 | 603.8 | -6,269.3 | 647.3 | 275.8 | 371.58 | 1.742 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-304 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000.0 | 7,074.5 | 14,032.5 | 7,169.9 | 190.2 | 190.4 | -98.57 | 603.8 | -6,369.3 | 647.3 | 270.2 | 377.12 | 1.716 | |
| 14,100.0 | 7,074.2 | 14,132.5 | 7,169.5 | 193.0 | 193.2 | -98.55 | 603.8 | -6,469.3 | 647.3 | 264.6 | 382.66 | 1.692 | |
| 14,200.0 | 7,074.0 | 14,232.5 | 7,169.1 | 195.8 | 196.0 | -98.53 | 603.8 | -6,569.3 | 647.2 | 259.0 | 388.21 | 1.667 | |
| 14,220.8 | 7,074.0 | 14,253.2 | 7,169.0 | 196.4 | 196.6 | -98.53 | 603.8 | -6,590.0 | 647.2 | 257.9 | 389.36 | 1.662 | |
| 14,221.4 | 7,074.0 | 14,253.6 | 7,169.0 | 196.4 | 196.6 | -98.53 | 603.8 | -6,590.4 | 647.2 | 257.9 | 389.39 | 1.662 | SF |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-314 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -180.00 | -14.9 | 0.0 | 14.9 | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -180.00 | -14.9 | 0.0 | 14.9 | 14.7 | 0.19 | 76.825 | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -180.00 | -14.9 | 0.0 | 14.9 | 14.3 | 0.64 | 23.195 | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | -180.00 | -14.9 | 0.0 | 14.9 | 13.8 | 1.09 | 13.660 | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -180.00 | -14.9 | 0.0 | 14.9 | 13.4 | 1.54 | 9.680 | CC |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 154.52 | -14.9 | 0.0 | 16.5 | 14.5 | 1.99 | 8.270 | |
| 600.0 | 599.8 | 600.5 | 600.5 | 1.2 | 1.2 | 158.54 | -13.5 | 0.9 | 19.7 | 17.3 | 2.44 | 8.077 | |
| 700.0 | 699.5 | 701.1 | 700.9 | 1.5 | 1.5 | 160.80 | -9.0 | 3.8 | 23.1 | 20.2 | 2.89 | 7.994 | |
| 800.0 | 798.7 | 801.9 | 801.3 | 1.7 | 1.7 | 161.95 | -1.5 | 8.5 | 26.6 | 23.3 | 3.35 | 7.943 | |
| 900.0 | 897.5 | 902.7 | 901.4 | 2.0 | 2.0 | 162.35 | 8.9 | 15.2 | 30.2 | 26.4 | 3.82 | 7.896 | |
| 1,000.0 | 995.6 | 1,003.7 | 1,001.1 | 2.4 | 2.3 | 162.23 | 22.3 | 23.7 | 33.8 | 29.5 | 4.31 | 7.838 | |
| 1,100.0 | 1,093.1 | 1,104.8 | 1,100.3 | 2.8 | 2.6 | 161.75 | 38.7 | 34.2 | 37.4 | 32.6 | 4.82 | 7.759 | |
| 1,164.2 | 1,155.2 | 1,169.7 | 1,163.7 | 3.1 | 2.9 | 161.30 | 50.8 | 41.9 | 39.8 | 34.6 | 5.17 | 7.696 | |
| 1,200.0 | 1,189.7 | 1,205.5 | 1,198.5 | 3.2 | 3.0 | 161.05 | 57.8 | 46.3 | 41.1 | 35.8 | 5.38 | 7.647 | |
| 1,300.0 | 1,286.2 | 1,305.5 | 1,295.7 | 3.7 | 3.4 | 160.42 | 77.3 | 58.8 | 44.9 | 38.9 | 5.98 | 7.510 | |
| 1,400.0 | 1,382.6 | 1,405.4 | 1,392.9 | 4.2 | 3.9 | 159.89 | 96.8 | 71.2 | 48.6 | 42.0 | 6.59 | 7.379 | |
| 1,500.0 | 1,479.1 | 1,505.3 | 1,490.1 | 4.7 | 4.3 | 159.43 | 116.3 | 83.6 | 52.4 | 45.2 | 7.22 | 7.259 | |
| 1,600.0 | 1,575.6 | 1,605.2 | 1,587.3 | 5.3 | 4.8 | 159.03 | 135.8 | 96.1 | 56.1 | 48.3 | 7.86 | 7.147 | |
| 1,700.0 | 1,672.0 | 1,705.2 | 1,684.5 | 5.8 | 5.2 | 158.69 | 155.3 | 108.5 | 59.9 | 51.4 | 8.50 | 7.045 | |
| 1,800.0 | 1,768.5 | 1,805.1 | 1,781.8 | 6.3 | 5.7 | 158.38 | 174.8 | 120.9 | 63.7 | 54.5 | 9.16 | 6.952 | |
| 1,900.0 | 1,864.9 | 1,905.0 | 1,879.0 | 6.8 | 6.2 | 158.11 | 194.3 | 133.3 | 67.4 | 57.6 | 9.82 | 6.868 | |
| 2,000.0 | 1,961.4 | 2,005.0 | 1,976.2 | 7.4 | 6.6 | 157.87 | 213.8 | 145.8 | 71.2 | 60.7 | 10.48 | 6.791 | |
| 2,100.0 | 2,057.9 | 2,104.9 | 2,073.4 | 7.9 | 7.1 | 157.65 | 233.3 | 158.2 | 74.9 | 63.8 | 11.15 | 6.721 | |
| 2,200.0 | 2,154.3 | 2,204.8 | 2,170.6 | 8.4 | 7.6 | 157.45 | 252.8 | 170.6 | 78.7 | 66.9 | 11.82 | 6.657 | |
| 2,300.0 | 2,250.8 | 2,304.7 | 2,267.8 | 9.0 | 8.1 | 157.28 | 272.3 | 183.1 | 82.5 | 70.0 | 12.50 | 6.598 | |
| 2,400.0 | 2,347.3 | 2,404.7 | 2,365.1 | 9.5 | 8.5 | 157.11 | 291.8 | 195.5 | 86.2 | 73.1 | 13.18 | 6.544 | |
| 2,500.0 | 2,443.7 | 2,504.6 | 2,462.3 | 10.0 | 9.0 | 156.96 | 311.3 | 207.9 | 90.0 | 76.2 | 13.86 | 6.495 | |
| 2,600.0 | 2,540.2 | 2,604.5 | 2,559.5 | 10.6 | 9.5 | 156.82 | 330.8 | 220.4 | 93.8 | 79.2 | 14.54 | 6.449 | |
| 2,700.0 | 2,636.7 | 2,704.5 | 2,656.7 | 11.1 | 10.0 | 156.70 | 350.3 | 232.8 | 97.5 | 82.3 | 15.23 | 6.406 | |
| 2,800.0 | 2,733.1 | 2,804.4 | 2,753.9 | 11.6 | 10.5 | 156.58 | 369.8 | 245.2 | 101.3 | 85.4 | 15.91 | 6.367 | |
| 2,900.0 | 2,829.6 | 2,904.3 | 2,851.1 | 12.2 | 10.9 | 156.47 | 389.3 | 257.6 | 105.1 | 88.5 | 16.60 | 6.330 | |
| 3,000.0 | 2,926.0 | 3,004.2 | 2,948.4 | 12.7 | 11.4 | 156.37 | 408.8 | 270.1 | 108.8 | 91.6 | 17.29 | 6.296 | |
| 3,100.0 | 3,022.5 | 3,104.2 | 3,045.6 | 13.2 | 11.9 | 156.27 | 428.3 | 282.5 | 112.6 | 94.6 | 17.98 | 6.264 | |
| 3,200.0 | 3,119.0 | 3,204.1 | 3,142.8 | 13.8 | 12.4 | 156.18 | 447.8 | 294.9 | 116.4 | 97.7 | 18.67 | 6.234 | |
| 3,300.0 | 3,215.4 | 3,304.0 | 3,240.0 | 14.3 | 12.9 | 156.10 | 467.3 | 307.4 | 120.2 | 100.8 | 19.36 | 6.206 | |
| 3,400.0 | 3,311.9 | 3,404.0 | 3,337.2 | 14.9 | 13.3 | 156.02 | 486.8 | 319.8 | 123.9 | 103.9 | 20.05 | 6.180 | |
| 3,500.0 | 3,408.4 | 3,503.9 | 3,434.4 | 15.4 | 13.8 | 155.95 | 506.3 | 332.2 | 127.7 | 106.9 | 20.75 | 6.155 | |
| 3,600.0 | 3,504.8 | 3,603.8 | 3,531.6 | 15.9 | 14.3 | 155.88 | 525.8 | 344.7 | 131.5 | 110.0 | 21.44 | 6.132 | |
| 3,700.0 | 3,601.3 | 3,703.7 | 3,628.9 | 16.5 | 14.8 | 155.81 | 545.4 | 357.1 | 135.2 | 113.1 | 22.13 | 6.110 | |
| 3,800.0 | 3,697.7 | 3,803.7 | 3,726.1 | 17.0 | 15.3 | 155.75 | 564.9 | 369.5 | 139.0 | 116.2 | 22.83 | 6.089 | |
| 3,900.0 | 3,794.2 | 3,903.6 | 3,823.3 | 17.5 | 15.8 | 155.69 | 584.4 | 381.9 | 142.8 | 119.3 | 23.52 | 6.069 | |
| 4,000.0 | 3,890.7 | 4,003.5 | 3,920.5 | 18.1 | 16.2 | 155.64 | 603.9 | 394.4 | 146.5 | 122.3 | 24.22 | 6.051 | |
| 4,100.0 | 3,987.1 | 4,103.5 | 4,017.7 | 18.6 | 16.7 | 155.59 | 623.4 | 406.8 | 150.3 | 125.4 | 24.92 | 6.033 | |
| 4,200.0 | 4,083.6 | 4,203.4 | 4,114.9 | 19.2 | 17.2 | 155.54 | 642.9 | 419.2 | 154.1 | 128.5 | 25.61 | 6.016 | |
| 4,300.0 | 4,180.1 | 4,303.3 | 4,212.2 | 19.7 | 17.7 | 155.49 | 662.4 | 431.7 | 157.9 | 131.5 | 26.31 | 6.000 | |
| 4,400.0 | 4,276.5 | 4,403.2 | 4,309.4 | 20.2 | 18.2 | 155.44 | 681.9 | 444.1 | 161.6 | 134.6 | 27.01 | 5.985 | |
| 4,500.0 | 4,373.0 | 4,503.2 | 4,406.6 | 20.8 | 18.7 | 155.40 | 701.4 | 456.5 | 165.4 | 137.7 | 27.70 | 5.970 | |
| 4,600.0 | 4,469.5 | 4,603.1 | 4,503.8 | 21.3 | 19.2 | 155.36 | 720.9 | 469.0 | 169.2 | 140.8 | 28.40 | 5.956 | |
| 4,700.0 | 4,565.9 | 4,703.0 | 4,601.0 | 21.9 | 19.6 | 155.32 | 740.4 | 481.4 | 172.9 | 143.8 | 29.10 | 5.943 | |
| 4,800.0 | 4,662.4 | 4,803.0 | 4,698.2 | 22.4 | 20.1 | 155.28 | 759.9 | 493.8 | 176.7 | 146.9 | 29.80 | 5.930 | |
| 4,900.0 | 4,758.8 | 4,902.9 | 4,795.4 | 22.9 | 20.6 | 155.24 | 779.4 | 506.2 | 180.5 | 150.0 | 30.50 | 5.918 | |
| 5,000.0 | 4,855.3 | 5,002.8 | 4,892.7 | 23.5 | 21.1 | 155.21 | 798.9 | 518.7 | 184.3 | 153.1 | 31.20 | 5.906 | |

| | | | |
|---|---|---|---|
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| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-314 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 5,102.7 | 4,989.9 | 24.0 | 21.6 | 155.17 | 818.4 | 531.1 | 188.0 | 156.1 | 31.90 | 5.895 | |
| 5,200.0 | 5,048.2 | 5,202.7 | 5,087.1 | 24.6 | 22.1 | 155.14 | 837.9 | 543.5 | 191.8 | 159.2 | 32.60 | 5.884 | |
| 5,300.0 | 5,144.7 | 5,302.6 | 5,184.3 | 25.1 | 22.6 | 155.11 | 857.4 | 556.0 | 195.6 | 162.3 | 33.30 | 5.874 | |
| 5,400.0 | 5,241.2 | 5,402.5 | 5,281.5 | 25.6 | 23.0 | 155.08 | 876.9 | 568.4 | 199.3 | 165.3 | 34.00 | 5.864 | |
| 5,500.0 | 5,337.6 | 5,502.5 | 5,378.7 | 26.2 | 23.5 | 155.05 | 896.4 | 580.8 | 203.1 | 168.4 | 34.70 | 5.854 | |
| 5,600.0 | 5,434.1 | 5,602.4 | 5,476.0 | 26.7 | 24.0 | 155.02 | 915.9 | 593.3 | 206.9 | 171.5 | 35.40 | 5.845 | |
| 5,700.0 | 5,530.5 | 5,702.3 | 5,573.2 | 27.3 | 24.5 | 155.00 | 935.4 | 605.7 | 210.7 | 174.6 | 36.10 | 5.836 | |
| 5,757.1 | 5,585.6 | 5,759.4 | 5,628.7 | 27.6 | 24.8 | 154.98 | 946.6 | 612.8 | 212.8 | 176.3 | 36.50 | 5.831 | |
| 5,800.0 | 5,627.1 | 5,802.3 | 5,670.4 | 27.8 | 25.0 | 154.95 | 954.9 | 618.1 | 214.1 | 177.3 | 36.80 | 5.819 | |
| 5,900.0 | 5,724.4 | 5,902.2 | 5,767.7 | 28.2 | 25.5 | 154.56 | 974.4 | 630.6 | 215.0 | 177.4 | 37.56 | 5.724 | |
| 6,000.0 | 5,822.4 | 5,997.3 | 5,860.4 | 28.5 | 25.9 | 153.93 | 992.2 | 641.9 | 213.6 | 175.3 | 38.32 | 5.575 | |
| 6,100.0 | 5,921.0 | 6,091.3 | 5,952.6 | 28.8 | 26.2 | 153.31 | 1,007.2 | 651.4 | 211.9 | 172.9 | 38.97 | 5.438 | |
| 6,200.0 | 6,020.2 | 6,185.3 | 6,045.5 | 29.0 | 26.5 | 152.71 | 1,019.7 | 659.4 | 209.9 | 170.4 | 39.55 | 5.308 | |
| 6,300.0 | 6,119.7 | 6,279.4 | 6,138.8 | 29.3 | 26.7 | 152.12 | 1,029.6 | 665.7 | 207.7 | 167.6 | 40.07 | 5.183 | |
| 6,400.0 | 6,219.5 | 6,373.6 | 6,232.6 | 29.4 | 26.9 | 151.54 | 1,036.9 | 670.4 | 205.1 | 164.6 | 40.53 | 5.062 | |
| 6,500.0 | 6,319.5 | 6,467.9 | 6,326.8 | 29.5 | 27.0 | 150.98 | 1,041.6 | 673.4 | 202.3 | 161.4 | 40.91 | 4.946 | |
| 6,521.3 | 6,340.8 | 6,488.0 | 6,346.9 | 29.6 | 27.1 | 179.20 | 1,042.3 | 673.8 | 201.7 | 150.4 | 51.29 | 3.933 | |
| 6,551.3 | 6,370.8 | 6,516.3 | 6,375.2 | 29.6 | 27.1 | 179.07 | 1,043.0 | 674.3 | 200.9 | 149.6 | 51.32 | 3.916 | |
| 6,600.0 | 6,419.5 | 6,562.3 | 6,421.1 | 29.6 | 27.2 | -91.57 | 1,043.7 | 674.7 | 200.2 | 158.7 | 41.49 | 4.826 | |
| 6,618.4 | 6,437.8 | 6,579.7 | 6,438.5 | 29.6 | 27.2 | -91.99 | 1,043.8 | 674.8 | 200.2 | 158.5 | 41.69 | 4.801 | |
| 6,650.0 | 6,469.2 | 6,610.4 | 6,469.2 | 29.6 | 27.2 | -93.00 | 1,043.9 | 674.8 | 200.3 | 158.2 | 42.16 | 4.752 | |
| 6,700.0 | 6,518.4 | 6,660.6 | 6,519.4 | 29.6 | 27.3 | -95.11 | 1,043.9 | 673.7 | 200.9 | 157.8 | 43.05 | 4.665 | |
| 6,750.0 | 6,567.0 | 6,711.6 | 6,570.2 | 29.6 | 27.3 | -97.23 | 1,043.9 | 669.1 | 201.7 | 157.8 | 43.85 | 4.599 | |
| 6,800.0 | 6,614.5 | 6,763.2 | 6,621.1 | 29.6 | 27.3 | -99.30 | 1,043.9 | 660.7 | 202.8 | 158.2 | 44.52 | 4.555 | |
| 6,850.0 | 6,660.9 | 6,815.3 | 6,671.8 | 29.5 | 27.3 | -101.32 | 1,043.9 | 648.6 | 204.1 | 159.1 | 45.02 | 4.533 | |
| 6,900.0 | 6,705.9 | 6,868.0 | 6,722.0 | 29.4 | 27.2 | -103.26 | 1,043.9 | 632.6 | 205.6 | 160.3 | 45.36 | 4.534 | |
| 6,950.0 | 6,749.2 | 6,921.4 | 6,771.5 | 29.3 | 27.1 | -105.13 | 1,043.9 | 612.7 | 207.4 | 161.8 | 45.51 | 4.557 | |
| 7,000.0 | 6,790.7 | 6,975.3 | 6,819.8 | 29.2 | 27.0 | -106.90 | 1,043.9 | 588.9 | 209.2 | 163.7 | 45.48 | 4.600 | |
| 7,050.0 | 6,830.2 | 7,029.8 | 6,866.8 | 29.1 | 26.9 | -108.57 | 1,043.9 | 561.3 | 211.2 | 165.9 | 45.29 | 4.663 | |
| 7,100.0 | 6,867.4 | 7,084.8 | 6,911.9 | 29.0 | 26.8 | -110.12 | 1,043.9 | 529.8 | 213.2 | 168.3 | 44.96 | 4.743 | |
| 7,150.0 | 6,902.2 | 7,140.5 | 6,954.9 | 28.9 | 26.7 | -111.56 | 1,043.9 | 494.5 | 215.3 | 170.8 | 44.51 | 4.836 | |
| 7,200.0 | 6,934.4 | 7,196.6 | 6,995.4 | 28.7 | 26.5 | -112.88 | 1,043.9 | 455.6 | 217.3 | 173.3 | 44.00 | 4.938 | |
| 7,250.0 | 6,963.8 | 7,253.3 | 7,033.1 | 28.6 | 26.4 | -114.06 | 1,043.9 | 413.3 | 219.2 | 175.8 | 43.46 | 5.044 | |
| 7,300.0 | 6,990.4 | 7,310.4 | 7,067.6 | 28.5 | 26.2 | -115.11 | 1,043.9 | 367.8 | 221.1 | 178.1 | 42.96 | 5.145 | |
| 7,350.0 | 7,013.9 | 7,368.0 | 7,098.6 | 28.4 | 26.1 | -116.03 | 1,043.9 | 319.3 | 222.7 | 180.2 | 42.56 | 5.234 | |
| 7,400.0 | 7,034.4 | 7,426.0 | 7,125.7 | 28.2 | 25.9 | -116.81 | 1,043.9 | 268.1 | 224.2 | 181.9 | 42.29 | 5.301 | |
| 7,450.0 | 7,051.5 | 7,484.3 | 7,148.7 | 28.1 | 25.8 | -117.45 | 1,043.9 | 214.5 | 225.5 | 183.2 | 42.23 | 5.339 | |
| 7,500.0 | 7,065.4 | 7,542.8 | 7,167.4 | 28.0 | 25.6 | -117.95 | 1,043.9 | 159.1 | 226.5 | 184.1 | 42.41 | 5.340 | |
| 7,550.0 | 7,075.9 | 7,601.6 | 7,181.5 | 27.9 | 25.5 | -118.31 | 1,043.9 | 102.0 | 227.2 | 184.4 | 42.87 | 5.301 | |
| 7,600.0 | 7,082.9 | 7,660.5 | 7,190.9 | 27.8 | 25.4 | -118.53 | 1,043.9 | 43.9 | 227.7 | 184.1 | 43.62 | 5.220 | |
| 7,650.0 | 7,086.5 | 7,719.4 | 7,195.5 | 27.7 | 25.2 | -118.60 | 1,043.9 | -14.9 | 227.8 | 183.2 | 44.65 | 5.103 | |
| 7,677.7 | 7,087.0 | 7,751.6 | 7,196.0 | 27.6 | 25.2 | -118.58 | 1,043.9 | -47.0 | 227.8 | 182.5 | 45.33 | 5.025 | |
| 7,700.0 | 7,087.0 | 7,773.9 | 7,195.9 | 27.6 | 25.1 | -118.57 | 1,043.9 | -69.3 | 227.8 | 181.9 | 45.91 | 4.962 | |
| 7,800.0 | 7,086.8 | 7,873.9 | 7,195.5 | 27.5 | 25.1 | -118.52 | 1,043.9 | -169.3 | 227.7 | 179.0 | 48.70 | 4.675 | |
| 7,900.0 | 7,086.6 | 7,973.9 | 7,195.1 | 27.9 | 26.9 | -118.48 | 1,043.9 | -269.3 | 227.6 | 175.8 | 51.82 | 4.392 | |
| 8,000.0 | 7,086.4 | 8,073.9 | 7,194.7 | 29.5 | 29.0 | -118.43 | 1,043.9 | -369.3 | 227.5 | 172.3 | 55.21 | 4.120 | |
| 8,100.0 | 7,086.2 | 8,173.9 | 7,194.3 | 31.5 | 31.1 | -118.38 | 1,043.9 | -469.3 | 227.4 | 168.5 | 58.84 | 3.864 | |
| 8,200.0 | 7,086.0 | 8,273.9 | 7,193.8 | 33.7 | 33.4 | -118.33 | 1,043.9 | -569.3 | 227.3 | 164.6 | 62.67 | 3.626 | |
| 8,300.0 | 7,085.8 | 8,373.9 | 7,193.4 | 36.0 | 35.7 | -118.28 | 1,043.9 | -669.3 | 227.2 | 160.5 | 66.65 | 3.408 | |
| 8,400.0 | 7,085.6 | 8,473.9 | 7,193.0 | 38.3 | 38.0 | -118.24 | 1,043.9 | -769.3 | 227.1 | 156.3 | 70.77 | 3.208 | |
| 8,500.0 | 7,085.4 | 8,573.9 | 7,192.6 | 40.7 | 40.4 | -118.19 | 1,043.9 | -869.3 | 226.9 | 151.9 | 75.00 | 3.026 | |
| 8,600.0 | 7,085.2 | 8,673.9 | 7,192.2 | 43.1 | 42.9 | -118.14 | 1,043.9 | -969.3 | 226.8 | 147.5 | 79.33 | 2.860 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-314 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.0 | 7,085.0 | 8,773.9 | 7,191.8 | 45.6 | 45.4 | -118.09 | 1,043.9 | -1,069.3 | 226.7 | 143.0 | 83.74 | 2.708 | |
| 8,800.0 | 7,084.8 | 8,873.9 | 7,191.4 | 48.1 | 47.9 | -118.04 | 1,043.9 | -1,169.3 | 226.6 | 138.4 | 88.22 | 2.569 | |
| 8,900.0 | 7,084.6 | 8,973.9 | 7,191.0 | 50.7 | 50.5 | -117.99 | 1,043.9 | -1,269.3 | 226.5 | 133.8 | 92.76 | 2.442 | |
| 9,000.0 | 7,084.4 | 9,073.9 | 7,190.5 | 53.2 | 53.0 | -117.94 | 1,043.9 | -1,369.3 | 226.4 | 129.1 | 97.35 | 2.326 | |
| 9,100.0 | 7,084.2 | 9,173.9 | 7,190.1 | 55.8 | 55.6 | -117.90 | 1,043.9 | -1,469.3 | 226.3 | 124.3 | 101.99 | 2.219 | |
| 9,200.0 | 7,084.0 | 9,273.9 | 7,189.7 | 58.4 | 58.3 | -117.85 | 1,043.9 | -1,569.3 | 226.2 | 119.6 | 106.67 | 2.121 | |
| 9,300.0 | 7,083.8 | 9,373.9 | 7,189.3 | 61.1 | 60.9 | -117.80 | 1,043.9 | -1,669.3 | 226.1 | 114.7 | 111.39 | 2.030 | |
| 9,400.0 | 7,083.7 | 9,473.9 | 7,188.9 | 63.7 | 63.5 | -117.75 | 1,043.9 | -1,769.3 | 226.0 | 109.9 | 116.14 | 1.946 | |
| 9,500.0 | 7,083.5 | 9,573.9 | 7,188.5 | 66.3 | 66.2 | -117.70 | 1,043.9 | -1,869.3 | 225.9 | 105.0 | 120.92 | 1.868 | |
| 9,600.0 | 7,083.3 | 9,673.9 | 7,188.1 | 69.0 | 68.9 | -117.65 | 1,043.9 | -1,969.3 | 225.8 | 100.1 | 125.72 | 1.796 | |
| 9,700.0 | 7,083.1 | 9,773.9 | 7,187.7 | 71.7 | 71.6 | -117.61 | 1,043.9 | -2,069.3 | 225.7 | 95.2 | 130.55 | 1.729 | |
| 9,800.0 | 7,082.9 | 9,873.9 | 7,187.3 | 74.4 | 74.2 | -117.56 | 1,043.9 | -2,169.3 | 225.6 | 90.2 | 135.40 | 1.666 | |
| 9,900.0 | 7,082.7 | 9,973.9 | 7,186.8 | 77.1 | 76.9 | -117.51 | 1,043.9 | -2,269.3 | 225.5 | 85.3 | 140.27 | 1.608 | |
| 10,000.0 | 7,082.5 | 10,073.9 | 7,186.4 | 79.7 | 79.6 | -117.46 | 1,043.9 | -2,369.3 | 225.4 | 80.3 | 145.15 | 1.553 | |
| 10,100.0 | 7,082.3 | 10,173.9 | 7,186.0 | 82.5 | 82.4 | -117.41 | 1,043.9 | -2,469.3 | 225.3 | 75.3 | 150.06 | 1.502 | |
| 10,200.0 | 7,082.1 | 10,273.9 | 7,185.6 | 85.2 | 85.1 | -117.36 | 1,043.9 | -2,569.3 | 225.2 | 70.3 | 154.98 | 1.453 | Level 3 |
| 10,300.0 | 7,081.9 | 10,373.9 | 7,185.2 | 87.9 | 87.8 | -117.32 | 1,043.9 | -2,669.3 | 225.1 | 65.2 | 159.91 | 1.408 | Level 3 |
| 10,400.0 | 7,081.7 | 10,473.9 | 7,184.8 | 90.6 | 90.5 | -117.27 | 1,043.9 | -2,769.3 | 225.0 | 60.2 | 164.86 | 1.365 | Level 3 |
| 10,500.0 | 7,081.5 | 10,573.9 | 7,184.4 | 93.3 | 93.3 | -117.22 | 1,043.9 | -2,869.3 | 224.9 | 55.1 | 169.82 | 1.325 | Level 3 |
| 10,600.0 | 7,081.3 | 10,673.9 | 7,184.0 | 96.1 | 96.0 | -117.17 | 1,043.9 | -2,969.3 | 224.8 | 50.0 | 174.79 | 1.286 | Level 3 |
| 10,700.0 | 7,081.1 | 10,773.9 | 7,183.5 | 98.8 | 98.7 | -117.12 | 1,043.9 | -3,069.3 | 224.7 | 45.0 | 179.78 | 1.250 | Level 3 |
| 10,800.0 | 7,080.9 | 10,873.9 | 7,183.1 | 101.5 | 101.5 | -117.07 | 1,043.9 | -3,169.3 | 224.6 | 39.9 | 184.77 | 1.216 | Level 2 |
| 10,900.0 | 7,080.7 | 10,973.9 | 7,182.7 | 104.3 | 104.2 | -117.02 | 1,043.9 | -3,269.3 | 224.5 | 34.8 | 189.78 | 1.183 | Level 2 |
| 11,000.0 | 7,080.5 | 11,073.9 | 7,182.3 | 107.0 | 107.0 | -116.98 | 1,043.9 | -3,369.3 | 224.4 | 29.7 | 194.79 | 1.152 | Level 2 |
| 11,100.0 | 7,080.3 | 11,173.9 | 7,181.9 | 109.8 | 109.7 | -116.93 | 1,043.9 | -3,469.3 | 224.4 | 24.5 | 199.82 | 1.123 | Level 2 |
| 11,200.0 | 7,080.1 | 11,273.9 | 7,181.5 | 112.5 | 112.5 | -116.88 | 1,043.9 | -3,569.3 | 224.3 | 19.4 | 204.85 | 1.095 | Level 2 |
| 11,300.0 | 7,079.9 | 11,373.9 | 7,181.1 | 115.3 | 115.2 | -116.83 | 1,043.9 | -3,669.3 | 224.2 | 14.3 | 209.89 | 1.068 | Level 2 |
| 11,400.0 | 7,079.7 | 11,473.9 | 7,180.7 | 118.0 | 118.0 | -116.78 | 1,043.9 | -3,769.3 | 224.1 | 9.1 | 214.94 | 1.042 | Level 2 |
| 11,500.0 | 7,079.5 | 11,573.9 | 7,180.2 | 120.8 | 120.8 | -116.73 | 1,043.9 | -3,869.3 | 224.0 | 4.0 | 220.00 | 1.018 | Level 2 |
| 11,600.0 | 7,079.3 | 11,673.9 | 7,179.8 | 123.6 | 123.5 | -116.68 | 1,043.9 | -3,969.3 | 223.9 | -1.2 | 225.06 | 0.995 | Level 1 |
| 11,700.0 | 7,079.1 | 11,773.9 | 7,179.4 | 126.3 | 126.3 | -116.64 | 1,043.9 | -4,069.3 | 223.8 | -6.4 | 230.13 | 0.972 | Level 1 |
| 11,800.0 | 7,078.9 | 11,873.9 | 7,179.0 | 129.1 | 129.1 | -116.59 | 1,043.9 | -4,169.3 | 223.7 | -11.5 | 235.21 | 0.951 | Level 1 |
| 11,900.0 | 7,078.7 | 11,973.9 | 7,178.6 | 131.9 | 131.8 | -116.54 | 1,043.9 | -4,269.3 | 223.6 | -16.7 | 240.30 | 0.930 | Level 1 |
| 12,000.0 | 7,078.5 | 12,073.9 | 7,178.2 | 134.6 | 134.6 | -116.49 | 1,043.9 | -4,369.3 | 223.5 | -21.9 | 245.39 | 0.911 | Level 1 |
| 12,100.0 | 7,078.3 | 12,173.9 | 7,177.8 | 137.4 | 137.4 | -116.44 | 1,043.9 | -4,469.3 | 223.4 | -27.1 | 250.49 | 0.892 | Level 1 |
| 12,200.0 | 7,078.1 | 12,273.9 | 7,177.4 | 140.2 | 140.2 | -116.39 | 1,043.9 | -4,569.3 | 223.3 | -32.3 | 255.60 | 0.874 | Level 1 |
| 12,300.0 | 7,077.9 | 12,373.9 | 7,176.9 | 142.9 | 142.9 | -116.34 | 1,043.9 | -4,669.3 | 223.2 | -37.5 | 260.71 | 0.856 | Level 1 |
| 12,400.0 | 7,077.7 | 12,473.9 | 7,176.5 | 145.7 | 145.7 | -116.29 | 1,043.9 | -4,769.3 | 223.1 | -42.7 | 265.82 | 0.839 | Level 1 |
| 12,500.0 | 7,077.5 | 12,573.9 | 7,176.1 | 148.5 | 148.5 | -116.25 | 1,043.9 | -4,869.3 | 223.0 | -47.9 | 270.95 | 0.823 | Level 1 |
| 12,600.0 | 7,077.3 | 12,673.9 | 7,175.7 | 151.3 | 151.3 | -116.20 | 1,043.9 | -4,969.3 | 222.9 | -53.2 | 276.08 | 0.807 | Level 1 |
| 12,700.0 | 7,077.1 | 12,773.9 | 7,175.3 | 154.0 | 154.0 | -116.15 | 1,043.9 | -5,069.3 | 222.8 | -58.4 | 281.21 | 0.792 | Level 1 |
| 12,800.0 | 7,076.9 | 12,873.9 | 7,174.9 | 156.8 | 156.8 | -116.10 | 1,043.9 | -5,169.3 | 222.7 | -63.6 | 286.35 | 0.778 | Level 1 |
| 12,900.0 | 7,076.7 | 12,973.9 | 7,174.5 | 159.6 | 159.6 | -116.05 | 1,043.9 | -5,269.3 | 222.6 | -68.9 | 291.50 | 0.764 | Level 1 |
| 13,000.0 | 7,076.5 | 13,073.9 | 7,174.0 | 162.4 | 162.4 | -116.00 | 1,043.9 | -5,369.3 | 222.5 | -74.1 | 296.65 | 0.750 | Level 1 |
| 13,100.0 | 7,076.3 | 13,173.9 | 7,173.6 | 165.2 | 165.2 | -115.95 | 1,043.9 | -5,469.3 | 222.4 | -79.4 | 301.81 | 0.737 | Level 1 |
| 13,200.0 | 7,076.1 | 13,273.9 | 7,173.2 | 168.0 | 168.0 | -115.91 | 1,043.9 | -5,569.3 | 222.4 | -84.6 | 306.97 | 0.724 | Level 1 |
| 13,300.0 | 7,075.9 | 13,373.9 | 7,172.8 | 170.7 | 170.7 | -115.86 | 1,043.9 | -5,669.3 | 222.3 | -89.9 | 312.14 | 0.712 | Level 1 |
| 13,400.0 | 7,075.7 | 13,473.9 | 7,172.4 | 173.5 | 173.5 | -115.81 | 1,043.9 | -5,769.3 | 222.2 | -95.1 | 317.31 | 0.700 | Level 1 |
| 13,500.0 | 7,075.5 | 13,573.9 | 7,172.0 | 176.3 | 176.3 | -115.76 | 1,043.9 | -5,869.3 | 222.1 | -100.4 | 322.48 | 0.689 | Level 1 |
| 13,600.0 | 7,075.3 | 13,673.9 | 7,171.6 | 179.1 | 179.1 | -115.71 | 1,043.9 | -5,969.3 | 222.0 | -105.7 | 327.67 | 0.677 | Level 1 |
| 13,700.0 | 7,075.1 | 13,773.9 | 7,171.2 | 181.9 | 181.9 | -115.66 | 1,043.9 | -6,069.3 | 221.9 | -111.0 | 332.85 | 0.667 | Level 1 |
| 13,800.0 | 7,074.9 | 13,873.9 | 7,170.7 | 184.7 | 184.7 | -115.61 | 1,043.9 | -6,169.3 | 221.8 | -116.2 | 338.04 | 0.656 | Level 1 |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-314 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.0 | 7,074.7 | 13,973.9 | 7,170.3 | 187.5 | 187.5 | -115.56 | 1,043.9 | -6,269.3 | 221.7 | -121.5 | 343.24 | 0.646 | Level 1 |
| 14,000.0 | 7,074.5 | 14,073.9 | 7,169.9 | 190.2 | 190.3 | -115.52 | 1,043.9 | -6,369.3 | 221.6 | -126.8 | 348.44 | 0.636 | Level 1 |
| 14,100.0 | 7,074.2 | 14,173.9 | 7,169.5 | 193.0 | 193.0 | -115.47 | 1,043.9 | -6,469.3 | 221.5 | -132.1 | 353.64 | 0.626 | Level 1 |
| 14,200.0 | 7,074.0 | 14,273.9 | 7,169.1 | 195.8 | 195.8 | -115.42 | 1,043.9 | -6,569.3 | 221.4 | -137.4 | 358.85 | 0.617 | Level 1 |
| 14,218.9 | 7,074.0 | 14,292.9 | 7,169.0 | 196.3 | 196.4 | -115.41 | 1,043.9 | -6,588.2 | 221.4 | -138.4 | 359.84 | 0.615 | Level 1 |
| 14,221.4 | 7,074.0 | 14,295.0 | 7,169.0 | 196.4 | 196.4 | -115.41 | 1,043.9 | -6,590.3 | 221.4 | -138.5 | 359.96 | 0.615 | Level 1, ES, SF |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-334 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -179.57 | -75.0 | -0.6 | 75.1 | | | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | -179.57 | -75.0 | -0.6 | 75.0 | 74.9 | 0.19 | 387.948 | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.3 | 0.3 | -179.57 | -75.0 | -0.6 | 75.0 | 74.4 | 0.64 | 116.952 | |
| 300.0 | 300.0 | 299.0 | 299.0 | 0.5 | 0.5 | -179.57 | -75.0 | -0.6 | 75.0 | 74.0 | 1.09 | 68.774 | |
| 400.0 | 400.0 | 399.0 | 399.0 | 0.8 | 0.8 | -179.57 | -75.0 | -0.6 | 75.0 | 73.5 | 1.54 | 48.709 | CC, ES |
| 500.0 | 500.0 | 499.0 | 499.0 | 1.0 | 1.0 | 152.68 | -75.0 | -0.6 | 76.6 | 74.6 | 1.99 | 38.453 | |
| 600.0 | 599.8 | 598.8 | 598.8 | 1.2 | 1.2 | 154.33 | -75.0 | -0.6 | 81.3 | 78.8 | 2.45 | 33.234 | |
| 700.0 | 699.5 | 698.5 | 698.5 | 1.5 | 1.4 | 156.69 | -75.0 | -0.6 | 89.2 | 86.3 | 2.90 | 30.743 | |
| 800.0 | 798.7 | 797.7 | 797.7 | 1.7 | 1.7 | 159.36 | -75.0 | -0.6 | 100.5 | 97.2 | 3.36 | 29.917 | |
| 900.0 | 897.5 | 896.5 | 896.5 | 2.0 | 1.9 | 162.00 | -75.0 | -0.6 | 115.3 | 111.5 | 3.82 | 30.190 | |
| 1,000.0 | 995.6 | 996.7 | 996.7 | 2.4 | 2.1 | 163.85 | -74.6 | 1.0 | 132.9 | 128.6 | 4.27 | 31.091 | |
| 1,100.0 | 1,093.1 | 1,097.2 | 1,097.0 | 2.8 | 2.3 | 164.42 | -73.3 | 6.0 | 152.2 | 147.4 | 4.73 | 32.189 | |
| 1,164.2 | 1,155.2 | 1,161.7 | 1,161.3 | 3.1 | 2.5 | 164.29 | -71.9 | 11.0 | 165.4 | 160.4 | 5.03 | 32.877 | |
| 1,200.0 | 1,189.7 | 1,197.7 | 1,197.2 | 3.2 | 2.5 | 164.11 | -71.0 | 14.3 | 172.9 | 167.7 | 5.21 | 33.190 | |
| 1,300.0 | 1,286.2 | 1,298.7 | 1,297.4 | 3.7 | 2.8 | 163.05 | -67.7 | 26.2 | 192.8 | 187.0 | 5.74 | 33.573 | |
| 1,400.0 | 1,382.6 | 1,400.0 | 1,397.4 | 4.2 | 3.1 | 161.30 | -63.5 | 41.4 | 211.2 | 204.8 | 6.33 | 33.373 | |
| 1,500.0 | 1,479.1 | 1,501.3 | 1,496.9 | 4.7 | 3.4 | 159.01 | -58.4 | 60.1 | 228.3 | 221.3 | 6.98 | 32.699 | |
| 1,600.0 | 1,575.6 | 1,599.5 | 1,592.9 | 5.3 | 3.7 | 156.74 | -53.0 | 79.8 | 245.1 | 237.4 | 7.69 | 31.890 | |
| 1,700.0 | 1,672.0 | 1,697.6 | 1,688.9 | 5.8 | 4.1 | 154.75 | -47.7 | 99.5 | 262.2 | 253.8 | 8.43 | 31.118 | |
| 1,800.0 | 1,768.5 | 1,795.7 | 1,784.9 | 6.3 | 4.5 | 153.02 | -42.3 | 119.1 | 279.6 | 270.4 | 9.20 | 30.408 | |
| 1,900.0 | 1,864.9 | 1,893.9 | 1,880.9 | 6.8 | 4.9 | 151.48 | -36.9 | 138.8 | 297.2 | 287.2 | 9.99 | 29.764 | |
| 2,000.0 | 1,961.4 | 1,992.0 | 1,976.9 | 7.4 | 5.3 | 150.11 | -31.5 | 158.5 | 315.0 | 304.2 | 10.80 | 29.183 | |
| 2,100.0 | 2,057.9 | 2,090.2 | 2,072.9 | 7.9 | 5.7 | 148.90 | -26.1 | 178.2 | 333.0 | 321.4 | 11.62 | 28.661 | |
| 2,200.0 | 2,154.3 | 2,188.3 | 2,168.9 | 8.4 | 6.1 | 147.80 | -20.7 | 197.9 | 351.1 | 338.6 | 12.45 | 28.193 | |
| 2,300.0 | 2,250.8 | 2,286.4 | 2,264.9 | 9.0 | 6.5 | 146.82 | -15.3 | 217.5 | 369.3 | 356.0 | 13.30 | 27.772 | |
| 2,400.0 | 2,347.3 | 2,384.6 | 2,360.9 | 9.5 | 7.0 | 145.92 | -9.9 | 237.2 | 387.6 | 373.5 | 14.15 | 27.393 | |
| 2,500.0 | 2,443.7 | 2,482.7 | 2,456.9 | 10.0 | 7.4 | 145.11 | -4.5 | 256.9 | 406.0 | 391.0 | 15.01 | 27.051 | |
| 2,600.0 | 2,540.2 | 2,580.9 | 2,552.8 | 10.6 | 7.8 | 144.37 | 0.9 | 276.6 | 424.4 | 408.6 | 15.87 | 26.742 | |
| 2,700.0 | 2,636.7 | 2,679.0 | 2,648.8 | 11.1 | 8.3 | 143.68 | 6.3 | 296.3 | 443.0 | 426.2 | 16.74 | 26.461 | |
| 2,800.0 | 2,733.1 | 2,777.1 | 2,744.8 | 11.6 | 8.7 | 143.06 | 11.7 | 316.0 | 461.5 | 443.9 | 17.61 | 26.206 | |
| 2,900.0 | 2,829.6 | 2,875.3 | 2,840.8 | 12.2 | 9.1 | 142.48 | 17.0 | 335.6 | 480.2 | 461.7 | 18.49 | 25.972 | |
| 3,000.0 | 2,926.0 | 2,973.4 | 2,936.8 | 12.7 | 9.6 | 141.94 | 22.4 | 355.3 | 498.8 | 479.5 | 19.37 | 25.759 | |
| 3,100.0 | 3,022.5 | 3,071.5 | 3,032.8 | 13.2 | 10.0 | 141.45 | 27.8 | 375.0 | 517.5 | 497.3 | 20.25 | 25.562 | |
| 3,200.0 | 3,119.0 | 3,169.7 | 3,128.8 | 13.8 | 10.4 | 140.99 | 33.2 | 394.7 | 536.3 | 515.2 | 21.13 | 25.381 | |
| 3,300.0 | 3,215.4 | 3,267.8 | 3,224.8 | 14.3 | 10.9 | 140.56 | 38.6 | 414.4 | 555.1 | 533.0 | 22.01 | 25.214 | |
| 3,400.0 | 3,311.9 | 3,366.0 | 3,320.8 | 14.9 | 11.3 | 140.15 | 44.0 | 434.1 | 573.9 | 551.0 | 22.90 | 25.060 | |
| 3,500.0 | 3,408.4 | 3,464.1 | 3,416.8 | 15.4 | 11.8 | 139.78 | 49.4 | 453.7 | 592.7 | 568.9 | 23.79 | 24.916 | |
| 3,600.0 | 3,504.8 | 3,562.2 | 3,512.8 | 15.9 | 12.2 | 139.42 | 54.8 | 473.4 | 611.5 | 586.9 | 24.68 | 24.783 | |
| 3,700.0 | 3,601.3 | 3,660.4 | 3,608.8 | 16.5 | 12.6 | 139.09 | 60.2 | 493.1 | 630.4 | 604.8 | 25.57 | 24.659 | |
| 3,800.0 | 3,697.7 | 3,758.5 | 3,704.8 | 17.0 | 13.1 | 138.78 | 65.6 | 512.8 | 649.3 | 622.8 | 26.46 | 24.543 | |
| 3,900.0 | 3,794.2 | 3,856.7 | 3,800.8 | 17.5 | 13.5 | 138.48 | 71.0 | 532.5 | 668.2 | 640.9 | 27.35 | 24.434 | |
| 4,000.0 | 3,890.7 | 3,954.8 | 3,896.8 | 18.1 | 14.0 | 138.20 | 76.4 | 552.2 | 687.1 | 658.9 | 28.24 | 24.332 | |
| 4,100.0 | 3,987.1 | 4,052.9 | 3,992.8 | 18.6 | 14.4 | 137.94 | 81.7 | 571.8 | 706.1 | 676.9 | 29.13 | 24.236 | |
| 4,200.0 | 4,083.6 | 4,151.1 | 4,088.7 | 19.2 | 14.9 | 137.69 | 87.1 | 591.5 | 725.0 | 695.0 | 30.03 | 24.146 | |
| 4,300.0 | 4,180.1 | 4,249.2 | 4,184.7 | 19.7 | 15.3 | 137.45 | 92.5 | 611.2 | 744.0 | 713.1 | 30.92 | 24.061 | |
| 4,400.0 | 4,276.5 | 4,347.2 | 4,280.6 | 20.2 | 15.7 | 137.23 | 97.9 | 630.8 | 763.0 | 731.2 | 31.80 | 23.993 | |
| 4,500.0 | 4,373.0 | 4,444.5 | 4,376.2 | 20.8 | 16.1 | 137.19 | 102.6 | 648.0 | 782.1 | 749.5 | 32.56 | 24.017 | |
| 4,600.0 | 4,469.5 | 4,541.7 | 4,472.3 | 21.3 | 16.3 | 137.40 | 106.5 | 662.1 | 801.2 | 768.0 | 33.23 | 24.114 | |
| 4,700.0 | 4,565.9 | 4,638.5 | 4,568.5 | 21.9 | 16.6 | 137.83 | 109.5 | 673.0 | 820.6 | 786.7 | 33.82 | 24.265 | |
| 4,800.0 | 4,662.4 | 4,734.8 | 4,664.4 | 22.4 | 16.8 | 138.47 | 111.6 | 680.7 | 840.1 | 805.8 | 34.33 | 24.471 | |
| 4,900.0 | 4,758.8 | 4,830.3 | 4,759.8 | 22.9 | 16.9 | 139.28 | 112.8 | 685.3 | 860.0 | 825.2 | 34.77 | 24.734 | |
| 5,000.0 | 4,855.3 | 4,924.8 | 4,854.3 | 23.5 | 17.1 | 140.26 | 113.3 | 686.8 | 880.2 | 845.1 | 35.14 | 25.053 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-334 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 5,021.3 | 4,950.8 | 24.0 | 17.2 | 141.32 | 113.3 | 686.8 | 901.0 | 865.5 | 35.47 | 25.400 | |
| 5,200.0 | 5,048.2 | 5,117.7 | 5,047.2 | 24.6 | 17.3 | 142.33 | 113.3 | 686.8 | 922.0 | 886.2 | 35.81 | 25.744 | |
| 5,300.0 | 5,144.7 | 5,214.2 | 5,143.7 | 25.1 | 17.5 | 143.29 | 113.3 | 686.8 | 943.2 | 907.1 | 36.15 | 26.090 | |
| 5,400.0 | 5,241.2 | 5,310.7 | 5,240.2 | 25.6 | 17.6 | 144.22 | 113.3 | 686.8 | 964.8 | 928.3 | 36.49 | 26.436 | |
| 5,500.0 | 5,337.6 | 5,407.1 | 5,336.6 | 26.2 | 17.7 | 145.10 | 113.3 | 686.8 | 986.5 | 949.7 | 36.84 | 26.782 | |
| 5,600.0 | 5,434.1 | 5,503.6 | 5,433.1 | 26.7 | 17.9 | 145.95 | 113.3 | 686.8 | 1,008.5 | 971.3 | 37.18 | 27.126 | |
| 5,700.0 | 5,530.5 | 5,600.1 | 5,529.5 | 27.3 | 18.0 | 146.76 | 113.3 | 686.8 | 1,030.7 | 993.2 | 37.52 | 27.469 | |
| 5,757.1 | 5,585.6 | 5,655.2 | 5,584.6 | 27.6 | 18.1 | 147.21 | 113.3 | 686.8 | 1,043.4 | 1,005.7 | 37.72 | 27.664 | |
| 5,800.0 | 5,627.1 | 5,696.6 | 5,626.1 | 27.8 | 18.1 | 147.63 | 113.3 | 686.8 | 1,052.8 | 1,014.9 | 37.87 | 27.803 | |
| 5,900.0 | 5,724.4 | 5,793.9 | 5,723.4 | 28.2 | 18.3 | 148.51 | 113.3 | 686.8 | 1,072.6 | 1,034.5 | 38.16 | 28.106 | |
| 6,000.0 | 5,822.4 | 5,891.9 | 5,821.4 | 28.5 | 18.4 | 149.22 | 113.3 | 686.8 | 1,089.7 | 1,051.2 | 38.45 | 28.339 | |
| 6,100.0 | 5,921.0 | 5,990.5 | 5,920.0 | 28.8 | 18.6 | 149.80 | 113.3 | 686.8 | 1,103.9 | 1,065.1 | 38.73 | 28.504 | |
| 6,200.0 | 6,020.2 | 6,089.7 | 6,019.2 | 29.0 | 18.7 | 150.25 | 113.3 | 686.8 | 1,115.1 | 1,076.1 | 38.98 | 28.603 | |
| 6,300.0 | 6,119.7 | 6,189.2 | 6,118.7 | 29.3 | 18.9 | 150.57 | 113.3 | 686.8 | 1,123.3 | 1,084.1 | 39.23 | 28.637 | |
| 6,400.0 | 6,219.5 | 6,289.0 | 6,218.5 | 29.4 | 19.0 | 150.77 | 113.3 | 686.8 | 1,128.5 | 1,089.1 | 39.45 | 28.608 | |
| 6,500.0 | 6,319.5 | 6,389.0 | 6,318.5 | 29.5 | 19.2 | 150.85 | 113.3 | 686.8 | 1,130.7 | 1,091.0 | 39.65 | 28.517 | |
| 6,521.3 | 6,340.8 | 6,410.3 | 6,339.8 | 29.6 | 19.2 | 179.20 | 113.3 | 686.8 | 1,130.8 | 1,089.0 | 41.72 | 27.103 | |
| 6,551.3 | 6,370.8 | 6,440.3 | 6,369.8 | 29.6 | 19.3 | 179.20 | 113.3 | 686.8 | 1,130.8 | 1,088.9 | 41.81 | 27.044 | |
| 6,600.0 | 6,419.5 | 6,489.0 | 6,418.5 | 29.6 | 19.4 | -90.88 | 113.3 | 686.8 | 1,130.8 | 1,090.9 | 39.93 | 28.319 | |
| 6,650.0 | 6,469.2 | 6,538.7 | 6,468.2 | 29.6 | 19.4 | -91.14 | 113.3 | 686.8 | 1,130.9 | 1,090.8 | 40.09 | 28.207 | |
| 6,700.0 | 6,518.4 | 6,589.6 | 6,519.1 | 29.6 | 19.5 | -91.51 | 113.3 | 685.8 | 1,131.0 | 1,090.8 | 40.24 | 28.109 | |
| 6,750.0 | 6,567.0 | 6,641.5 | 6,570.7 | 29.6 | 19.5 | -91.89 | 113.3 | 681.0 | 1,131.3 | 1,091.0 | 40.32 | 28.057 | |
| 6,800.0 | 6,614.5 | 6,694.0 | 6,622.5 | 29.6 | 19.5 | -92.26 | 113.3 | 672.5 | 1,131.5 | 1,091.2 | 40.34 | 28.051 | |
| 6,850.0 | 6,660.9 | 6,747.1 | 6,674.1 | 29.5 | 19.5 | -92.62 | 113.3 | 660.0 | 1,131.9 | 1,091.6 | 40.30 | 28.085 | |
| 6,900.0 | 6,705.9 | 6,800.8 | 6,725.2 | 29.4 | 19.4 | -92.97 | 113.3 | 643.5 | 1,132.2 | 1,092.0 | 40.21 | 28.155 | |
| 6,950.0 | 6,749.2 | 6,855.1 | 6,775.5 | 29.3 | 19.4 | -93.31 | 113.3 | 623.0 | 1,132.6 | 1,092.5 | 40.08 | 28.255 | |
| 7,000.0 | 6,790.7 | 6,910.0 | 6,824.5 | 29.2 | 19.3 | -93.63 | 113.3 | 598.4 | 1,133.0 | 1,093.0 | 39.93 | 28.374 | |
| 7,050.0 | 6,830.2 | 6,965.5 | 6,872.1 | 29.1 | 19.2 | -93.94 | 113.3 | 569.9 | 1,133.4 | 1,093.6 | 39.77 | 28.499 | |
| 7,100.0 | 6,867.4 | 7,021.5 | 6,917.7 | 29.0 | 19.1 | -94.22 | 113.3 | 537.4 | 1,133.8 | 1,094.1 | 39.62 | 28.615 | |
| 7,150.0 | 6,902.2 | 7,078.1 | 6,961.1 | 28.9 | 19.1 | -94.49 | 113.3 | 501.0 | 1,134.2 | 1,094.6 | 39.51 | 28.704 | |
| 7,200.0 | 6,934.4 | 7,135.2 | 7,001.8 | 28.7 | 19.0 | -94.73 | 113.3 | 461.0 | 1,134.5 | 1,095.1 | 39.47 | 28.744 | |
| 7,250.0 | 6,963.8 | 7,192.7 | 7,039.4 | 28.6 | 19.1 | -94.94 | 113.3 | 417.6 | 1,134.9 | 1,095.4 | 39.52 | 28.715 | |
| 7,300.0 | 6,990.4 | 7,250.6 | 7,073.7 | 28.5 | 19.1 | -95.13 | 113.3 | 370.9 | 1,135.2 | 1,095.5 | 39.70 | 28.594 | |
| 7,350.0 | 7,013.9 | 7,309.0 | 7,104.3 | 28.4 | 19.3 | -95.29 | 113.3 | 321.2 | 1,135.5 | 1,095.5 | 40.04 | 28.359 | |
| 7,400.0 | 7,034.4 | 7,367.6 | 7,130.9 | 28.2 | 19.6 | -95.42 | 113.3 | 269.0 | 1,135.7 | 1,095.2 | 40.55 | 28.007 | |
| 7,450.0 | 7,051.5 | 7,426.4 | 7,153.2 | 28.1 | 20.0 | -95.51 | 113.3 | 214.5 | 1,135.9 | 1,094.7 | 41.25 | 27.536 | |
| 7,500.0 | 7,065.4 | 7,485.5 | 7,171.0 | 28.0 | 20.5 | -95.58 | 113.3 | 158.3 | 1,136.0 | 1,093.9 | 42.14 | 26.957 | |
| 7,550.0 | 7,075.9 | 7,544.6 | 7,184.1 | 27.9 | 21.2 | -95.61 | 113.3 | 100.6 | 1,136.1 | 1,092.9 | 43.22 | 26.285 | |
| 7,600.0 | 7,082.9 | 7,603.8 | 7,192.4 | 27.8 | 21.9 | -95.61 | 113.3 | 42.0 | 1,136.1 | 1,091.6 | 44.48 | 25.541 | |
| 7,650.0 | 7,086.5 | 7,663.0 | 7,195.9 | 27.7 | 22.7 | -95.58 | 113.3 | -17.0 | 1,136.0 | 1,090.1 | 45.90 | 24.750 | |
| 7,677.7 | 7,087.0 | 7,693.3 | 7,195.9 | 27.6 | 23.1 | -95.55 | 113.3 | -47.3 | 1,136.0 | 1,089.3 | 46.71 | 24.321 | |
| 7,700.0 | 7,087.0 | 7,715.6 | 7,195.8 | 27.6 | 23.5 | -95.55 | 113.3 | -69.6 | 1,136.0 | 1,088.6 | 47.37 | 23.979 | |
| 7,800.0 | 7,086.8 | 7,815.6 | 7,195.1 | 27.5 | 25.2 | -95.52 | 113.3 | -169.6 | 1,135.9 | 1,085.4 | 50.57 | 22.461 | |
| 7,900.0 | 7,086.6 | 7,915.6 | 7,194.5 | 27.9 | 27.0 | -95.50 | 113.3 | -269.6 | 1,135.9 | 1,081.7 | 54.16 | 20.972 | |
| 8,000.0 | 7,086.4 | 8,015.6 | 7,193.8 | 29.5 | 29.1 | -95.48 | 113.3 | -369.6 | 1,135.8 | 1,077.8 | 58.07 | 19.560 | |
| 8,100.0 | 7,086.2 | 8,115.6 | 7,193.2 | 31.5 | 31.2 | -95.46 | 113.3 | -469.6 | 1,135.8 | 1,073.6 | 62.24 | 18.250 | |
| 8,200.0 | 7,086.0 | 8,215.6 | 7,192.5 | 33.7 | 33.4 | -95.43 | 113.3 | -569.6 | 1,135.7 | 1,069.1 | 66.61 | 17.050 | |
| 8,300.0 | 7,085.8 | 8,315.6 | 7,191.9 | 36.0 | 35.8 | -95.41 | 113.3 | -669.6 | 1,135.7 | 1,064.5 | 71.16 | 15.960 | |
| 8,400.0 | 7,085.6 | 8,415.6 | 7,191.2 | 38.3 | 38.2 | -95.39 | 113.3 | -769.6 | 1,135.7 | 1,059.8 | 75.85 | 14.973 | |
| 8,500.0 | 7,085.4 | 8,515.6 | 7,190.6 | 40.7 | 40.6 | -95.36 | 113.3 | -869.6 | 1,135.6 | 1,055.0 | 80.65 | 14.081 | |
| 8,600.0 | 7,085.2 | 8,615.6 | 7,189.9 | 43.1 | 43.1 | -95.34 | 113.3 | -969.6 | 1,135.6 | 1,050.0 | 85.55 | 13.273 | |
| 8,700.0 | 7,085.0 | 8,715.6 | 7,189.3 | 45.6 | 45.6 | -95.32 | 113.3 | -1,069.6 | 1,135.5 | 1,045.0 | 90.53 | 12.542 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-334 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.0 | 7,084.8 | 8,815.6 | 7,188.6 | 48.1 | 48.2 | -95.29 | 113.3 | -1,169.6 | 1,135.5 | 1,039.9 | 95.59 | 11.879 | |
| 8,900.0 | 7,084.6 | 8,915.6 | 7,187.9 | 50.7 | 50.7 | -95.27 | 113.3 | -1,269.6 | 1,135.4 | 1,034.8 | 100.69 | 11.276 | |
| 9,000.0 | 7,084.4 | 9,015.6 | 7,187.3 | 53.2 | 53.3 | -95.25 | 113.3 | -1,369.6 | 1,135.4 | 1,029.6 | 105.85 | 10.726 | |
| 9,100.0 | 7,084.2 | 9,115.6 | 7,186.6 | 55.8 | 56.0 | -95.23 | 113.3 | -1,469.6 | 1,135.4 | 1,024.3 | 111.05 | 10.223 | |
| 9,200.0 | 7,084.0 | 9,215.6 | 7,186.0 | 58.4 | 58.6 | -95.20 | 113.3 | -1,569.6 | 1,135.3 | 1,019.0 | 116.29 | 9.763 | |
| 9,300.0 | 7,083.8 | 9,315.6 | 7,185.3 | 61.1 | 61.3 | -95.18 | 113.3 | -1,669.6 | 1,135.3 | 1,013.7 | 121.56 | 9.339 | |
| 9,400.0 | 7,083.7 | 9,415.6 | 7,184.7 | 63.7 | 63.9 | -95.16 | 113.3 | -1,769.6 | 1,135.2 | 1,008.4 | 126.86 | 8.948 | |
| 9,500.0 | 7,083.5 | 9,515.6 | 7,184.0 | 66.3 | 66.6 | -95.13 | 113.3 | -1,869.6 | 1,135.2 | 1,003.0 | 132.19 | 8.588 | |
| 9,600.0 | 7,083.3 | 9,615.6 | 7,183.4 | 69.0 | 69.3 | -95.11 | 113.3 | -1,969.6 | 1,135.1 | 997.6 | 137.54 | 8.254 | |
| 9,700.0 | 7,083.1 | 9,715.6 | 7,182.7 | 71.7 | 72.0 | -95.09 | 113.3 | -2,069.6 | 1,135.1 | 992.2 | 142.90 | 7.943 | |
| 9,800.0 | 7,082.9 | 9,815.6 | 7,182.1 | 74.4 | 74.7 | -95.06 | 113.3 | -2,169.6 | 1,135.1 | 986.8 | 148.29 | 7.655 | |
| 9,900.0 | 7,082.7 | 9,915.6 | 7,181.4 | 77.1 | 77.4 | -95.04 | 113.3 | -2,269.6 | 1,135.0 | 981.3 | 153.69 | 7.385 | |
| 10,000.0 | 7,082.5 | 10,015.6 | 7,180.7 | 79.7 | 80.2 | -95.02 | 113.3 | -2,369.6 | 1,135.0 | 975.9 | 159.10 | 7.134 | |
| 10,100.0 | 7,082.3 | 10,115.6 | 7,180.1 | 82.5 | 82.9 | -94.99 | 113.3 | -2,469.5 | 1,134.9 | 970.4 | 164.53 | 6.898 | |
| 10,200.0 | 7,082.1 | 10,215.6 | 7,179.4 | 85.2 | 85.6 | -94.97 | 113.3 | -2,569.5 | 1,134.9 | 964.9 | 169.97 | 6.677 | |
| 10,300.0 | 7,081.9 | 10,315.6 | 7,178.8 | 87.9 | 88.4 | -94.95 | 113.3 | -2,669.5 | 1,134.9 | 959.4 | 175.42 | 6.470 | |
| 10,400.0 | 7,081.7 | 10,415.6 | 7,178.1 | 90.6 | 91.1 | -94.92 | 113.3 | -2,769.5 | 1,134.8 | 953.9 | 180.88 | 6.274 | |
| 10,500.0 | 7,081.5 | 10,515.6 | 7,177.5 | 93.3 | 93.8 | -94.90 | 113.3 | -2,869.5 | 1,134.8 | 948.4 | 186.34 | 6.090 | |
| 10,600.0 | 7,081.3 | 10,615.6 | 7,176.8 | 96.1 | 96.6 | -94.88 | 113.3 | -2,969.5 | 1,134.7 | 942.9 | 191.82 | 5.916 | |
| 10,700.0 | 7,081.1 | 10,715.6 | 7,176.1 | 98.8 | 99.3 | -94.86 | 113.3 | -3,069.5 | 1,134.7 | 937.4 | 197.30 | 5.751 | |
| 10,800.0 | 7,080.9 | 10,815.6 | 7,175.5 | 101.5 | 102.1 | -94.83 | 113.3 | -3,169.5 | 1,134.7 | 931.9 | 202.79 | 5.595 | |
| 10,900.0 | 7,080.7 | 10,915.6 | 7,174.8 | 104.3 | 104.9 | -94.81 | 113.3 | -3,269.5 | 1,134.6 | 926.3 | 208.29 | 5.447 | |
| 11,000.0 | 7,080.5 | 11,015.6 | 7,174.2 | 107.0 | 107.6 | -94.79 | 113.3 | -3,369.5 | 1,134.6 | 920.8 | 213.79 | 5.307 | |
| 11,100.0 | 7,080.3 | 11,115.6 | 7,173.5 | 109.8 | 110.4 | -94.76 | 113.3 | -3,469.5 | 1,134.5 | 915.2 | 219.30 | 5.173 | |
| 11,200.0 | 7,080.1 | 11,215.6 | 7,172.8 | 112.5 | 113.1 | -94.74 | 113.3 | -3,569.5 | 1,134.5 | 909.7 | 224.82 | 5.046 | |
| 11,300.0 | 7,079.9 | 11,315.6 | 7,172.2 | 115.3 | 115.9 | -94.72 | 113.3 | -3,669.5 | 1,134.5 | 904.1 | 230.33 | 4.925 | |
| 11,400.0 | 7,079.7 | 11,415.6 | 7,171.5 | 118.0 | 118.7 | -94.69 | 113.3 | -3,769.5 | 1,134.4 | 898.6 | 235.86 | 4.810 | |
| 11,500.0 | 7,079.5 | 11,515.6 | 7,170.9 | 120.8 | 121.5 | -94.67 | 113.3 | -3,869.5 | 1,134.4 | 893.0 | 241.38 | 4.699 | |
| 11,600.0 | 7,079.3 | 11,615.6 | 7,170.2 | 123.6 | 124.2 | -94.65 | 113.3 | -3,969.5 | 1,134.3 | 887.4 | 246.91 | 4.594 | |
| 11,700.0 | 7,079.1 | 11,715.6 | 7,169.5 | 126.3 | 127.0 | -94.62 | 113.3 | -4,069.5 | 1,134.3 | 881.9 | 252.45 | 4.493 | |
| 11,766.0 | 7,079.0 | 11,781.5 | 7,169.1 | 128.2 | 128.8 | -94.61 | 113.3 | -4,135.5 | 1,134.3 | 878.2 | 256.10 | 4.429 | |
| 11,800.0 | 7,078.9 | 11,797.6 | 7,169.0 | 129.1 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,134.4 | 876.9 | 257.49 | 4.406 | |
| 11,900.0 | 7,078.7 | 11,797.6 | 7,169.0 | 131.9 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,140.3 | 880.1 | 260.25 | 4.382 SF | |
| 12,000.0 | 7,078.5 | 11,797.6 | 7,169.0 | 134.6 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,154.9 | 891.9 | 263.02 | 4.391 | |
| 12,100.0 | 7,078.3 | 11,797.6 | 7,169.0 | 137.4 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,177.9 | 912.1 | 265.79 | 4.432 | |
| 12,200.0 | 7,078.1 | 11,797.6 | 7,169.0 | 140.2 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,208.7 | 940.1 | 268.56 | 4.501 | |
| 12,300.0 | 7,077.9 | 11,797.6 | 7,169.0 | 142.9 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,246.8 | 975.4 | 271.33 | 4.595 | |
| 12,400.0 | 7,077.7 | 11,797.6 | 7,169.0 | 145.7 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,291.5 | 1,017.4 | 274.10 | 4.712 | |
| 12,500.0 | 7,077.5 | 11,797.6 | 7,169.0 | 148.5 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,342.2 | 1,065.3 | 276.87 | 4.848 | |
| 12,600.0 | 7,077.3 | 11,797.6 | 7,169.0 | 151.3 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,398.2 | 1,118.6 | 279.64 | 5.000 | |
| 12,700.0 | 7,077.1 | 11,797.6 | 7,169.0 | 154.0 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,458.9 | 1,176.5 | 282.42 | 5.166 | |
| 12,800.0 | 7,076.9 | 11,797.6 | 7,169.0 | 156.8 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,523.8 | 1,238.6 | 285.19 | 5.343 | |
| 12,900.0 | 7,076.7 | 11,797.6 | 7,169.0 | 159.6 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,592.3 | 1,304.4 | 287.97 | 5.529 | |
| 13,000.0 | 7,076.5 | 11,797.6 | 7,169.0 | 162.4 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,664.0 | 1,373.3 | 290.75 | 5.723 | |
| 13,100.0 | 7,076.3 | 11,797.6 | 7,169.0 | 165.2 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,738.6 | 1,445.0 | 293.53 | 5.923 | |
| 13,200.0 | 7,076.1 | 11,797.6 | 7,169.0 | 168.0 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,815.5 | 1,519.2 | 296.31 | 6.127 | |
| 13,300.0 | 7,075.9 | 11,797.6 | 7,169.0 | 170.7 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,894.6 | 1,595.5 | 299.09 | 6.335 | |
| 13,400.0 | 7,075.7 | 11,797.6 | 7,169.0 | 173.5 | 129.3 | -94.60 | 113.3 | -4,151.5 | 1,975.6 | 1,673.8 | 301.87 | 6.545 | |
| 13,500.0 | 7,075.5 | 11,797.6 | 7,169.0 | 176.3 | 129.3 | -94.60 | 113.3 | -4,151.5 | 2,058.3 | 1,753.7 | 304.65 | 6.756 | |
| 13,600.0 | 7,075.3 | 11,797.6 | 7,169.0 | 179.1 | 129.3 | -94.60 | 113.3 | -4,151.5 | 2,142.5 | 1,835.0 | 307.43 | 6.969 | |
| 13,700.0 | 7,075.1 | 11,797.6 | 7,169.0 | 181.9 | 129.3 | -94.60 | 113.3 | -4,151.5 | 2,227.9 | 1,917.7 | 310.21 | 7.182 | |
| 13,800.0 | 7,074.9 | 11,797.6 | 7,169.0 | 184.7 | 129.3 | -94.60 | 113.3 | -4,151.5 | 2,314.6 | 2,001.6 | 312.99 | 7.395 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** NE SW SEC. 21 T4N R67W 6th P.M. - SHARON 21O-334 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.0 | 7,074.7 | 11,797.6 | 7,169.0 | 187.5 | 129.3 | -94.60 | 113.3 | -4,151.5 | 2,402.2 | 2,086.4 | 315.78 | 7.607 | |
| 14,000.0 | 7,074.5 | 11,797.6 | 7,169.0 | 190.2 | 129.3 | -94.60 | 113.3 | -4,151.5 | 2,490.8 | 2,172.3 | 318.56 | 7.819 | |
| 14,100.0 | 7,074.2 | 11,797.6 | 7,169.0 | 193.0 | 129.3 | -94.60 | 113.3 | -4,151.5 | 2,580.3 | 2,258.9 | 321.35 | 8.030 | |
| 14,200.0 | 7,074.0 | 11,797.6 | 7,169.0 | 195.8 | 129.3 | -94.60 | 113.3 | -4,151.5 | 2,670.4 | 2,346.3 | 324.13 | 8.239 | |
| 14,221.4 | 7,074.0 | 11,797.6 | 7,169.0 | 196.4 | 129.3 | -94.60 | 113.3 | -4,151.5 | 2,689.8 | 2,365.1 | 324.73 | 8.283 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 33-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 568-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -106.61 | -1,183.7 | -3,967.9 | 4,140.9 | | | | |
| 100.0 | 100.0 | 56.4 | 56.4 | 0.1 | 0.1 | -106.61 | -1,183.7 | -3,967.9 | 4,140.7 | 4,140.5 | 0.16 | N/A | |
| 200.0 | 200.0 | 152.7 | 152.7 | 0.3 | 0.2 | -106.61 | -1,183.7 | -3,968.0 | 4,140.8 | 4,140.3 | 0.49 | 8,441.240 | |
| 300.0 | 300.0 | 249.0 | 249.0 | 0.5 | 0.3 | -106.61 | -1,183.8 | -3,968.1 | 4,141.0 | 4,140.1 | 0.82 | 5,039.773 | |
| 400.0 | 400.0 | 345.3 | 345.3 | 0.8 | 0.4 | -106.61 | -1,183.8 | -3,968.4 | 4,141.2 | 4,140.1 | 1.15 | 3,592.418 | |
| 500.0 | 500.0 | 441.6 | 441.6 | 1.0 | 0.5 | -134.95 | -1,184.0 | -3,968.7 | 4,142.8 | 4,141.3 | 1.49 | 2,789.664 | |
| 600.0 | 599.8 | 537.8 | 537.8 | 1.2 | 0.6 | -134.94 | -1,184.1 | -3,969.1 | 4,147.0 | 4,145.2 | 1.82 | 2,274.343 | |
| 700.0 | 699.5 | 643.1 | 643.1 | 1.5 | 0.8 | -134.93 | -1,184.1 | -3,969.6 | 4,153.6 | 4,151.4 | 2.25 | 1,846.326 | |
| 800.0 | 798.7 | 753.3 | 753.3 | 1.7 | 1.0 | -134.94 | -1,183.9 | -3,970.0 | 4,162.5 | 4,159.8 | 2.71 | 1,534.888 | |
| 900.0 | 897.5 | 831.4 | 831.4 | 2.0 | 1.2 | -134.89 | -1,183.9 | -3,970.2 | 4,173.9 | 4,170.8 | 3.15 | 1,326.880 | |
| 1,000.0 | 995.6 | 928.9 | 928.9 | 2.4 | 1.4 | -134.87 | -1,183.9 | -3,970.9 | 4,188.2 | 4,184.5 | 3.65 | 1,148.341 | |
| 1,100.0 | 1,093.1 | 1,029.4 | 1,029.4 | 2.8 | 1.6 | -134.85 | -1,183.9 | -3,971.5 | 4,204.8 | 4,200.6 | 4.18 | 1,006.503 | |
| 1,164.2 | 1,155.2 | 1,084.7 | 1,084.7 | 3.1 | 1.7 | -134.81 | -1,183.9 | -3,971.8 | 4,216.8 | 4,212.3 | 4.52 | 932.603 | |
| 1,200.0 | 1,189.7 | 1,114.9 | 1,114.9 | 3.2 | 1.7 | -134.89 | -1,183.9 | -3,972.1 | 4,223.9 | 4,219.1 | 4.72 | 895.592 | |
| 1,300.0 | 1,286.2 | 1,209.9 | 1,209.9 | 3.7 | 2.0 | -135.13 | -1,183.7 | -3,973.0 | 4,243.7 | 4,238.4 | 5.29 | 801.827 | |
| 1,400.0 | 1,382.6 | 1,307.6 | 1,307.5 | 4.2 | 2.2 | -135.37 | -1,183.3 | -3,973.9 | 4,263.5 | 4,257.6 | 5.88 | 725.337 | |
| 1,500.0 | 1,479.1 | 1,418.9 | 1,418.9 | 4.7 | 2.4 | -135.64 | -1,183.0 | -3,974.7 | 4,283.2 | 4,276.7 | 6.49 | 659.852 | |
| 1,600.0 | 1,575.6 | 1,507.5 | 1,507.4 | 5.3 | 2.6 | -135.85 | -1,182.6 | -3,975.4 | 4,303.0 | 4,295.9 | 7.07 | 608.598 | |
| 1,700.0 | 1,672.0 | 1,597.0 | 1,597.0 | 5.8 | 2.8 | -136.06 | -1,181.9 | -3,976.1 | 4,322.8 | 4,315.2 | 7.66 | 564.500 | |
| 1,800.0 | 1,768.5 | 1,690.0 | 1,690.0 | 6.3 | 3.0 | -136.28 | -1,181.5 | -3,977.1 | 4,343.0 | 4,334.7 | 8.25 | 526.291 | |
| 1,900.0 | 1,864.9 | 2,065.0 | 2,064.3 | 6.8 | 3.8 | -137.00 | -1,164.7 | -3,972.8 | 4,359.4 | 4,350.0 | 9.40 | 463.653 | |
| 2,000.0 | 1,961.4 | 2,113.3 | 2,112.3 | 7.4 | 3.9 | -137.05 | -1,158.9 | -3,972.2 | 4,374.0 | 4,364.0 | 9.93 | 440.639 | |
| 2,100.0 | 2,057.9 | 2,161.0 | 2,159.5 | 7.9 | 4.0 | -137.08 | -1,152.6 | -3,972.6 | 4,389.8 | 4,379.3 | 10.45 | 420.040 | |
| 2,200.0 | 2,154.3 | 2,391.8 | 2,386.7 | 8.4 | 4.6 | -137.11 | -1,112.2 | -3,975.0 | 4,404.3 | 4,392.9 | 11.48 | 383.491 | |
| 2,300.0 | 2,250.8 | 2,465.9 | 2,458.7 | 9.0 | 4.9 | -137.07 | -1,095.2 | -3,976.4 | 4,418.1 | 4,405.9 | 12.14 | 363.872 | |
| 2,400.0 | 2,347.3 | 2,567.0 | 2,555.9 | 9.5 | 5.3 | -136.95 | -1,067.5 | -3,980.3 | 4,432.1 | 4,419.2 | 12.95 | 342.362 | |
| 2,500.0 | 2,443.7 | 2,662.9 | 2,647.2 | 10.0 | 5.7 | -136.79 | -1,038.4 | -3,984.7 | 4,445.9 | 4,432.1 | 13.77 | 322.849 | |
| 2,600.0 | 2,540.2 | 2,734.0 | 2,714.9 | 10.6 | 6.0 | -136.67 | -1,016.9 | -3,988.4 | 4,460.3 | 4,445.8 | 14.50 | 307.658 | |
| 2,700.0 | 2,636.7 | 2,863.2 | 2,838.5 | 11.1 | 6.5 | -136.49 | -979.9 | -3,994.5 | 4,474.9 | 4,459.4 | 15.46 | 289.395 | |
| 2,800.0 | 2,733.1 | 2,996.3 | 2,966.5 | 11.6 | 7.1 | -136.34 | -943.5 | -3,998.6 | 4,488.2 | 4,471.8 | 16.45 | 272.767 | |
| 2,900.0 | 2,829.6 | 3,114.2 | 3,080.4 | 12.2 | 7.6 | -136.24 | -913.3 | -4,001.0 | 4,501.3 | 4,483.9 | 17.38 | 258.971 | |
| 3,000.0 | 2,926.0 | 3,211.8 | 3,174.7 | 12.7 | 8.0 | -136.15 | -888.3 | -4,002.6 | 4,514.0 | 4,495.8 | 18.23 | 247.578 | |
| 3,100.0 | 3,022.5 | 3,281.0 | 3,241.7 | 13.2 | 8.3 | -136.10 | -871.0 | -4,004.0 | 4,527.2 | 4,508.3 | 18.96 | 238.743 | |
| 3,200.0 | 3,119.0 | 3,386.4 | 3,343.8 | 13.8 | 8.8 | -136.02 | -845.2 | -4,006.3 | 4,540.8 | 4,521.0 | 19.85 | 228.813 | |
| 3,300.0 | 3,215.4 | 3,562.0 | 3,514.0 | 14.3 | 9.6 | -135.89 | -801.7 | -4,008.2 | 4,553.2 | 4,532.1 | 21.05 | 216.312 | |
| 3,400.0 | 3,311.9 | 3,629.3 | 3,579.0 | 14.9 | 9.9 | -135.84 | -784.5 | -4,008.9 | 4,565.3 | 4,543.5 | 21.78 | 209.563 | |
| 3,500.0 | 3,408.4 | 3,709.7 | 3,656.7 | 15.4 | 10.3 | -135.77 | -763.5 | -4,010.3 | 4,578.0 | 4,555.4 | 22.59 | 202.638 | |
| 3,600.0 | 3,504.8 | 3,794.0 | 3,737.7 | 15.9 | 10.7 | -135.68 | -740.5 | -4,012.4 | 4,591.0 | 4,567.5 | 23.44 | 195.893 | |
| 3,700.0 | 3,601.3 | 3,874.6 | 3,815.0 | 16.5 | 11.1 | -135.58 | -717.9 | -4,014.9 | 4,604.4 | 4,580.1 | 24.28 | 189.656 | |
| 3,800.0 | 3,697.7 | 3,956.2 | 3,893.2 | 17.0 | 11.5 | -135.48 | -694.8 | -4,017.9 | 4,618.1 | 4,593.0 | 25.13 | 183.764 | |
| 3,900.0 | 3,794.2 | 4,045.7 | 3,979.1 | 17.5 | 12.0 | -135.37 | -669.7 | -4,021.4 | 4,632.3 | 4,606.3 | 26.02 | 178.030 | |
| 4,000.0 | 3,890.7 | 4,285.8 | 4,209.7 | 18.1 | 13.2 | -135.11 | -603.2 | -4,025.9 | 4,644.2 | 4,616.5 | 27.66 | 167.899 | |
| 4,100.0 | 3,987.1 | 4,427.6 | 4,345.2 | 18.6 | 14.0 | -134.94 | -561.6 | -4,026.9 | 4,655.0 | 4,626.1 | 28.85 | 161.339 | |
| 4,200.0 | 4,083.6 | 4,497.0 | 4,411.2 | 19.2 | 14.3 | -134.84 | -539.9 | -4,027.6 | 4,665.5 | 4,635.8 | 29.68 | 157.216 | |
| 4,300.0 | 4,180.1 | 4,572.3 | 4,482.6 | 19.7 | 14.8 | -134.72 | -516.2 | -4,028.9 | 4,676.6 | 4,646.1 | 30.54 | 153.134 | |
| 4,400.0 | 4,276.5 | 4,653.4 | 4,559.7 | 20.2 | 15.2 | -134.60 | -490.9 | -4,030.7 | 4,688.3 | 4,656.9 | 31.44 | 149.125 | |
| 4,500.0 | 4,373.0 | 4,724.7 | 4,627.4 | 20.8 | 15.6 | -134.49 | -468.5 | -4,032.6 | 4,700.4 | 4,668.2 | 32.28 | 145.593 | |
| 4,600.0 | 4,469.5 | 4,781.0 | 4,680.9 | 21.3 | 15.9 | -134.41 | -451.2 | -4,034.4 | 4,713.3 | 4,680.3 | 33.04 | 142.639 | |
| 4,700.0 | 4,565.9 | 4,845.1 | 4,742.0 | 21.9 | 16.3 | -134.33 | -432.2 | -4,036.8 | 4,727.0 | 4,693.2 | 33.83 | 139.719 | |
| 4,800.0 | 4,662.4 | 4,916.8 | 4,810.8 | 22.4 | 16.7 | -134.24 | -411.9 | -4,039.8 | 4,741.5 | 4,706.9 | 34.64 | 136.861 | |
| 4,900.0 | 4,758.8 | 4,997.8 | 4,889.3 | 22.9 | 17.0 | -134.19 | -392.1 | -4,042.5 | 4,756.4 | 4,720.9 | 35.47 | 134.110 | |
| 5,000.0 | 4,855.3 | 5,061.0 | 4,951.0 | 23.5 | 17.3 | -134.17 | -378.7 | -4,044.3 | 4,771.7 | 4,735.6 | 36.17 | 131.918 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 33-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 568-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 5,122.0 | 5,010.9 | 24.0 | 17.5 | -134.17 | -367.6 | -4,045.9 | 4,787.8 | 4,751.0 | 36.83 | 130.001 | |
| 5,200.0 | 5,048.2 | 5,186.4 | 5,074.5 | 24.6 | 17.8 | -134.20 | -357.6 | -4,047.8 | 4,804.9 | 4,767.4 | 37.48 | 128.190 | |
| 5,300.0 | 5,144.7 | 5,286.7 | 5,173.8 | 25.1 | 18.1 | -134.26 | -343.8 | -4,050.6 | 4,822.2 | 4,784.0 | 38.22 | 126.174 | |
| 5,400.0 | 5,241.2 | 5,451.4 | 5,337.6 | 25.6 | 18.5 | -134.43 | -326.5 | -4,052.1 | 4,838.9 | 4,799.8 | 39.05 | 123.900 | |
| 5,500.0 | 5,337.6 | 5,528.0 | 5,414.0 | 26.2 | 18.7 | -134.53 | -320.3 | -4,051.8 | 4,854.9 | 4,815.3 | 39.64 | 122.471 | |
| 5,600.0 | 5,434.1 | 5,606.0 | 5,491.8 | 26.7 | 18.9 | -134.65 | -315.0 | -4,051.5 | 4,871.4 | 4,831.2 | 40.21 | 121.135 | |
| 5,700.0 | 5,530.5 | 5,678.4 | 5,564.1 | 27.3 | 19.0 | -134.76 | -310.7 | -4,051.5 | 4,888.5 | 4,847.8 | 40.77 | 119.909 | |
| 5,757.1 | 5,585.6 | 5,715.0 | 5,600.6 | 27.6 | 19.1 | -134.82 | -308.7 | -4,051.6 | 4,898.5 | 4,857.5 | 41.08 | 119.258 | |
| 5,800.0 | 5,627.1 | 5,743.5 | 5,629.0 | 27.8 | 19.2 | -134.97 | -307.3 | -4,051.7 | 4,906.0 | 4,864.7 | 41.28 | 118.839 | |
| 5,900.0 | 5,724.4 | 5,809.0 | 5,694.5 | 28.2 | 19.3 | -135.30 | -305.0 | -4,052.2 | 4,922.2 | 4,880.5 | 41.70 | 118.050 | |
| 6,000.0 | 5,822.4 | 5,864.4 | 5,749.9 | 28.5 | 19.4 | -135.58 | -303.6 | -4,052.8 | 4,936.7 | 4,894.7 | 42.05 | 117.411 | |
| 6,100.0 | 5,921.0 | 5,955.9 | 5,841.3 | 28.8 | 19.5 | -135.86 | -302.2 | -4,054.1 | 4,949.4 | 4,907.0 | 42.40 | 116.744 | |
| 6,200.0 | 6,020.2 | 6,055.1 | 5,940.6 | 29.0 | 19.6 | -136.11 | -302.8 | -4,054.6 | 4,959.4 | 4,916.7 | 42.69 | 116.169 | |
| 6,300.0 | 6,119.7 | 6,181.0 | 6,066.5 | 29.3 | 19.8 | -136.32 | -303.7 | -4,055.1 | 4,966.8 | 4,923.9 | 42.98 | 115.568 | |
| 6,400.0 | 6,219.5 | 6,256.7 | 6,142.1 | 29.4 | 19.9 | -136.42 | -303.9 | -4,055.4 | 4,971.6 | 4,928.4 | 43.19 | 115.122 | |
| 6,500.0 | 6,319.5 | 6,325.9 | 6,211.4 | 29.5 | 19.9 | -136.47 | -304.2 | -4,056.0 | 4,974.4 | 4,931.1 | 43.35 | 114.748 | |
| 6,521.3 | 6,340.8 | 6,340.4 | 6,225.9 | 29.6 | 20.0 | -108.13 | -304.3 | -4,056.2 | 4,974.8 | 4,936.2 | 38.60 | 128.868 | |
| 6,551.3 | 6,370.8 | 6,368.0 | 6,253.4 | 29.6 | 20.0 | -108.13 | -304.5 | -4,056.6 | 4,975.3 | 4,936.6 | 38.69 | 128.605 | |
| 6,600.0 | 6,419.5 | 6,403.2 | 6,288.6 | 29.6 | 20.0 | -18.16 | -304.7 | -4,057.2 | 4,974.6 | 4,931.2 | 43.33 | 114.811 | |
| 6,650.0 | 6,469.2 | 6,449.1 | 6,334.5 | 29.6 | 20.1 | -18.27 | -304.9 | -4,058.0 | 4,970.6 | 4,927.6 | 43.00 | 115.582 | |
| 6,700.0 | 6,518.4 | 6,517.6 | 6,403.0 | 29.6 | 20.2 | -18.50 | -305.2 | -4,059.2 | 4,963.3 | 4,920.8 | 42.50 | 116.786 | |
| 6,750.0 | 6,567.0 | 6,581.3 | 6,466.7 | 29.6 | 20.3 | -18.84 | -305.4 | -4,059.9 | 4,952.5 | 4,910.7 | 41.78 | 118.536 | |
| 6,800.0 | 6,614.5 | 6,631.8 | 6,517.3 | 29.6 | 20.3 | -19.29 | -305.5 | -4,060.5 | 4,938.5 | 4,897.6 | 40.85 | 120.897 | |
| 6,850.0 | 6,660.9 | 6,670.3 | 6,555.8 | 29.5 | 20.4 | -19.83 | -305.5 | -4,061.0 | 4,921.3 | 4,881.6 | 39.71 | 123.916 | |
| 6,900.0 | 6,705.9 | 6,702.2 | 6,587.6 | 29.4 | 20.4 | -20.50 | -305.5 | -4,061.5 | 4,901.2 | 4,862.8 | 38.40 | 127.645 | |
| 6,950.0 | 6,749.2 | 6,743.0 | 6,628.4 | 29.3 | 20.5 | -21.33 | -305.7 | -4,062.2 | 4,878.4 | 4,841.4 | 36.93 | 132.109 | |
| 7,000.0 | 6,790.7 | 6,794.0 | 6,679.4 | 29.2 | 20.6 | -22.37 | -306.0 | -4,063.0 | 4,852.7 | 4,817.3 | 35.32 | 137.383 | |
| 7,050.0 | 6,830.2 | 6,851.6 | 6,737.0 | 29.1 | 20.6 | -23.66 | -306.3 | -4,063.6 | 4,824.0 | 4,790.4 | 33.61 | 143.528 | |
| 7,100.0 | 6,867.4 | 6,886.3 | 6,771.7 | 29.0 | 20.7 | -25.13 | -306.4 | -4,064.0 | 4,792.8 | 4,761.0 | 31.81 | 150.653 | |
| 7,150.0 | 6,902.2 | 6,918.8 | 6,804.2 | 28.9 | 20.7 | -26.88 | -306.6 | -4,064.3 | 4,759.3 | 4,729.3 | 30.01 | 158.600 | |
| 7,200.0 | 6,934.4 | 6,961.5 | 6,846.9 | 28.7 | 20.8 | -29.07 | -306.8 | -4,064.7 | 4,723.5 | 4,695.2 | 28.30 | 166.938 | |
| 7,250.0 | 6,963.8 | 7,007.0 | 6,892.4 | 28.6 | 20.8 | -31.77 | -307.0 | -4,065.1 | 4,685.6 | 4,658.8 | 26.81 | 174.790 | |
| 7,300.0 | 6,990.4 | 7,039.3 | 6,924.7 | 28.5 | 20.9 | -34.97 | -307.1 | -4,065.2 | 4,645.8 | 4,620.1 | 25.70 | 180.742 | |
| 7,350.0 | 7,013.9 | 7,063.1 | 6,948.5 | 28.4 | 20.9 | -38.80 | -307.0 | -4,065.4 | 4,604.4 | 4,579.2 | 25.20 | 182.717 | |
| 7,400.0 | 7,034.4 | 7,083.9 | 6,969.2 | 28.2 | 20.9 | -43.47 | -307.0 | -4,065.5 | 4,561.6 | 4,536.1 | 25.51 | 178.790 | |
| 7,450.0 | 7,051.5 | 7,101.4 | 6,986.8 | 28.1 | 21.0 | -49.16 | -306.9 | -4,065.6 | 4,517.6 | 4,490.8 | 26.77 | 168.742 | |
| 7,500.0 | 7,065.4 | 7,115.7 | 7,001.1 | 28.0 | 21.0 | -56.04 | -306.8 | -4,065.7 | 4,472.6 | 4,443.6 | 28.94 | 154.553 | |
| 7,550.0 | 7,075.9 | 7,130.3 | 7,015.7 | 27.9 | 21.0 | -64.31 | -306.7 | -4,065.8 | 4,426.8 | 4,395.0 | 31.81 | 139.179 | |
| 7,600.0 | 7,082.9 | 7,140.6 | 7,025.9 | 27.8 | 21.0 | -73.78 | -306.7 | -4,065.9 | 4,380.5 | 4,345.6 | 34.87 | 125.637 | |
| 7,650.0 | 7,086.5 | 7,145.9 | 7,031.3 | 27.7 | 21.0 | -84.02 | -306.6 | -4,065.9 | 4,333.9 | 4,296.4 | 37.53 | 115.478 | |
| 7,677.7 | 7,087.0 | 7,146.8 | 7,032.2 | 27.6 | 21.0 | -89.79 | -306.6 | -4,065.9 | 4,308.1 | 4,269.4 | 38.66 | 111.444 | |
| 7,700.0 | 7,087.0 | 7,146.9 | 7,032.3 | 27.6 | 21.0 | -89.80 | -306.6 | -4,065.9 | 4,287.3 | 4,248.3 | 38.97 | 110.022 | |
| 7,800.0 | 7,086.8 | 7,147.5 | 7,032.8 | 27.5 | 21.0 | -89.82 | -306.6 | -4,065.9 | 4,194.2 | 4,153.7 | 40.50 | 103.550 | |
| 7,900.0 | 7,086.6 | 7,148.0 | 7,033.4 | 27.9 | 21.0 | -89.84 | -306.6 | -4,065.9 | 4,101.4 | 4,059.2 | 42.25 | 97.081 | |
| 8,000.0 | 7,086.4 | 7,148.5 | 7,033.9 | 29.5 | 21.0 | -89.86 | -306.6 | -4,066.0 | 4,009.0 | 3,964.9 | 44.16 | 90.784 | |
| 8,100.0 | 7,086.2 | 7,149.0 | 7,034.4 | 31.5 | 21.0 | -89.88 | -306.6 | -4,066.0 | 3,917.0 | 3,870.8 | 46.21 | 84.764 | |
| 8,200.0 | 7,086.0 | 7,149.5 | 7,034.9 | 33.7 | 21.0 | -89.90 | -306.6 | -4,066.0 | 3,825.4 | 3,777.0 | 48.37 | 79.079 | |
| 8,300.0 | 7,085.8 | 7,150.0 | 7,035.4 | 36.0 | 21.0 | -89.91 | -306.6 | -4,066.0 | 3,734.2 | 3,683.6 | 50.63 | 73.757 | |
| 8,400.0 | 7,085.6 | 7,150.5 | 7,035.9 | 38.3 | 21.0 | -89.93 | -306.6 | -4,066.0 | 3,643.5 | 3,590.5 | 52.96 | 68.799 | |
| 8,500.0 | 7,085.4 | 7,151.0 | 7,036.4 | 40.7 | 21.0 | -89.95 | -306.6 | -4,066.0 | 3,553.2 | 3,497.9 | 55.35 | 64.196 | |
| 8,600.0 | 7,085.2 | 7,151.5 | 7,036.8 | 43.1 | 21.0 | -89.97 | -306.6 | -4,066.0 | 3,463.5 | 3,405.7 | 57.79 | 59.931 | |
| 8,700.0 | 7,085.0 | 7,151.9 | 7,037.3 | 45.6 | 21.0 | -89.99 | -306.6 | -4,066.0 | 3,374.4 | 3,314.1 | 60.28 | 55.981 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 33-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 568-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.0 | 7,084.8 | 7,152.4 | 7,037.8 | 48.1 | 21.0 | -90.00 | -306.6 | -4,066.0 | 3,285.9 | 3,223.1 | 62.80 | 52.323 | |
| 8,900.0 | 7,084.6 | 7,152.8 | 7,038.2 | 50.7 | 21.0 | -90.02 | -306.6 | -4,066.0 | 3,198.1 | 3,132.7 | 65.35 | 48.936 | |
| 9,000.0 | 7,084.4 | 7,153.3 | 7,038.6 | 53.2 | 21.0 | -90.04 | -306.6 | -4,066.0 | 3,111.0 | 3,043.1 | 67.93 | 45.796 | |
| 9,100.0 | 7,084.2 | 7,153.7 | 7,039.1 | 55.8 | 21.0 | -90.05 | -306.6 | -4,066.0 | 3,024.7 | 2,954.2 | 70.53 | 42.883 | |
| 9,200.0 | 7,084.0 | 7,154.1 | 7,039.5 | 58.4 | 21.1 | -90.07 | -306.6 | -4,066.0 | 2,939.3 | 2,866.1 | 73.15 | 40.179 | |
| 9,300.0 | 7,083.8 | 7,154.5 | 7,039.9 | 61.1 | 21.1 | -90.08 | -306.6 | -4,066.0 | 2,854.8 | 2,779.0 | 75.79 | 37.666 | |
| 9,400.0 | 7,083.7 | 7,154.9 | 7,040.3 | 63.7 | 21.1 | -90.10 | -306.6 | -4,066.0 | 2,771.4 | 2,692.9 | 78.45 | 35.329 | |
| 9,500.0 | 7,083.5 | 7,155.3 | 7,040.7 | 66.3 | 21.1 | -90.11 | -306.6 | -4,066.0 | 2,689.1 | 2,608.0 | 81.11 | 33.153 | |
| 9,600.0 | 7,083.3 | 7,155.7 | 7,041.1 | 69.0 | 21.1 | -90.13 | -306.5 | -4,066.0 | 2,608.0 | 2,524.2 | 83.79 | 31.126 | |
| 9,700.0 | 7,083.1 | 7,156.1 | 7,041.5 | 71.7 | 21.1 | -90.14 | -306.5 | -4,066.0 | 2,528.3 | 2,441.8 | 86.48 | 29.236 | |
| 9,800.0 | 7,082.9 | 7,156.5 | 7,041.9 | 74.4 | 21.1 | -90.16 | -306.5 | -4,066.0 | 2,450.1 | 2,360.9 | 89.17 | 27.475 | |
| 9,900.0 | 7,082.7 | 7,156.9 | 7,042.3 | 77.1 | 21.1 | -90.17 | -306.5 | -4,066.0 | 2,373.5 | 2,281.6 | 91.88 | 25.833 | |
| 10,000.0 | 7,082.5 | 7,157.3 | 7,042.6 | 79.7 | 21.1 | -90.18 | -306.5 | -4,066.0 | 2,298.7 | 2,204.1 | 94.59 | 24.301 | |
| 10,100.0 | 7,082.3 | 7,157.6 | 7,043.0 | 82.5 | 21.1 | -90.20 | -306.5 | -4,066.0 | 2,225.9 | 2,128.6 | 97.31 | 22.874 | |
| 10,200.0 | 7,082.1 | 7,158.0 | 7,043.4 | 85.2 | 21.1 | -90.21 | -306.5 | -4,066.0 | 2,155.3 | 2,055.2 | 100.04 | 21.545 | |
| 10,300.0 | 7,081.9 | 7,158.3 | 7,043.7 | 87.9 | 21.1 | -90.23 | -306.5 | -4,066.0 | 2,087.1 | 1,984.3 | 102.77 | 20.309 | |
| 10,400.0 | 7,081.7 | 7,158.7 | 7,044.1 | 90.6 | 21.1 | -90.24 | -306.5 | -4,066.0 | 2,021.5 | 1,916.0 | 105.50 | 19.161 | |
| 10,500.0 | 7,081.5 | 7,159.0 | 7,044.4 | 93.3 | 21.1 | -90.25 | -306.5 | -4,066.0 | 1,958.8 | 1,850.6 | 108.24 | 18.097 | |
| 10,600.0 | 7,081.3 | 7,159.4 | 7,044.7 | 96.1 | 21.1 | -90.26 | -306.5 | -4,066.0 | 1,899.3 | 1,788.4 | 110.98 | 17.114 | |
| 10,700.0 | 7,081.1 | 7,159.7 | 7,045.1 | 98.8 | 21.1 | -90.28 | -306.5 | -4,066.0 | 1,843.4 | 1,729.7 | 113.73 | 16.208 | |
| 10,800.0 | 7,080.9 | 7,160.0 | 7,045.4 | 101.5 | 21.1 | -90.29 | -306.5 | -4,066.0 | 1,791.3 | 1,674.8 | 116.48 | 15.378 | |
| 10,900.0 | 7,080.7 | 7,160.4 | 7,045.7 | 104.3 | 21.1 | -90.30 | -306.5 | -4,066.0 | 1,743.3 | 1,624.1 | 119.24 | 14.621 | |
| 11,000.0 | 7,080.5 | 7,160.7 | 7,046.0 | 107.0 | 21.1 | -90.31 | -306.5 | -4,066.0 | 1,699.9 | 1,578.0 | 121.99 | 13.935 | |
| 11,100.0 | 7,080.3 | 7,161.0 | 7,046.4 | 109.8 | 21.1 | -90.32 | -306.5 | -4,066.0 | 1,661.4 | 1,536.7 | 124.75 | 13.318 | |
| 11,200.0 | 7,080.1 | 7,161.3 | 7,046.7 | 112.5 | 21.1 | -90.33 | -306.5 | -4,066.0 | 1,628.2 | 1,500.7 | 127.51 | 12.769 | |
| 11,300.0 | 7,079.9 | 7,161.6 | 7,047.0 | 115.3 | 21.1 | -90.35 | -306.5 | -4,066.0 | 1,600.5 | 1,470.2 | 130.28 | 12.285 | |
| 11,400.0 | 7,079.7 | 7,161.9 | 7,047.3 | 118.0 | 21.1 | -90.36 | -306.5 | -4,066.0 | 1,578.6 | 1,445.6 | 133.05 | 11.865 | |
| 11,500.0 | 7,079.5 | 7,162.2 | 7,047.6 | 120.8 | 21.1 | -90.37 | -306.5 | -4,066.0 | 1,562.9 | 1,427.1 | 135.81 | 11.508 | |
| 11,600.0 | 7,079.3 | 7,162.5 | 7,047.9 | 123.6 | 21.1 | -90.38 | -306.5 | -4,066.0 | 1,553.5 | 1,414.9 | 138.58 | 11.210 | |
| 11,697.1 | 7,079.1 | 7,162.8 | 7,048.1 | 126.2 | 21.1 | -90.39 | -306.5 | -4,066.0 | 1,550.4 | 1,409.2 | 141.28 | 10.974 | CC |
| 11,700.0 | 7,079.1 | 7,162.8 | 7,048.2 | 126.3 | 21.1 | -90.39 | -306.5 | -4,066.0 | 1,550.4 | 1,409.1 | 141.36 | 10.968 | ES |
| 11,800.0 | 7,078.9 | 7,163.1 | 7,048.4 | 129.1 | 21.1 | -90.40 | -306.5 | -4,066.0 | 1,553.8 | 1,409.7 | 144.13 | 10.781 | |
| 11,900.0 | 7,078.7 | 7,163.3 | 7,048.7 | 131.9 | 21.1 | -90.41 | -306.5 | -4,066.0 | 1,563.7 | 1,416.7 | 146.90 | 10.644 | |
| 12,000.0 | 7,078.5 | 7,163.6 | 7,049.0 | 134.6 | 21.1 | -90.42 | -306.5 | -4,066.0 | 1,579.7 | 1,430.1 | 149.68 | 10.554 | |
| 12,100.0 | 7,078.3 | 7,163.9 | 7,049.3 | 137.4 | 21.1 | -90.43 | -306.5 | -4,066.0 | 1,601.9 | 1,449.5 | 152.46 | 10.507 | |
| 12,200.0 | 7,078.1 | 7,164.2 | 7,049.5 | 140.2 | 21.1 | -90.44 | -306.5 | -4,066.0 | 1,629.9 | 1,474.7 | 155.24 | 10.500 | SF |
| 12,300.0 | 7,077.9 | 7,164.4 | 7,049.8 | 142.9 | 21.1 | -90.45 | -306.5 | -4,066.0 | 1,663.5 | 1,505.5 | 158.02 | 10.527 | |
| 12,400.0 | 7,077.7 | 7,164.7 | 7,050.1 | 145.7 | 21.1 | -90.46 | -306.5 | -4,066.0 | 1,702.3 | 1,541.5 | 160.80 | 10.587 | |
| 12,500.0 | 7,077.5 | 7,164.9 | 7,050.3 | 148.5 | 21.1 | -90.47 | -306.5 | -4,066.0 | 1,746.0 | 1,582.4 | 163.58 | 10.673 | |
| 12,600.0 | 7,077.3 | 7,165.2 | 7,050.6 | 151.3 | 21.1 | -90.48 | -306.5 | -4,066.0 | 1,794.2 | 1,627.8 | 166.37 | 10.784 | |
| 12,700.0 | 7,077.1 | 7,165.4 | 7,050.8 | 154.0 | 21.1 | -90.49 | -306.5 | -4,066.0 | 1,846.5 | 1,677.4 | 169.15 | 10.916 | |
| 12,800.0 | 7,076.9 | 7,165.7 | 7,051.1 | 156.8 | 21.1 | -90.50 | -306.5 | -4,066.0 | 1,902.7 | 1,730.7 | 171.94 | 11.066 | |
| 12,900.0 | 7,076.7 | 7,165.9 | 7,051.3 | 159.6 | 21.1 | -90.51 | -306.5 | -4,066.0 | 1,962.3 | 1,787.6 | 174.72 | 11.231 | |
| 13,000.0 | 7,076.5 | 7,166.2 | 7,051.6 | 162.4 | 21.1 | -90.51 | -306.5 | -4,066.0 | 2,025.2 | 1,847.7 | 177.51 | 11.409 | |
| 13,100.0 | 7,076.3 | 7,166.4 | 7,051.8 | 165.2 | 21.1 | -90.52 | -306.5 | -4,066.0 | 2,090.9 | 1,910.6 | 180.30 | 11.597 | |
| 13,200.0 | 7,076.1 | 7,166.7 | 7,052.0 | 168.0 | 21.1 | -90.53 | -306.5 | -4,066.0 | 2,159.3 | 1,976.2 | 183.08 | 11.794 | |
| 13,300.0 | 7,075.9 | 7,166.9 | 7,052.3 | 170.7 | 21.1 | -90.54 | -306.5 | -4,066.0 | 2,230.0 | 2,044.2 | 185.87 | 11.998 | |
| 13,400.0 | 7,075.7 | 7,167.1 | 7,052.5 | 173.5 | 21.1 | -90.55 | -306.5 | -4,066.0 | 2,303.0 | 2,114.3 | 188.66 | 12.207 | |
| 13,500.0 | 7,075.5 | 7,167.3 | 7,052.7 | 176.3 | 21.1 | -90.56 | -306.5 | -4,066.1 | 2,377.9 | 2,186.4 | 191.45 | 12.420 | |
| 13,600.0 | 7,075.3 | 7,167.6 | 7,052.9 | 179.1 | 21.1 | -90.57 | -306.5 | -4,066.1 | 2,454.5 | 2,260.3 | 194.24 | 12.636 | |
| 13,700.0 | 7,075.1 | 7,167.8 | 7,053.2 | 181.9 | 21.1 | -90.57 | -306.5 | -4,066.1 | 2,532.8 | 2,335.8 | 197.03 | 12.855 | |
| 13,800.0 | 7,074.9 | 7,168.0 | 7,053.4 | 184.7 | 21.1 | -90.58 | -306.5 | -4,066.1 | 2,612.6 | 2,412.8 | 199.83 | 13.075 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 33-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 568-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.0 | 7,074.7 | 7,168.2 | 7,053.6 | 187.5 | 21.1 | -90.59 | -306.5 | -4,066.1 | 2,693.8 | 2,491.2 | 202.62 | 13.295 | |
| 14,000.0 | 7,074.5 | 7,168.4 | 7,053.8 | 190.2 | 21.1 | -90.60 | -306.5 | -4,066.1 | 2,776.2 | 2,570.7 | 205.41 | 13.515 | |
| 14,100.0 | 7,074.2 | 7,168.6 | 7,054.0 | 193.0 | 21.1 | -90.60 | -306.5 | -4,066.1 | 2,859.7 | 2,651.4 | 208.20 | 13.735 | |
| 14,200.0 | 7,074.0 | 7,168.8 | 7,054.2 | 195.8 | 21.1 | -90.61 | -306.5 | -4,066.1 | 2,944.2 | 2,733.2 | 211.00 | 13.954 | |
| 14,221.4 | 7,074.0 | 7,168.9 | 7,054.3 | 196.4 | 21.1 | -90.61 | -306.5 | -4,066.1 | 2,962.4 | 2,750.8 | 211.60 | 14.000 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 43-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 599-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -106.91 | -1,205.5 | -3,965.7 | 4,145.0 | | | | |
| 100.0 | 100.0 | 59.1 | 59.1 | 0.1 | 0.1 | -106.91 | -1,205.5 | -3,965.6 | 4,144.8 | 4,144.7 | 0.16 | N/A | |
| 200.0 | 200.0 | 160.2 | 160.2 | 0.3 | 0.2 | -106.91 | -1,205.5 | -3,965.6 | 4,144.8 | 4,144.3 | 0.50 | 8,305.996 | |
| 300.0 | 300.0 | 261.3 | 261.3 | 0.5 | 0.3 | -106.91 | -1,205.5 | -3,965.6 | 4,144.8 | 4,143.9 | 0.84 | 4,960.955 | |
| 400.0 | 400.0 | 362.3 | 362.3 | 0.8 | 0.4 | -106.91 | -1,205.4 | -3,965.5 | 4,144.7 | 4,143.5 | 1.17 | 3,536.605 | |
| 403.8 | 403.8 | 366.2 | 366.2 | 0.8 | 0.4 | -135.25 | -1,205.4 | -3,965.5 | 4,144.7 | 4,143.5 | 1.18 | 3,499.085 | |
| 500.0 | 500.0 | 463.4 | 463.4 | 1.0 | 0.5 | -135.25 | -1,205.3 | -3,965.4 | 4,145.8 | 4,144.3 | 1.51 | 2,748.838 | |
| 600.0 | 599.8 | 1,830.3 | 1,806.2 | 1.2 | 5.1 | -135.37 | -1,097.9 | -3,794.3 | 4,147.1 | 4,142.1 | 4.99 | 831.572 | |
| 700.0 | 699.5 | 1,920.9 | 1,891.9 | 1.5 | 5.6 | -135.64 | -1,079.5 | -3,771.6 | 4,123.1 | 4,117.6 | 5.50 | 749.843 | |
| 800.0 | 798.7 | 2,029.1 | 1,994.2 | 1.7 | 6.2 | -135.88 | -1,056.8 | -3,744.3 | 4,101.0 | 4,094.9 | 6.09 | 673.189 | |
| 900.0 | 897.5 | 2,096.0 | 2,057.5 | 2.0 | 6.6 | -136.13 | -1,042.8 | -3,728.0 | 4,082.3 | 4,075.7 | 6.57 | 621.430 | |
| 1,000.0 | 995.6 | 2,150.1 | 2,108.9 | 2.4 | 6.9 | -136.36 | -1,031.7 | -3,715.3 | 4,066.9 | 4,059.9 | 7.02 | 579.210 | |
| 1,100.0 | 1,093.1 | 2,336.9 | 2,286.4 | 2.8 | 8.0 | -136.68 | -996.3 | -3,669.2 | 4,053.9 | 4,045.9 | 7.93 | 511.309 | |
| 1,164.2 | 1,155.2 | 2,409.8 | 2,355.3 | 3.1 | 8.4 | -136.86 | -982.1 | -3,650.1 | 4,045.5 | 4,037.1 | 8.39 | 482.097 | |
| 1,200.0 | 1,189.7 | 2,435.7 | 2,379.9 | 3.2 | 8.6 | -136.89 | -977.0 | -3,643.4 | 4,041.3 | 4,032.7 | 8.61 | 469.382 | |
| 1,300.0 | 1,286.2 | 2,607.2 | 2,541.6 | 3.7 | 9.6 | -137.06 | -942.2 | -3,598.2 | 4,028.9 | 4,019.3 | 9.57 | 420.809 | |
| 1,400.0 | 1,382.6 | 2,692.4 | 2,621.6 | 4.2 | 10.2 | -137.13 | -924.0 | -3,575.1 | 4,015.3 | 4,005.0 | 10.26 | 391.176 | |
| 1,500.0 | 1,479.1 | 2,751.0 | 2,676.7 | 4.7 | 10.6 | -137.18 | -911.4 | -3,559.9 | 4,002.6 | 3,991.7 | 10.86 | 368.398 | |
| 1,600.0 | 1,575.6 | 2,792.0 | 2,715.4 | 5.3 | 10.8 | -137.21 | -902.6 | -3,549.6 | 3,991.1 | 3,979.7 | 11.40 | 350.076 | |
| 1,700.0 | 1,672.0 | 2,844.0 | 2,764.8 | 5.8 | 11.1 | -137.25 | -891.9 | -3,537.4 | 3,981.1 | 3,969.2 | 11.98 | 332.417 | |
| 1,800.0 | 1,768.5 | 2,983.8 | 2,897.4 | 6.3 | 12.0 | -137.36 | -862.5 | -3,504.3 | 3,971.0 | 3,958.1 | 12.86 | 308.683 | |
| 1,900.0 | 1,864.9 | 3,058.6 | 2,968.2 | 6.8 | 12.4 | -137.42 | -846.7 | -3,486.4 | 3,960.7 | 3,947.2 | 13.53 | 292.747 | |
| 2,000.0 | 1,961.4 | 3,125.0 | 3,031.4 | 7.4 | 12.8 | -137.48 | -832.8 | -3,471.0 | 3,951.2 | 3,937.0 | 14.16 | 279.014 | |
| 2,100.0 | 2,057.9 | 3,200.4 | 3,103.2 | 7.9 | 13.2 | -137.54 | -817.3 | -3,454.1 | 3,942.4 | 3,927.6 | 14.82 | 265.971 | |
| 2,200.0 | 2,154.3 | 3,302.2 | 3,200.3 | 8.4 | 13.8 | -137.64 | -797.5 | -3,431.1 | 3,934.0 | 3,918.4 | 15.56 | 252.787 | |
| 2,300.0 | 2,250.8 | 3,395.5 | 3,289.6 | 9.0 | 14.3 | -137.75 | -780.8 | -3,409.5 | 3,925.5 | 3,909.3 | 16.26 | 241.386 | |
| 2,400.0 | 2,347.3 | 3,543.8 | 3,431.1 | 9.5 | 15.1 | -137.92 | -753.1 | -3,374.9 | 3,916.7 | 3,899.6 | 17.15 | 228.349 | |
| 2,500.0 | 2,443.7 | 3,651.1 | 3,533.2 | 10.0 | 15.8 | -138.04 | -732.3 | -3,348.9 | 3,906.8 | 3,888.8 | 17.92 | 218.031 | |
| 2,600.0 | 2,540.2 | 3,751.1 | 3,628.3 | 10.6 | 16.4 | -138.15 | -713.3 | -3,324.9 | 3,897.1 | 3,878.5 | 18.65 | 208.944 | |
| 2,700.0 | 2,636.7 | 3,887.7 | 3,758.2 | 11.1 | 17.2 | -138.31 | -687.6 | -3,291.1 | 3,886.8 | 3,867.3 | 19.50 | 199.306 | |
| 2,800.0 | 2,733.1 | 3,967.0 | 3,833.4 | 11.6 | 17.7 | -138.40 | -672.5 | -3,271.4 | 3,876.3 | 3,856.1 | 20.17 | 192.172 | |
| 2,900.0 | 2,829.6 | 4,035.6 | 3,898.6 | 12.2 | 18.1 | -138.48 | -659.2 | -3,254.8 | 3,866.5 | 3,845.7 | 20.80 | 185.855 | |
| 3,000.0 | 2,926.0 | 4,109.7 | 3,969.3 | 12.7 | 18.5 | -138.56 | -645.0 | -3,237.5 | 3,857.4 | 3,836.0 | 21.45 | 179.843 | |
| 3,100.0 | 3,022.5 | 4,341.0 | 4,189.5 | 13.2 | 19.9 | -138.85 | -602.1 | -3,181.2 | 3,848.7 | 3,826.1 | 22.59 | 170.401 | |
| 3,200.0 | 3,119.0 | 4,396.5 | 4,242.0 | 13.8 | 20.2 | -138.92 | -591.4 | -3,166.7 | 3,837.1 | 3,813.9 | 23.17 | 165.581 | |
| 3,300.0 | 3,215.4 | 4,506.5 | 4,346.4 | 14.3 | 20.9 | -139.05 | -570.5 | -3,139.1 | 3,826.5 | 3,802.6 | 23.93 | 159.890 | |
| 3,400.0 | 3,311.9 | 4,624.0 | 4,457.4 | 14.9 | 21.7 | -139.18 | -546.9 | -3,108.7 | 3,814.8 | 3,790.1 | 24.73 | 154.271 | |
| 3,500.0 | 3,408.4 | 4,701.9 | 4,531.0 | 15.4 | 22.1 | -139.27 | -531.4 | -3,088.7 | 3,803.3 | 3,777.9 | 25.39 | 149.810 | |
| 3,600.0 | 3,504.8 | 4,806.0 | 4,629.6 | 15.9 | 22.8 | -139.39 | -510.8 | -3,062.2 | 3,792.2 | 3,766.1 | 26.13 | 145.126 | |
| 3,700.0 | 3,601.3 | 4,881.1 | 4,700.7 | 16.5 | 23.3 | -139.47 | -495.7 | -3,043.3 | 3,781.2 | 3,754.4 | 26.78 | 141.171 | |
| 3,800.0 | 3,697.7 | 4,946.7 | 4,762.9 | 17.0 | 23.7 | -139.54 | -482.2 | -3,027.4 | 3,771.0 | 3,743.6 | 27.41 | 137.592 | |
| 3,900.0 | 3,794.2 | 5,011.4 | 4,824.5 | 17.5 | 24.0 | -139.60 | -469.2 | -3,012.3 | 3,761.8 | 3,733.8 | 28.02 | 134.235 | |
| 4,000.0 | 3,890.7 | 5,092.0 | 4,901.3 | 18.1 | 24.5 | -139.69 | -453.4 | -2,993.9 | 3,753.2 | 3,724.6 | 28.68 | 130.854 | |
| 4,100.0 | 3,987.1 | 5,176.3 | 4,981.9 | 18.6 | 25.0 | -139.79 | -437.9 | -2,974.6 | 3,745.2 | 3,715.8 | 29.34 | 127.652 | |
| 4,200.0 | 4,083.6 | 5,339.3 | 5,137.4 | 19.2 | 25.9 | -140.01 | -407.9 | -2,936.0 | 3,736.3 | 3,706.1 | 30.23 | 123.587 | |
| 4,300.0 | 4,180.1 | 5,401.7 | 5,196.8 | 19.7 | 26.3 | -140.08 | -395.9 | -2,921.1 | 3,727.0 | 3,696.2 | 30.83 | 120.893 | |
| 4,400.0 | 4,276.5 | 5,466.0 | 5,258.4 | 20.2 | 26.7 | -140.16 | -384.4 | -2,906.8 | 3,719.5 | 3,688.1 | 31.42 | 118.365 | |
| 4,500.0 | 4,373.0 | 5,466.0 | 5,258.4 | 20.8 | 26.7 | -140.16 | -384.4 | -2,906.8 | 3,713.2 | 3,681.4 | 31.83 | 116.645 | |
| 4,600.0 | 4,469.5 | 5,524.9 | 5,315.3 | 21.3 | 27.0 | -140.25 | -374.7 | -2,894.7 | 3,708.6 | 3,676.2 | 32.39 | 114.484 | |
| 4,700.0 | 4,565.9 | 5,560.0 | 5,349.3 | 21.9 | 27.1 | -140.30 | -369.4 | -2,888.0 | 3,705.5 | 3,672.7 | 32.89 | 112.660 | |
| 4,800.0 | 4,662.4 | 5,608.7 | 5,396.7 | 22.4 | 27.3 | -140.38 | -362.3 | -2,879.3 | 3,704.1 | 3,670.7 | 33.41 | 110.860 | |
| 4,841.3 | 4,702.2 | 5,625.7 | 5,413.3 | 22.6 | 27.4 | -140.41 | -360.0 | -2,876.5 | 3,703.9 | 3,670.3 | 33.62 | 110.173 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 43-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 599-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.0 | 4,758.8 | 5,653.0 | 5,440.0 | 22.9 | 27.5 | -140.45 | -356.4 | -2,872.1 | 3,704.2 | 3,670.3 | 33.92 | 109.202 | |
| 5,000.0 | 4,855.3 | 5,702.3 | 5,488.3 | 23.5 | 27.7 | -140.54 | -350.5 | -2,864.5 | 3,705.8 | 3,671.4 | 34.42 | 107.648 | |
| 5,100.0 | 4,951.8 | 5,746.0 | 5,531.3 | 24.0 | 27.9 | -140.63 | -346.0 | -2,857.9 | 3,708.7 | 3,673.7 | 34.91 | 106.221 | |
| 5,200.0 | 5,048.2 | 5,816.1 | 5,600.4 | 24.6 | 28.1 | -140.77 | -339.4 | -2,848.1 | 3,712.7 | 3,677.2 | 35.44 | 104.762 | |
| 5,300.0 | 5,144.7 | 5,875.1 | 5,658.7 | 25.1 | 28.3 | -140.89 | -334.0 | -2,840.4 | 3,717.8 | 3,681.8 | 35.94 | 103.434 | |
| 5,400.0 | 5,241.2 | 5,933.0 | 5,715.9 | 25.6 | 28.5 | -141.01 | -328.8 | -2,833.5 | 3,724.0 | 3,687.6 | 36.44 | 102.183 | |
| 5,500.0 | 5,337.6 | 6,010.4 | 5,792.5 | 26.2 | 28.8 | -141.16 | -321.8 | -2,825.0 | 3,731.1 | 3,694.2 | 36.98 | 100.904 | |
| 5,600.0 | 5,434.1 | 6,064.7 | 5,846.4 | 26.7 | 28.9 | -141.26 | -316.9 | -2,819.5 | 3,739.1 | 3,701.7 | 37.47 | 99.793 | |
| 5,700.0 | 5,530.5 | 6,119.0 | 5,900.2 | 27.3 | 29.1 | -141.37 | -312.6 | -2,814.7 | 3,748.5 | 3,710.5 | 37.96 | 98.753 | |
| 5,757.1 | 5,585.6 | 6,143.7 | 5,924.8 | 27.6 | 29.1 | -141.42 | -310.7 | -2,812.6 | 3,754.4 | 3,716.2 | 38.22 | 98.224 | |
| 5,800.0 | 5,627.1 | 6,166.6 | 5,947.5 | 27.8 | 29.2 | -141.52 | -309.1 | -2,810.9 | 3,758.8 | 3,720.5 | 38.37 | 97.963 | |
| 5,900.0 | 5,724.4 | 6,212.0 | 5,992.7 | 28.2 | 29.3 | -141.71 | -306.2 | -2,807.6 | 3,768.2 | 3,729.6 | 38.64 | 97.511 | |
| 6,000.0 | 5,822.4 | 6,264.8 | 6,045.4 | 28.5 | 29.4 | -141.89 | -303.4 | -2,804.3 | 3,776.2 | 3,737.3 | 38.89 | 97.104 | |
| 6,100.0 | 5,921.0 | 6,306.0 | 6,086.5 | 28.8 | 29.5 | -142.03 | -301.7 | -2,802.2 | 3,782.8 | 3,743.7 | 39.08 | 96.789 | |
| 6,200.0 | 6,020.2 | 6,357.0 | 6,137.4 | 29.0 | 29.6 | -142.15 | -300.2 | -2,800.1 | 3,788.2 | 3,748.9 | 39.25 | 96.521 | |
| 6,300.0 | 6,119.7 | 6,399.0 | 6,179.4 | 29.3 | 29.6 | -142.24 | -299.7 | -2,798.7 | 3,792.2 | 3,752.8 | 39.36 | 96.335 | |
| 6,400.0 | 6,219.5 | 6,476.3 | 6,256.7 | 29.4 | 29.7 | -142.31 | -299.2 | -2,796.8 | 3,794.4 | 3,754.9 | 39.49 | 96.085 | |
| 6,500.0 | 6,319.5 | 6,551.4 | 6,331.8 | 29.5 | 29.8 | -142.34 | -299.0 | -2,795.5 | 3,794.7 | 3,755.1 | 39.59 | 95.853 | |
| 6,521.3 | 6,340.8 | 6,567.7 | 6,348.0 | 29.6 | 29.8 | -113.99 | -298.9 | -2,795.3 | 3,794.4 | 3,739.5 | 54.90 | 69.121 | |
| 6,551.3 | 6,370.8 | 6,586.0 | 6,366.3 | 29.6 | 29.9 | -113.99 | -298.9 | -2,795.0 | 3,794.1 | 3,739.1 | 54.95 | 69.048 | |
| 6,600.0 | 6,419.5 | 6,621.4 | 6,401.8 | 29.6 | 29.9 | -24.07 | -299.0 | -2,794.7 | 3,792.2 | 3,752.8 | 39.34 | 96.398 | |
| 6,650.0 | 6,469.2 | 6,653.6 | 6,434.0 | 29.6 | 29.9 | -24.25 | -299.1 | -2,794.5 | 3,787.3 | 3,748.5 | 38.78 | 97.654 | |
| 6,700.0 | 6,518.4 | 6,687.9 | 6,468.3 | 29.6 | 30.0 | -24.56 | -299.4 | -2,794.4 | 3,779.5 | 3,741.4 | 38.03 | 99.390 | |
| 6,750.0 | 6,567.0 | 6,733.0 | 6,513.4 | 29.6 | 30.0 | -25.00 | -299.7 | -2,794.4 | 3,768.6 | 3,731.5 | 37.09 | 101.616 | |
| 6,800.0 | 6,614.5 | 6,777.3 | 6,557.6 | 29.6 | 30.0 | -25.59 | -300.0 | -2,794.4 | 3,754.8 | 3,718.8 | 35.97 | 104.389 | |
| 6,850.0 | 6,660.9 | 6,820.5 | 6,600.9 | 29.5 | 30.1 | -26.33 | -300.3 | -2,794.5 | 3,738.0 | 3,703.3 | 34.70 | 107.723 | |
| 6,900.0 | 6,705.9 | 6,862.5 | 6,642.8 | 29.4 | 30.1 | -27.24 | -300.6 | -2,794.6 | 3,718.4 | 3,685.1 | 33.31 | 111.617 | |
| 6,950.0 | 6,749.2 | 6,899.2 | 6,679.5 | 29.3 | 30.1 | -28.33 | -300.8 | -2,794.8 | 3,696.0 | 3,664.2 | 31.86 | 116.020 | |
| 7,000.0 | 6,790.7 | 6,933.9 | 6,714.2 | 29.2 | 30.2 | -29.62 | -301.2 | -2,794.9 | 3,671.1 | 3,640.7 | 30.40 | 120.761 | |
| 7,050.0 | 6,830.2 | 6,961.0 | 6,741.3 | 29.1 | 30.2 | -31.10 | -301.5 | -2,795.1 | 3,643.7 | 3,614.7 | 29.02 | 125.539 | |
| 7,100.0 | 6,867.4 | 6,996.7 | 6,777.0 | 29.0 | 30.2 | -32.92 | -301.9 | -2,795.4 | 3,613.9 | 3,586.1 | 27.87 | 129.681 | |
| 7,150.0 | 6,902.2 | 7,025.0 | 6,805.3 | 28.9 | 30.2 | -35.01 | -302.1 | -2,795.7 | 3,582.0 | 3,555.0 | 27.05 | 132.447 | |
| 7,200.0 | 6,934.4 | 7,054.0 | 6,834.3 | 28.7 | 30.2 | -37.48 | -302.4 | -2,796.2 | 3,548.1 | 3,521.4 | 26.72 | 132.771 | |
| 7,250.0 | 6,963.8 | 7,074.2 | 6,854.5 | 28.6 | 30.3 | -40.29 | -302.5 | -2,796.5 | 3,512.3 | 3,485.3 | 27.00 | 130.074 | |
| 7,300.0 | 6,990.4 | 7,094.8 | 6,875.1 | 28.5 | 30.3 | -43.60 | -302.7 | -2,796.9 | 3,474.9 | 3,446.9 | 28.03 | 123.992 | |
| 7,350.0 | 7,013.9 | 7,113.3 | 6,893.6 | 28.4 | 30.3 | -47.44 | -302.9 | -2,797.2 | 3,436.0 | 3,406.2 | 29.82 | 115.208 | |
| 7,400.0 | 7,034.4 | 7,129.5 | 6,909.8 | 28.2 | 30.3 | -51.87 | -303.1 | -2,797.6 | 3,395.8 | 3,363.5 | 32.35 | 104.965 | |
| 7,450.0 | 7,051.5 | 7,148.0 | 6,928.3 | 28.1 | 30.3 | -57.06 | -303.3 | -2,798.0 | 3,354.6 | 3,319.1 | 35.52 | 94.446 | |
| 7,500.0 | 7,065.4 | 7,157.5 | 6,937.8 | 28.0 | 30.3 | -62.75 | -303.4 | -2,798.2 | 3,312.4 | 3,273.5 | 38.94 | 85.074 | |
| 7,550.0 | 7,075.9 | 7,169.8 | 6,950.1 | 27.9 | 30.3 | -69.19 | -303.6 | -2,798.5 | 3,269.6 | 3,227.1 | 42.44 | 77.037 | |
| 7,600.0 | 7,082.9 | 7,178.5 | 6,958.7 | 27.8 | 30.3 | -76.09 | -303.7 | -2,798.7 | 3,226.2 | 3,180.6 | 45.60 | 70.744 | |
| 7,650.0 | 7,086.5 | 7,183.4 | 6,963.6 | 27.7 | 30.3 | -83.24 | -303.8 | -2,798.8 | 3,182.7 | 3,134.6 | 48.13 | 66.128 | |
| 7,677.7 | 7,087.0 | 7,184.5 | 6,964.8 | 27.6 | 30.3 | -87.21 | -303.8 | -2,798.8 | 3,158.6 | 3,109.4 | 49.18 | 64.221 | |
| 7,700.0 | 7,087.0 | 7,184.9 | 6,965.2 | 27.6 | 30.3 | -87.23 | -303.8 | -2,798.8 | 3,139.1 | 3,089.6 | 49.49 | 63.424 | |
| 7,800.0 | 7,086.8 | 7,186.9 | 6,967.2 | 27.5 | 30.3 | -87.30 | -303.8 | -2,798.8 | 3,052.6 | 3,001.5 | 51.04 | 59.811 | |
| 7,900.0 | 7,086.6 | 7,188.8 | 6,969.1 | 27.9 | 30.3 | -87.37 | -303.8 | -2,798.9 | 2,966.8 | 2,914.1 | 52.79 | 56.204 | |
| 8,000.0 | 7,086.4 | 7,190.7 | 6,971.0 | 29.5 | 30.3 | -87.44 | -303.9 | -2,798.9 | 2,882.0 | 2,827.3 | 54.71 | 52.681 | |
| 8,100.0 | 7,086.2 | 7,192.6 | 6,972.9 | 31.5 | 30.3 | -87.51 | -303.9 | -2,799.0 | 2,798.2 | 2,741.5 | 56.77 | 49.294 | |
| 8,200.0 | 7,086.0 | 7,194.5 | 6,974.8 | 33.7 | 30.3 | -87.58 | -303.9 | -2,799.0 | 2,715.5 | 2,656.6 | 58.94 | 46.075 | |
| 8,300.0 | 7,085.8 | 7,196.3 | 6,976.6 | 36.0 | 30.3 | -87.65 | -304.0 | -2,799.0 | 2,634.0 | 2,572.8 | 61.20 | 43.040 | |
| 8,400.0 | 7,085.6 | 7,198.1 | 6,978.4 | 38.3 | 30.3 | -87.72 | -304.0 | -2,799.1 | 2,553.8 | 2,490.3 | 63.54 | 40.194 | |
| 8,500.0 | 7,085.4 | 7,199.9 | 6,980.2 | 40.7 | 30.3 | -87.78 | -304.0 | -2,799.1 | 2,475.0 | 2,409.1 | 65.94 | 37.537 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 43-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 599-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,600.0 | 7,085.2 | 7,201.7 | 6,982.0 | 43.1 | 30.3 | -87.85 | -304.1 | -2,799.1 | 2,397.9 | 2,329.5 | 68.39 | 35.064 | |
| 8,700.0 | 7,085.0 | 7,203.5 | 6,983.7 | 45.6 | 30.3 | -87.91 | -304.1 | -2,799.2 | 2,322.4 | 2,251.6 | 70.88 | 32.766 | |
| 8,800.0 | 7,084.8 | 7,205.2 | 6,985.4 | 48.1 | 30.3 | -87.98 | -304.1 | -2,799.2 | 2,248.9 | 2,175.5 | 73.41 | 30.635 | |
| 8,900.0 | 7,084.6 | 7,206.9 | 6,987.2 | 50.7 | 30.3 | -88.04 | -304.1 | -2,799.2 | 2,177.5 | 2,101.5 | 75.97 | 28.663 | |
| 9,000.0 | 7,084.4 | 7,208.6 | 6,988.8 | 53.2 | 30.3 | -88.10 | -304.2 | -2,799.3 | 2,108.4 | 2,029.9 | 78.56 | 26.840 | |
| 9,100.0 | 7,084.2 | 7,210.2 | 6,990.5 | 55.8 | 30.3 | -88.16 | -304.2 | -2,799.3 | 2,041.9 | 1,960.7 | 81.16 | 25.158 | |
| 9,200.0 | 7,084.0 | 7,211.9 | 6,992.1 | 58.4 | 30.3 | -88.22 | -304.2 | -2,799.3 | 1,978.2 | 1,894.4 | 83.79 | 23.608 | |
| 9,300.0 | 7,083.8 | 7,213.5 | 6,993.7 | 61.1 | 30.3 | -88.28 | -304.3 | -2,799.4 | 1,917.6 | 1,831.1 | 86.44 | 22.185 | |
| 9,400.0 | 7,083.7 | 7,215.1 | 6,995.3 | 63.7 | 30.3 | -88.34 | -304.3 | -2,799.4 | 1,860.4 | 1,771.3 | 89.10 | 20.881 | |
| 9,500.0 | 7,083.5 | 7,216.7 | 6,996.9 | 66.3 | 30.3 | -88.40 | -304.3 | -2,799.4 | 1,806.9 | 1,715.1 | 91.77 | 19.690 | |
| 9,600.0 | 7,083.3 | 7,218.2 | 6,998.5 | 69.0 | 30.3 | -88.46 | -304.3 | -2,799.5 | 1,757.5 | 1,663.0 | 94.45 | 18.607 | |
| 9,700.0 | 7,083.1 | 7,219.8 | 7,000.0 | 71.7 | 30.3 | -88.52 | -304.4 | -2,799.5 | 1,712.5 | 1,615.3 | 97.15 | 17.628 | |
| 9,800.0 | 7,082.9 | 7,221.3 | 7,001.5 | 74.4 | 30.3 | -88.57 | -304.4 | -2,799.5 | 1,672.3 | 1,572.4 | 99.85 | 16.748 | |
| 9,900.0 | 7,082.7 | 7,222.8 | 7,003.1 | 77.1 | 30.4 | -88.63 | -304.4 | -2,799.5 | 1,637.2 | 1,534.6 | 102.56 | 15.963 | |
| 10,000.0 | 7,082.5 | 7,224.3 | 7,004.5 | 79.7 | 30.4 | -88.68 | -304.5 | -2,799.6 | 1,607.5 | 1,502.3 | 105.28 | 15.270 | |
| 10,100.0 | 7,082.3 | 7,225.7 | 7,006.0 | 82.5 | 30.4 | -88.74 | -304.5 | -2,799.6 | 1,583.7 | 1,475.7 | 108.00 | 14.663 | |
| 10,200.0 | 7,082.1 | 7,227.2 | 7,007.5 | 85.2 | 30.4 | -88.79 | -304.5 | -2,799.6 | 1,565.9 | 1,455.1 | 110.73 | 14.141 | |
| 10,300.0 | 7,081.9 | 7,228.6 | 7,008.9 | 87.9 | 30.4 | -88.84 | -304.5 | -2,799.6 | 1,554.3 | 1,440.8 | 113.47 | 13.698 | |
| 10,400.0 | 7,081.7 | 7,230.0 | 7,010.3 | 90.6 | 30.4 | -88.90 | -304.6 | -2,799.7 | 1,549.1 | 1,432.8 | 116.21 | 13.330 | |
| 10,430.8 | 7,081.6 | 7,230.5 | 7,010.7 | 91.4 | 30.4 | -88.91 | -304.6 | -2,799.7 | 1,548.7 | 1,431.7 | 117.06 | 13.231 | CC |
| 10,500.0 | 7,081.5 | 7,231.5 | 7,011.7 | 93.3 | 30.4 | -88.95 | -304.6 | -2,799.7 | 1,550.3 | 1,431.3 | 118.95 | 13.033 | ES |
| 10,600.0 | 7,081.3 | 7,232.8 | 7,013.1 | 96.1 | 30.4 | -89.00 | -304.6 | -2,799.7 | 1,558.0 | 1,436.2 | 121.70 | 12.801 | |
| 10,700.0 | 7,081.1 | 7,234.2 | 7,014.5 | 98.8 | 30.4 | -89.05 | -304.6 | -2,799.7 | 1,572.0 | 1,447.5 | 124.46 | 12.631 | |
| 10,800.0 | 7,080.9 | 7,241.0 | 7,021.3 | 101.5 | 30.4 | -89.30 | -304.8 | -2,799.9 | 1,592.1 | 1,464.9 | 127.24 | 12.513 | |
| 10,900.0 | 7,080.7 | 7,241.0 | 7,021.3 | 104.3 | 30.4 | -89.30 | -304.8 | -2,799.9 | 1,618.2 | 1,488.2 | 129.99 | 12.449 | |
| 11,000.0 | 7,080.5 | 7,241.0 | 7,021.3 | 107.0 | 30.4 | -89.30 | -304.8 | -2,799.9 | 1,650.0 | 1,517.2 | 132.75 | 12.430 | SF |
| 11,100.0 | 7,080.3 | 7,241.0 | 7,021.3 | 109.8 | 30.4 | -89.30 | -304.8 | -2,799.9 | 1,687.1 | 1,551.6 | 135.50 | 12.451 | |
| 11,200.0 | 7,080.1 | 7,241.0 | 7,021.3 | 112.5 | 30.4 | -89.30 | -304.8 | -2,799.9 | 1,729.2 | 1,590.9 | 138.26 | 12.506 | |
| 11,300.0 | 7,079.9 | 7,242.4 | 7,022.7 | 115.3 | 30.4 | -89.35 | -304.8 | -2,799.9 | 1,775.9 | 1,634.9 | 141.03 | 12.592 | |
| 11,400.0 | 7,079.7 | 7,244.0 | 7,024.3 | 118.0 | 30.4 | -89.41 | -304.8 | -2,799.9 | 1,826.9 | 1,683.1 | 143.81 | 12.704 | |
| 11,500.0 | 7,079.5 | 7,245.6 | 7,025.8 | 120.8 | 30.4 | -89.47 | -304.9 | -2,799.9 | 1,881.9 | 1,735.3 | 146.58 | 12.839 | |
| 11,600.0 | 7,079.3 | 7,247.2 | 7,027.4 | 123.6 | 30.4 | -89.53 | -304.9 | -2,800.0 | 1,940.4 | 1,791.1 | 149.36 | 12.992 | |
| 11,700.0 | 7,079.1 | 7,248.7 | 7,029.0 | 126.3 | 30.4 | -89.59 | -304.9 | -2,800.0 | 2,002.3 | 1,850.1 | 152.13 | 13.161 | |
| 11,800.0 | 7,078.9 | 7,250.2 | 7,030.5 | 129.1 | 30.4 | -89.64 | -304.9 | -2,800.0 | 2,067.1 | 1,912.2 | 154.91 | 13.343 | |
| 11,900.0 | 7,078.7 | 7,251.7 | 7,032.0 | 131.9 | 30.4 | -89.70 | -305.0 | -2,800.0 | 2,134.6 | 1,976.9 | 157.69 | 13.536 | |
| 12,000.0 | 7,078.5 | 7,253.2 | 7,033.5 | 134.6 | 30.4 | -89.75 | -305.0 | -2,800.1 | 2,204.6 | 2,044.1 | 160.48 | 13.738 | |
| 12,100.0 | 7,078.3 | 7,254.7 | 7,034.9 | 137.4 | 30.4 | -89.81 | -305.0 | -2,800.1 | 2,276.9 | 2,113.6 | 163.26 | 13.946 | |
| 12,200.0 | 7,078.1 | 7,256.1 | 7,036.4 | 140.2 | 30.4 | -89.86 | -305.1 | -2,800.1 | 2,351.1 | 2,185.1 | 166.04 | 14.160 | |
| 12,300.0 | 7,077.9 | 7,257.6 | 7,037.8 | 142.9 | 30.4 | -89.91 | -305.1 | -2,800.1 | 2,427.3 | 2,258.4 | 168.83 | 14.377 | |
| 12,400.0 | 7,077.7 | 7,259.0 | 7,039.3 | 145.7 | 30.4 | -89.97 | -305.1 | -2,800.2 | 2,505.1 | 2,333.4 | 171.61 | 14.597 | |
| 12,500.0 | 7,077.5 | 7,260.4 | 7,040.7 | 148.5 | 30.4 | -90.02 | -305.1 | -2,800.2 | 2,584.4 | 2,410.0 | 174.40 | 14.819 | |
| 12,600.0 | 7,077.3 | 7,261.8 | 7,042.1 | 151.3 | 30.4 | -90.07 | -305.2 | -2,800.2 | 2,665.1 | 2,487.9 | 177.19 | 15.041 | |
| 12,700.0 | 7,077.1 | 7,263.2 | 7,043.4 | 154.0 | 30.4 | -90.12 | -305.2 | -2,800.2 | 2,747.1 | 2,567.1 | 179.98 | 15.264 | |
| 12,800.0 | 7,076.9 | 7,264.5 | 7,044.8 | 156.8 | 30.4 | -90.17 | -305.2 | -2,800.2 | 2,830.2 | 2,647.5 | 182.76 | 15.486 | |
| 12,900.0 | 7,076.7 | 7,265.9 | 7,046.1 | 159.6 | 30.4 | -90.22 | -305.2 | -2,800.3 | 2,914.4 | 2,728.9 | 185.55 | 15.707 | |
| 13,000.0 | 7,076.5 | 7,267.2 | 7,047.5 | 162.4 | 30.4 | -90.27 | -305.3 | -2,800.3 | 2,999.6 | 2,811.3 | 188.34 | 15.926 | |
| 13,100.0 | 7,076.3 | 7,268.5 | 7,048.8 | 165.2 | 30.4 | -90.32 | -305.3 | -2,800.3 | 3,085.7 | 2,894.5 | 191.14 | 16.144 | |
| 13,200.0 | 7,076.1 | 7,269.8 | 7,050.1 | 168.0 | 30.4 | -90.37 | -305.3 | -2,800.3 | 3,172.6 | 2,978.6 | 193.93 | 16.360 | |
| 13,300.0 | 7,075.9 | 7,271.1 | 7,051.4 | 170.7 | 30.4 | -90.41 | -305.3 | -2,800.3 | 3,260.2 | 3,063.5 | 196.72 | 16.573 | |
| 13,400.0 | 7,075.7 | 7,272.4 | 7,052.6 | 173.5 | 30.4 | -90.46 | -305.4 | -2,800.4 | 3,348.5 | 3,149.0 | 199.51 | 16.784 | |
| 13,500.0 | 7,075.5 | 7,273.6 | 7,053.9 | 176.3 | 30.4 | -90.51 | -305.4 | -2,800.4 | 3,437.5 | 3,235.2 | 202.30 | 16.992 | |
| 13,600.0 | 7,075.3 | 7,274.9 | 7,055.1 | 179.1 | 30.4 | -90.55 | -305.4 | -2,800.4 | 3,527.0 | 3,321.9 | 205.10 | 17.197 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD RYLAND 43-20D - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 599-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,700.0 | 7,075.1 | 7,276.1 | 7,056.4 | 181.9 | 30.4 | -90.60 | -305.4 | -2,800.4 | 3,617.1 | 3,409.2 | 207.89 | 17.399 | |
| 13,800.0 | 7,074.9 | 7,277.3 | 7,057.6 | 184.7 | 30.4 | -90.64 | -305.4 | -2,800.4 | 3,707.7 | 3,497.1 | 210.68 | 17.599 | |
| 13,900.0 | 7,074.7 | 7,278.5 | 7,058.8 | 187.5 | 30.4 | -90.69 | -305.5 | -2,800.5 | 3,798.8 | 3,585.3 | 213.48 | 17.795 | |
| 14,000.0 | 7,074.5 | 7,279.7 | 7,060.0 | 190.2 | 30.4 | -90.73 | -305.5 | -2,800.5 | 3,890.3 | 3,674.1 | 216.27 | 17.988 | |
| 14,100.0 | 7,074.2 | 7,280.9 | 7,061.2 | 193.0 | 30.4 | -90.77 | -305.5 | -2,800.5 | 3,982.3 | 3,763.2 | 219.07 | 18.178 | |
| 14,200.0 | 7,074.0 | 7,282.1 | 7,062.3 | 195.8 | 30.4 | -90.82 | -305.5 | -2,800.5 | 4,074.6 | 3,852.7 | 221.86 | 18.365 | |
| 14,221.4 | 7,074.0 | 7,282.3 | 7,062.6 | 196.4 | 30.4 | -90.83 | -305.5 | -2,800.5 | 4,094.4 | 3,871.9 | 222.46 | 18.405 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD WALTERS #21ODU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 703-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -144.60 | -748.6 | -532.0 | 918.4 | | | | |
| 100.0 | 100.0 | 101.6 | 101.6 | 0.1 | 0.1 | -144.61 | -748.7 | -531.9 | 918.4 | 918.2 | 0.20 | 4,528.001 | |
| 200.0 | 200.0 | 200.7 | 200.7 | 0.3 | 0.2 | -144.62 | -749.0 | -531.8 | 918.6 | 918.1 | 0.53 | 1,731.068 | |
| 300.0 | 300.0 | 299.8 | 299.8 | 0.5 | 0.3 | -144.64 | -749.4 | -531.7 | 918.8 | 918.0 | 0.86 | 1,070.330 | |
| 400.0 | 400.0 | 398.9 | 398.9 | 0.8 | 0.4 | -144.67 | -749.9 | -531.5 | 919.2 | 918.0 | 1.19 | 774.849 | |
| 500.0 | 500.0 | 498.0 | 498.0 | 1.0 | 0.5 | -173.07 | -750.7 | -531.2 | 921.4 | 919.8 | 1.52 | 606.525 | |
| 600.0 | 599.8 | 596.9 | 596.9 | 1.2 | 0.6 | -173.14 | -751.5 | -530.9 | 927.1 | 925.2 | 1.86 | 498.994 | |
| 700.0 | 699.5 | 695.5 | 695.5 | 1.5 | 0.7 | -173.24 | -752.6 | -530.5 | 936.4 | 934.2 | 2.21 | 424.065 | |
| 800.0 | 798.7 | 842.1 | 842.0 | 1.7 | 1.0 | -173.45 | -751.6 | -527.6 | 946.8 | 944.1 | 2.71 | 348.792 | |
| 900.0 | 897.5 | 998.8 | 998.2 | 2.0 | 1.4 | -173.88 | -744.9 | -517.2 | 955.2 | 951.9 | 3.25 | 293.735 | |
| 1,000.0 | 995.6 | 1,173.1 | 1,170.8 | 2.4 | 1.8 | -174.38 | -728.1 | -499.6 | 960.9 | 957.1 | 3.86 | 249.144 | |
| 1,100.0 | 1,093.1 | 1,291.7 | 1,287.2 | 2.8 | 2.2 | -174.66 | -710.7 | -485.2 | 964.4 | 960.0 | 4.37 | 220.734 | |
| 1,164.2 | 1,155.2 | 1,365.1 | 1,359.1 | 3.1 | 2.5 | -174.86 | -699.2 | -475.5 | 967.6 | 962.9 | 4.70 | 205.852 | |
| 1,200.0 | 1,189.7 | 1,409.2 | 1,402.1 | 3.2 | 2.7 | -174.98 | -692.0 | -469.5 | 969.5 | 964.6 | 4.91 | 197.605 | |
| 1,300.0 | 1,286.2 | 1,552.7 | 1,541.5 | 3.7 | 3.3 | -175.37 | -665.5 | -448.1 | 972.4 | 966.8 | 5.54 | 175.409 | |
| 1,400.0 | 1,382.6 | 1,692.2 | 1,675.1 | 4.2 | 4.1 | -175.89 | -635.4 | -421.7 | 969.9 | 963.7 | 6.22 | 155.994 | |
| 1,500.0 | 1,479.1 | 1,811.6 | 1,788.5 | 4.7 | 4.7 | -176.47 | -608.5 | -395.7 | 965.3 | 958.4 | 6.86 | 140.777 | |
| 1,600.0 | 1,575.6 | 1,900.3 | 1,872.5 | 5.3 | 5.2 | -176.90 | -588.0 | -376.1 | 960.0 | 952.6 | 7.40 | 129.729 | |
| 1,700.0 | 1,672.0 | 2,004.9 | 1,971.8 | 5.8 | 5.8 | -177.42 | -564.3 | -353.3 | 955.4 | 947.4 | 8.00 | 119.400 | |
| 1,800.0 | 1,768.5 | 2,101.0 | 2,062.9 | 6.3 | 6.4 | -177.92 | -542.5 | -331.7 | 950.5 | 941.9 | 8.60 | 110.538 | |
| 1,900.0 | 1,864.9 | 2,194.0 | 2,151.3 | 6.8 | 6.9 | -178.41 | -522.1 | -311.4 | 946.6 | 937.4 | 9.17 | 103.173 | |
| 2,000.0 | 1,961.4 | 2,287.8 | 2,240.8 | 7.4 | 7.4 | -178.86 | -501.7 | -291.9 | 943.5 | 933.8 | 9.75 | 96.800 | |
| 2,100.0 | 2,057.9 | 2,393.6 | 2,341.4 | 7.9 | 8.0 | -179.42 | -478.5 | -269.0 | 939.9 | 929.5 | 10.39 | 90.498 | |
| 2,200.0 | 2,154.3 | 2,474.0 | 2,418.1 | 8.4 | 8.5 | -179.86 | -461.8 | -251.6 | 937.4 | 926.4 | 10.94 | 85.656 | |
| 2,300.0 | 2,250.8 | 2,595.3 | 2,533.8 | 9.0 | 9.2 | 179.50 | -435.8 | -225.9 | 934.6 | 923.0 | 11.64 | 80.276 | |
| 2,400.0 | 2,347.3 | 2,696.4 | 2,629.8 | 9.5 | 9.8 | 179.03 | -412.6 | -204.7 | 930.7 | 918.4 | 12.27 | 75.822 | |
| 2,500.0 | 2,443.7 | 2,788.8 | 2,717.9 | 10.0 | 10.3 | 178.66 | -391.0 | -186.3 | 927.0 | 914.2 | 12.86 | 72.058 | |
| 2,600.0 | 2,540.2 | 2,883.4 | 2,808.3 | 10.6 | 10.8 | 178.40 | -369.1 | -169.7 | 924.6 | 911.2 | 13.45 | 68.739 | |
| 2,700.0 | 2,636.7 | 2,986.5 | 2,906.7 | 11.1 | 11.4 | 178.04 | -345.2 | -150.5 | 921.7 | 907.6 | 14.08 | 65.443 | |
| 2,800.0 | 2,733.1 | 3,089.4 | 3,004.8 | 11.6 | 12.0 | 177.52 | -322.8 | -128.9 | 919.0 | 904.3 | 14.75 | 62.308 | |
| 2,900.0 | 2,829.6 | 3,193.6 | 3,104.0 | 12.2 | 12.6 | 176.99 | -299.2 | -106.9 | 915.6 | 900.1 | 15.43 | 59.346 | |
| 3,000.0 | 2,926.0 | 3,295.9 | 3,201.2 | 12.7 | 13.2 | 176.47 | -275.9 | -85.1 | 912.0 | 895.9 | 16.11 | 56.617 | |
| 3,100.0 | 3,022.5 | 3,395.1 | 3,295.2 | 13.2 | 13.8 | 175.88 | -253.8 | -62.7 | 908.3 | 891.5 | 16.81 | 54.045 | |
| 3,200.0 | 3,119.0 | 3,506.4 | 3,400.5 | 13.8 | 14.5 | 175.18 | -228.5 | -37.0 | 904.1 | 886.5 | 17.57 | 51.444 | |
| 3,300.0 | 3,215.4 | 3,606.0 | 3,494.4 | 14.3 | 15.1 | 174.51 | -205.5 | -13.2 | 899.4 | 881.0 | 18.32 | 49.094 | |
| 3,400.0 | 3,311.9 | 3,706.7 | 3,589.3 | 14.9 | 15.8 | 173.74 | -182.8 | 12.2 | 894.7 | 875.6 | 19.11 | 46.829 | |
| 3,500.0 | 3,408.4 | 3,836.4 | 3,711.0 | 15.4 | 16.6 | 172.78 | -152.0 | 44.5 | 889.3 | 869.3 | 20.05 | 44.362 | |
| 3,600.0 | 3,504.8 | 3,950.8 | 3,816.9 | 15.9 | 17.5 | 171.92 | -120.8 | 74.6 | 879.8 | 858.9 | 20.94 | 42.011 | |
| 3,700.0 | 3,601.3 | 4,058.0 | 3,916.1 | 16.5 | 18.2 | 171.26 | -90.0 | 100.8 | 869.8 | 848.0 | 21.78 | 39.941 | |
| 3,800.0 | 3,697.7 | 4,135.6 | 3,988.2 | 17.0 | 18.7 | 170.79 | -67.9 | 119.3 | 860.6 | 838.1 | 22.46 | 38.315 | |
| 3,900.0 | 3,794.2 | 4,211.6 | 4,059.4 | 17.5 | 19.2 | 170.32 | -48.4 | 137.0 | 854.2 | 831.0 | 23.14 | 36.914 | |
| 4,000.0 | 3,890.7 | 4,303.9 | 4,146.5 | 18.1 | 19.8 | 169.67 | -26.7 | 158.6 | 850.1 | 826.1 | 23.93 | 35.516 | |
| 4,100.0 | 3,987.1 | 4,410.8 | 4,246.9 | 18.6 | 20.5 | 168.78 | -1.9 | 185.8 | 845.7 | 820.8 | 24.88 | 33.986 | |
| 4,200.0 | 4,083.6 | 4,497.1 | 4,328.0 | 19.2 | 21.1 | 168.06 | 18.2 | 207.5 | 841.6 | 815.8 | 25.72 | 32.725 | |
| 4,300.0 | 4,180.1 | 4,604.2 | 4,429.4 | 19.7 | 21.7 | 167.34 | 42.9 | 231.8 | 838.6 | 812.0 | 26.62 | 31.500 | |
| 4,400.0 | 4,276.5 | 4,684.9 | 4,505.8 | 20.2 | 22.2 | 166.89 | 62.0 | 248.8 | 835.6 | 808.3 | 27.35 | 30.554 | |
| 4,456.0 | 4,330.5 | 4,728.3 | 4,547.3 | 20.5 | 22.5 | 166.67 | 71.5 | 257.3 | 835.2 | 807.5 | 27.74 | 30.111 | CC |
| 4,500.0 | 4,373.0 | 4,763.6 | 4,581.1 | 20.8 | 22.7 | 166.49 | 78.7 | 264.2 | 835.5 | 807.4 | 28.05 | 29.784 | ES |
| 4,600.0 | 4,469.5 | 4,840.9 | 4,655.5 | 21.3 | 23.1 | 166.05 | 93.3 | 279.6 | 837.8 | 809.0 | 28.76 | 29.130 | |
| 4,700.0 | 4,565.9 | 4,923.1 | 4,735.0 | 21.9 | 23.5 | 165.58 | 106.4 | 295.5 | 843.0 | 813.5 | 29.50 | 28.576 | |
| 4,800.0 | 4,662.4 | 5,022.8 | 4,831.6 | 22.4 | 23.9 | 165.04 | 122.2 | 314.4 | 848.7 | 818.3 | 30.33 | 27.980 | |
| 4,900.0 | 4,758.8 | 5,106.5 | 4,913.1 | 22.9 | 24.3 | 164.64 | 134.8 | 329.3 | 855.5 | 824.5 | 31.05 | 27.551 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD WALTERS #21ODU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 703-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,000.0 | 4,855.3 | 5,186.0 | 4,990.8 | 23.5 | 24.7 | 164.36 | 145.3 | 341.8 | 864.6 | 832.9 | 31.71 | 27.269 | |
| 5,100.0 | 4,951.8 | 5,270.0 | 5,073.5 | 24.0 | 25.0 | 164.18 | 155.2 | 353.0 | 875.8 | 843.5 | 32.32 | 27.096 | |
| 5,200.0 | 5,048.2 | 5,352.2 | 5,154.8 | 24.6 | 25.2 | 164.10 | 163.6 | 362.3 | 888.9 | 856.0 | 32.88 | 27.034 | |
| 5,300.0 | 5,144.7 | 5,437.2 | 5,239.1 | 25.1 | 25.5 | 164.08 | 171.3 | 370.6 | 903.5 | 870.1 | 33.41 | 27.046 | |
| 5,400.0 | 5,241.2 | 5,520.6 | 5,321.9 | 25.6 | 25.7 | 164.12 | 177.7 | 377.6 | 919.8 | 885.9 | 33.90 | 27.130 | |
| 5,500.0 | 5,337.6 | 5,601.7 | 5,402.6 | 26.2 | 25.9 | 164.20 | 182.7 | 383.4 | 937.7 | 903.4 | 34.36 | 27.293 | |
| 5,600.0 | 5,434.1 | 5,687.9 | 5,488.6 | 26.7 | 26.1 | 164.35 | 186.8 | 388.2 | 957.4 | 922.6 | 34.79 | 27.520 | |
| 5,700.0 | 5,530.5 | 5,781.3 | 5,581.8 | 27.3 | 26.2 | 164.55 | 190.8 | 392.4 | 977.8 | 942.6 | 35.20 | 27.776 | |
| 5,757.1 | 5,585.6 | 5,835.0 | 5,635.4 | 27.6 | 26.3 | 164.70 | 193.0 | 394.3 | 989.6 | 954.2 | 35.43 | 27.936 | |
| 5,800.0 | 5,627.1 | 5,875.0 | 5,675.4 | 27.8 | 26.4 | 164.87 | 194.7 | 395.3 | 998.3 | 962.8 | 35.57 | 28.067 | |
| 5,900.0 | 5,724.4 | 5,962.6 | 5,762.9 | 28.2 | 26.5 | 165.27 | 198.3 | 396.3 | 1,016.7 | 980.8 | 35.83 | 28.377 | |
| 6,000.0 | 5,822.4 | 6,048.4 | 5,848.7 | 28.5 | 26.6 | 165.62 | 200.7 | 396.3 | 1,033.1 | 997.1 | 36.04 | 28.667 | |
| 6,100.0 | 5,921.0 | 6,139.3 | 5,939.6 | 28.8 | 26.7 | 165.93 | 202.6 | 396.1 | 1,047.0 | 1,010.8 | 36.22 | 28.906 | |
| 6,200.0 | 6,020.2 | 6,229.0 | 6,029.3 | 29.0 | 26.8 | 166.18 | 203.7 | 395.7 | 1,058.6 | 1,022.2 | 36.37 | 29.103 | |
| 6,300.0 | 6,119.7 | 6,327.2 | 6,127.5 | 29.3 | 26.9 | 166.38 | 204.4 | 395.1 | 1,067.2 | 1,030.7 | 36.51 | 29.235 | |
| 6,400.0 | 6,219.5 | 6,425.5 | 6,225.8 | 29.4 | 27.0 | 166.51 | 204.9 | 394.7 | 1,072.6 | 1,036.0 | 36.62 | 29.294 | |
| 6,500.0 | 6,319.5 | 6,524.6 | 6,324.8 | 29.5 | 27.1 | 166.56 | 205.2 | 394.4 | 1,074.8 | 1,038.1 | 36.70 | 29.282 | |
| 6,521.3 | 6,340.8 | 6,546.1 | 6,346.3 | 29.6 | 27.1 | -165.09 | 205.3 | 394.4 | 1,074.8 | 1,021.0 | 53.79 | 19.981 | |
| 6,551.3 | 6,370.8 | 6,576.3 | 6,376.5 | 29.6 | 27.1 | -165.08 | 205.4 | 394.3 | 1,074.7 | 1,020.8 | 53.85 | 19.956 SF | |
| 6,600.0 | 6,419.5 | 6,622.4 | 6,422.7 | 29.6 | 27.2 | -75.19 | 205.6 | 394.1 | 1,074.2 | 1,037.3 | 36.87 | 29.131 | |
| 6,650.0 | 6,469.2 | 6,669.8 | 6,470.0 | 29.6 | 27.2 | -75.52 | 205.6 | 393.8 | 1,072.9 | 1,035.9 | 37.02 | 28.985 | |
| 6,700.0 | 6,518.4 | 6,718.1 | 6,518.3 | 29.6 | 27.3 | -76.09 | 205.6 | 393.5 | 1,070.9 | 1,033.6 | 37.24 | 28.754 | |
| 6,750.0 | 6,567.0 | 6,765.6 | 6,565.8 | 29.6 | 27.3 | -76.89 | 205.5 | 393.1 | 1,068.1 | 1,030.6 | 37.55 | 28.443 | |
| 6,800.0 | 6,614.5 | 6,811.4 | 6,611.6 | 29.6 | 27.4 | -77.87 | 205.4 | 392.8 | 1,064.8 | 1,026.9 | 37.94 | 28.065 | |
| 6,850.0 | 6,660.9 | 6,856.2 | 6,656.5 | 29.5 | 27.4 | -79.03 | 205.2 | 392.4 | 1,061.2 | 1,022.7 | 38.41 | 27.630 | |
| 6,900.0 | 6,705.9 | 6,901.7 | 6,701.9 | 29.4 | 27.4 | -80.38 | 205.0 | 392.0 | 1,057.2 | 1,018.2 | 38.95 | 27.140 | |
| 6,950.0 | 6,749.2 | 6,945.6 | 6,745.8 | 29.3 | 27.5 | -81.86 | 204.8 | 391.6 | 1,053.1 | 1,013.6 | 39.55 | 26.629 | |
| 7,000.0 | 6,790.7 | 6,987.4 | 6,787.6 | 29.2 | 27.5 | -83.42 | 204.7 | 391.2 | 1,049.1 | 1,009.0 | 40.16 | 26.122 | |
| 7,050.0 | 6,830.2 | 7,027.2 | 6,827.4 | 29.1 | 27.5 | -85.03 | 204.5 | 390.8 | 1,045.6 | 1,004.8 | 40.78 | 25.641 | |
| 7,100.0 | 6,867.4 | 7,064.2 | 6,864.4 | 29.0 | 27.6 | -86.60 | 204.4 | 390.4 | 1,042.7 | 1,001.3 | 41.36 | 25.211 | |
| 7,150.0 | 6,902.2 | 7,098.6 | 6,898.8 | 28.9 | 27.6 | -88.10 | 204.2 | 390.1 | 1,040.7 | 998.8 | 41.89 | 24.846 | |
| 7,200.0 | 6,934.4 | 7,130.4 | 6,930.6 | 28.7 | 27.6 | -89.50 | 204.0 | 389.9 | 1,039.9 | 997.6 | 42.36 | 24.552 | |
| 7,202.5 | 6,935.9 | 7,132.0 | 6,932.2 | 28.7 | 27.6 | -89.56 | 204.0 | 389.9 | 1,039.9 | 997.5 | 42.38 | 24.538 | |
| 7,250.0 | 6,963.8 | 7,160.7 | 6,960.9 | 28.6 | 27.7 | -90.78 | 203.8 | 389.7 | 1,040.6 | 997.8 | 42.78 | 24.323 | |
| 7,300.0 | 6,990.4 | 7,188.2 | 6,988.4 | 28.5 | 27.7 | -91.87 | 203.7 | 389.6 | 1,043.0 | 999.8 | 43.15 | 24.169 | |
| 7,350.0 | 7,013.9 | 7,212.5 | 7,012.7 | 28.4 | 27.7 | -92.71 | 203.6 | 389.4 | 1,047.2 | 1,003.7 | 43.48 | 24.082 | |
| 7,400.0 | 7,034.4 | 7,233.4 | 7,033.6 | 28.2 | 27.7 | -93.25 | 203.5 | 389.3 | 1,053.4 | 1,009.6 | 43.79 | 24.055 | |
| 7,450.0 | 7,051.5 | 7,250.7 | 7,050.9 | 28.1 | 27.8 | -93.46 | 203.4 | 389.2 | 1,061.8 | 1,017.7 | 44.10 | 24.075 | |
| 7,500.0 | 7,065.4 | 7,264.6 | 7,064.8 | 28.0 | 27.8 | -93.32 | 203.4 | 389.2 | 1,072.5 | 1,028.0 | 44.44 | 24.132 | |
| 7,550.0 | 7,075.9 | 7,275.1 | 7,075.3 | 27.9 | 27.8 | -92.81 | 203.3 | 389.1 | 1,085.4 | 1,040.6 | 44.82 | 24.215 | |
| 7,600.0 | 7,082.9 | 7,282.1 | 7,082.3 | 27.8 | 27.8 | -91.92 | 203.3 | 389.1 | 1,100.5 | 1,055.2 | 45.25 | 24.319 | |
| 7,650.0 | 7,086.5 | 7,285.7 | 7,085.9 | 27.7 | 27.8 | -90.65 | 203.3 | 389.1 | 1,117.7 | 1,072.0 | 45.73 | 24.443 | |
| 7,677.7 | 7,087.0 | 7,286.2 | 7,086.4 | 27.6 | 27.8 | -89.78 | 203.3 | 389.1 | 1,128.1 | 1,082.1 | 46.01 | 24.522 | |
| 7,700.0 | 7,087.0 | 7,286.2 | 7,086.4 | 27.6 | 27.8 | -89.78 | 203.3 | 389.1 | 1,136.9 | 1,090.6 | 46.32 | 24.548 | |
| 7,800.0 | 7,086.8 | 7,286.2 | 7,086.4 | 27.5 | 27.8 | -89.78 | 203.3 | 389.1 | 1,180.8 | 1,132.9 | 47.85 | 24.677 | |
| 7,900.0 | 7,086.6 | 7,286.1 | 7,086.3 | 27.9 | 27.8 | -89.78 | 203.3 | 389.1 | 1,231.2 | 1,181.6 | 49.59 | 24.828 | |
| 8,000.0 | 7,086.4 | 7,286.1 | 7,086.3 | 29.5 | 27.8 | -89.78 | 203.3 | 389.1 | 1,287.4 | 1,235.9 | 51.50 | 24.999 | |
| 8,100.0 | 7,086.2 | 7,286.0 | 7,086.2 | 31.5 | 27.8 | -89.77 | 203.3 | 389.1 | 1,348.7 | 1,295.2 | 53.55 | 25.188 | |
| 8,200.0 | 7,086.0 | 7,286.0 | 7,086.2 | 33.7 | 27.8 | -89.77 | 203.3 | 389.1 | 1,414.4 | 1,358.7 | 55.71 | 25.391 | |
| 8,300.0 | 7,085.8 | 7,285.9 | 7,086.1 | 36.0 | 27.8 | -89.77 | 203.3 | 389.1 | 1,484.0 | 1,426.0 | 57.96 | 25.605 | |
| 8,400.0 | 7,085.6 | 7,285.9 | 7,086.1 | 38.3 | 27.8 | -89.77 | 203.3 | 389.1 | 1,556.9 | 1,496.6 | 60.28 | 25.826 | |
| 8,500.0 | 7,085.4 | 7,285.9 | 7,086.1 | 40.7 | 27.8 | -89.76 | 203.3 | 389.1 | 1,632.6 | 1,569.9 | 62.67 | 26.050 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD WALTERS #21ODU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 703-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,600.0 | 7,085.2 | 7,285.8 | 7,086.0 | 43.1 | 27.8 | -89.76 | 203.3 | 389.1 | 1,710.9 | 1,645.7 | 65.11 | 26.276 | |
| 8,700.0 | 7,085.0 | 7,285.8 | 7,086.0 | 45.6 | 27.8 | -89.76 | 203.3 | 389.1 | 1,791.3 | 1,723.7 | 67.60 | 26.500 | |
| 8,800.0 | 7,084.8 | 7,285.7 | 7,085.9 | 48.1 | 27.8 | -89.76 | 203.3 | 389.1 | 1,873.6 | 1,803.5 | 70.11 | 26.721 | |
| 8,900.0 | 7,084.6 | 7,285.7 | 7,085.9 | 50.7 | 27.8 | -89.75 | 203.3 | 389.1 | 1,957.5 | 1,884.8 | 72.67 | 26.939 | |
| 9,000.0 | 7,084.4 | 7,285.7 | 7,085.9 | 53.2 | 27.8 | -89.75 | 203.3 | 389.1 | 2,042.9 | 1,967.7 | 75.24 | 27.151 | |
| 9,100.0 | 7,084.2 | 7,285.6 | 7,085.8 | 55.8 | 27.8 | -89.75 | 203.3 | 389.1 | 2,129.6 | 2,051.7 | 77.84 | 27.358 | |
| 9,200.0 | 7,084.0 | 7,285.6 | 7,085.8 | 58.4 | 27.8 | -89.75 | 203.3 | 389.1 | 2,217.4 | 2,136.9 | 80.46 | 27.558 | |
| 9,300.0 | 7,083.8 | 7,285.5 | 7,085.7 | 61.1 | 27.8 | -89.74 | 203.3 | 389.1 | 2,306.1 | 2,223.0 | 83.10 | 27.753 | |
| 9,400.0 | 7,083.7 | 7,285.5 | 7,085.7 | 63.7 | 27.8 | -89.74 | 203.3 | 389.1 | 2,395.8 | 2,310.1 | 85.75 | 27.940 | |
| 9,500.0 | 7,083.5 | 7,285.5 | 7,085.7 | 66.3 | 27.8 | -89.74 | 203.3 | 389.1 | 2,486.3 | 2,397.8 | 88.41 | 28.122 | |
| 9,600.0 | 7,083.3 | 7,285.4 | 7,085.6 | 69.0 | 27.8 | -89.74 | 203.3 | 389.1 | 2,577.4 | 2,486.3 | 91.09 | 28.296 | |
| 9,700.0 | 7,083.1 | 7,285.4 | 7,085.6 | 71.7 | 27.8 | -89.74 | 203.3 | 389.1 | 2,669.2 | 2,575.4 | 93.77 | 28.465 | |
| 9,800.0 | 7,082.9 | 7,285.4 | 7,085.6 | 74.4 | 27.8 | -89.73 | 203.3 | 389.1 | 2,761.6 | 2,665.1 | 96.47 | 28.627 | |
| 9,900.0 | 7,082.7 | 7,285.3 | 7,085.5 | 77.1 | 27.8 | -89.73 | 203.3 | 389.1 | 2,854.4 | 2,755.3 | 99.17 | 28.783 | |
| 10,000.0 | 7,082.5 | 7,285.3 | 7,085.5 | 79.7 | 27.8 | -89.73 | 203.3 | 389.1 | 2,947.8 | 2,845.9 | 101.88 | 28.934 | |
| 10,100.0 | 7,082.3 | 7,285.3 | 7,085.4 | 82.5 | 27.8 | -89.73 | 203.3 | 389.1 | 3,041.6 | 2,937.0 | 104.60 | 29.079 | |
| 10,200.0 | 7,082.1 | 7,285.2 | 7,085.4 | 85.2 | 27.8 | -89.72 | 203.3 | 389.1 | 3,135.7 | 3,028.4 | 107.32 | 29.218 | |
| 10,300.0 | 7,081.9 | 7,285.2 | 7,085.4 | 87.9 | 27.8 | -89.72 | 203.3 | 389.1 | 3,230.2 | 3,120.2 | 110.05 | 29.353 | |
| 10,400.0 | 7,081.7 | 7,285.1 | 7,085.3 | 90.6 | 27.8 | -89.72 | 203.3 | 389.1 | 3,325.0 | 3,212.3 | 112.78 | 29.482 | |
| 10,500.0 | 7,081.5 | 7,285.1 | 7,085.3 | 93.3 | 27.8 | -89.72 | 203.3 | 389.1 | 3,420.2 | 3,304.6 | 115.52 | 29.607 | |
| 10,600.0 | 7,081.3 | 7,285.1 | 7,085.3 | 96.1 | 27.8 | -89.72 | 203.3 | 389.1 | 3,515.5 | 3,397.3 | 118.26 | 29.727 | |
| 10,700.0 | 7,081.1 | 7,285.0 | 7,085.2 | 98.8 | 27.8 | -89.71 | 203.3 | 389.1 | 3,611.2 | 3,490.2 | 121.01 | 29.843 | |
| 10,800.0 | 7,080.9 | 7,285.0 | 7,085.2 | 101.5 | 27.8 | -89.71 | 203.3 | 389.1 | 3,707.1 | 3,583.3 | 123.76 | 29.955 | |
| 10,900.0 | 7,080.7 | 7,285.0 | 7,085.2 | 104.3 | 27.8 | -89.71 | 203.3 | 389.1 | 3,803.1 | 3,676.6 | 126.51 | 30.062 | |
| 11,000.0 | 7,080.5 | 7,284.9 | 7,085.1 | 107.0 | 27.8 | -89.71 | 203.3 | 389.1 | 3,899.4 | 3,770.2 | 129.26 | 30.167 | |
| 11,100.0 | 7,080.3 | 7,284.9 | 7,085.1 | 109.8 | 27.8 | -89.70 | 203.3 | 389.1 | 3,995.9 | 3,863.9 | 132.02 | 30.267 | |
| 11,200.0 | 7,080.1 | 7,284.9 | 7,085.1 | 112.5 | 27.8 | -89.70 | 203.3 | 389.1 | 4,092.5 | 3,957.7 | 134.78 | 30.364 | |
| 11,300.0 | 7,079.9 | 7,284.8 | 7,085.0 | 115.3 | 27.8 | -89.70 | 203.3 | 389.1 | 4,189.3 | 4,051.8 | 137.54 | 30.458 | |
| 11,400.0 | 7,079.7 | 7,284.8 | 7,085.0 | 118.0 | 27.8 | -89.70 | 203.3 | 389.1 | 4,286.2 | 4,145.9 | 140.31 | 30.549 | |
| 11,500.0 | 7,079.5 | 7,284.8 | 7,085.0 | 120.8 | 27.8 | -89.70 | 203.3 | 389.1 | 4,383.3 | 4,240.2 | 143.08 | 30.636 | |
| 11,600.0 | 7,079.3 | 7,284.7 | 7,084.9 | 123.6 | 27.8 | -89.69 | 203.3 | 389.1 | 4,480.5 | 4,334.7 | 145.84 | 30.721 | |
| 11,700.0 | 7,079.1 | 7,284.7 | 7,084.9 | 126.3 | 27.8 | -89.69 | 203.3 | 389.1 | 4,577.8 | 4,429.2 | 148.61 | 30.803 | |
| 11,800.0 | 7,078.9 | 7,284.7 | 7,084.9 | 129.1 | 27.8 | -89.69 | 203.3 | 389.1 | 4,675.3 | 4,523.9 | 151.39 | 30.883 | |
| 11,900.0 | 7,078.7 | 7,284.7 | 7,084.8 | 131.9 | 27.8 | -89.69 | 203.3 | 389.1 | 4,772.8 | 4,618.7 | 154.16 | 30.960 | |
| 12,000.0 | 7,078.5 | 7,284.6 | 7,084.8 | 134.6 | 27.8 | -89.68 | 203.3 | 389.1 | 4,870.5 | 4,713.5 | 156.94 | 31.035 | |
| 12,100.0 | 7,078.3 | 7,284.6 | 7,084.8 | 137.4 | 27.8 | -89.68 | 203.3 | 389.1 | 4,968.2 | 4,808.5 | 159.71 | 31.107 | |
| 12,200.0 | 7,078.1 | 7,284.6 | 7,084.8 | 140.2 | 27.8 | -89.68 | 203.3 | 389.1 | 5,066.0 | 4,903.5 | 162.49 | 31.178 | |
| 12,300.0 | 7,077.9 | 7,284.5 | 7,084.7 | 142.9 | 27.8 | -89.68 | 203.3 | 389.1 | 5,163.9 | 4,998.7 | 165.27 | 31.246 | |
| 12,400.0 | 7,077.7 | 7,284.5 | 7,084.7 | 145.7 | 27.8 | -89.68 | 203.3 | 389.1 | 5,261.9 | 5,093.9 | 168.05 | 31.312 | |
| 12,500.0 | 7,077.5 | 7,284.5 | 7,084.7 | 148.5 | 27.8 | -89.67 | 203.3 | 389.1 | 5,360.0 | 5,189.2 | 170.83 | 31.376 | |
| 12,600.0 | 7,077.3 | 7,284.4 | 7,084.6 | 151.3 | 27.8 | -89.67 | 203.3 | 389.1 | 5,458.1 | 5,284.5 | 173.61 | 31.439 | |
| 12,700.0 | 7,077.1 | 7,284.4 | 7,084.6 | 154.0 | 27.8 | -89.67 | 203.3 | 389.1 | 5,556.3 | 5,379.9 | 176.40 | 31.499 | |
| 12,800.0 | 7,076.9 | 7,284.4 | 7,084.6 | 156.8 | 27.8 | -89.67 | 203.3 | 389.1 | 5,654.6 | 5,475.4 | 179.18 | 31.558 | |
| 12,900.0 | 7,076.7 | 7,284.3 | 7,084.5 | 159.6 | 27.8 | -89.66 | 203.3 | 389.1 | 5,752.9 | 5,570.9 | 181.96 | 31.616 | |
| 13,000.0 | 7,076.5 | 7,284.3 | 7,084.5 | 162.4 | 27.8 | -89.66 | 203.3 | 389.1 | 5,851.3 | 5,666.5 | 184.75 | 31.671 | |
| 13,100.0 | 7,076.3 | 7,284.3 | 7,084.5 | 165.2 | 27.8 | -89.66 | 203.3 | 389.1 | 5,949.7 | 5,762.2 | 187.54 | 31.726 | |
| 13,200.0 | 7,076.1 | 7,284.3 | 7,084.5 | 168.0 | 27.8 | -89.66 | 203.3 | 389.1 | 6,048.2 | 5,857.9 | 190.32 | 31.779 | |
| 13,300.0 | 7,075.9 | 7,284.2 | 7,084.4 | 170.7 | 27.8 | -89.66 | 203.3 | 389.1 | 6,146.7 | 5,953.6 | 193.11 | 31.830 | |
| 13,400.0 | 7,075.7 | 7,284.2 | 7,084.4 | 173.5 | 27.8 | -89.65 | 203.3 | 389.1 | 6,245.3 | 6,049.4 | 195.90 | 31.880 | |
| 13,500.0 | 7,075.5 | 7,284.2 | 7,084.4 | 176.3 | 27.8 | -89.65 | 203.3 | 389.1 | 6,343.9 | 6,145.2 | 198.69 | 31.929 | |
| 13,600.0 | 7,075.3 | 7,284.1 | 7,084.3 | 179.1 | 27.8 | -89.65 | 203.3 | 389.1 | 6,442.6 | 6,241.1 | 201.48 | 31.977 | |
| 13,700.0 | 7,075.1 | 7,284.1 | 7,084.3 | 181.9 | 27.8 | -89.65 | 203.3 | 389.1 | 6,541.3 | 6,337.0 | 204.27 | 32.023 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD WALTERS #21ODU - Wellbore #1 - Wellbore #1

**Offset Site Error:** 0.0 usft

**Survey Program:** 703-MWD

**Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.0 | 7,074.9 | 7,284.1 | 7,084.3 | 184.7 | 27.8 | -89.64 | 203.3 | 389.1 | 6,640.1 | 6,433.0 | 207.06 | 32.068 | |
| 13,900.0 | 7,074.7 | 7,284.1 | 7,084.3 | 187.5 | 27.8 | -89.64 | 203.3 | 389.1 | 6,738.8 | 6,529.0 | 209.85 | 32.113 | |
| 14,000.0 | 7,074.5 | 7,284.0 | 7,084.2 | 190.2 | 27.8 | -89.64 | 203.3 | 389.1 | 6,837.7 | 6,625.0 | 212.64 | 32.156 | |
| 14,100.0 | 7,074.2 | 7,284.0 | 7,084.2 | 193.0 | 27.8 | -89.64 | 203.3 | 389.1 | 6,936.5 | 6,721.1 | 215.43 | 32.198 | |
| 14,200.0 | 7,074.0 | 7,284.0 | 7,084.2 | 195.8 | 27.8 | -89.64 | 203.3 | 389.1 | 7,035.4 | 6,817.2 | 218.23 | 32.239 | |
| 14,221.4 | 7,074.0 | 7,284.0 | 7,084.2 | 196.4 | 27.8 | -89.64 | 203.3 | 389.1 | 7,056.5 | 6,837.7 | 218.82 | 32.247 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD WALTERS 23-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 704-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | -145.25 | -787.3 | -546.2 | 958.2 | | | | |
| 100.0 | 100.0 | 102.5 | 102.5 | 0.1 | 0.1 | -145.24 | -787.2 | -546.2 | 958.2 | 958.0 | 0.20 | 4,701.146 | |
| 200.0 | 200.0 | 202.5 | 202.5 | 0.3 | 0.2 | -145.23 | -787.1 | -546.4 | 958.2 | 957.6 | 0.53 | 1,799.088 | |
| 300.0 | 300.0 | 302.5 | 302.5 | 0.5 | 0.3 | -145.21 | -786.9 | -546.7 | 958.2 | 957.3 | 0.86 | 1,112.397 | |
| 360.6 | 360.6 | 363.1 | 363.1 | 0.7 | 0.4 | -145.20 | -786.8 | -546.9 | 958.2 | 957.1 | 1.06 | 903.375 | CC |
| 400.0 | 400.0 | 402.5 | 402.5 | 0.8 | 0.4 | -145.19 | -786.7 | -547.0 | 958.2 | 957.0 | 1.19 | 805.101 | ES |
| 500.0 | 500.0 | 502.5 | 502.5 | 1.0 | 0.5 | -173.51 | -786.4 | -547.5 | 959.9 | 958.4 | 1.52 | 631.219 | |
| 600.0 | 599.8 | 602.3 | 602.3 | 1.2 | 0.6 | -173.49 | -786.0 | -548.0 | 965.1 | 963.2 | 1.86 | 519.216 | |
| 700.0 | 699.5 | 702.0 | 701.9 | 1.5 | 0.7 | -173.48 | -785.5 | -548.7 | 973.8 | 971.6 | 2.21 | 441.017 | |
| 800.0 | 798.7 | 802.1 | 802.1 | 1.7 | 1.0 | -173.47 | -784.9 | -549.5 | 985.8 | 983.2 | 2.67 | 369.805 | |
| 900.0 | 897.5 | 899.5 | 899.4 | 2.0 | 1.2 | -173.47 | -784.2 | -550.5 | 1,001.3 | 998.2 | 3.11 | 321.940 | |
| 1,000.0 | 995.6 | 994.1 | 994.1 | 2.4 | 1.4 | -173.46 | -783.6 | -551.7 | 1,020.5 | 1,017.0 | 3.55 | 287.176 | |
| 1,100.0 | 1,093.1 | 1,093.3 | 1,093.2 | 2.8 | 1.6 | -173.48 | -783.3 | -553.2 | 1,043.5 | 1,039.5 | 4.00 | 260.667 | |
| 1,164.2 | 1,155.2 | 1,198.5 | 1,198.4 | 3.1 | 1.8 | -173.59 | -781.6 | -552.5 | 1,058.6 | 1,054.3 | 4.35 | 243.464 | |
| 1,200.0 | 1,189.7 | 1,269.7 | 1,269.5 | 3.2 | 1.9 | -173.73 | -778.7 | -549.8 | 1,066.0 | 1,061.5 | 4.55 | 234.112 | |
| 1,300.0 | 1,286.2 | 1,417.2 | 1,416.3 | 3.7 | 2.2 | -174.08 | -768.3 | -539.9 | 1,082.8 | 1,077.7 | 5.10 | 212.517 | |
| 1,400.0 | 1,382.6 | 1,586.2 | 1,583.3 | 4.2 | 2.7 | -174.37 | -747.8 | -525.0 | 1,094.3 | 1,088.6 | 5.72 | 191.363 | |
| 1,500.0 | 1,479.1 | 1,714.0 | 1,708.6 | 4.7 | 3.1 | -174.62 | -727.8 | -509.7 | 1,101.0 | 1,094.8 | 6.28 | 175.428 | |
| 1,600.0 | 1,575.6 | 1,845.6 | 1,836.9 | 5.3 | 3.6 | -174.91 | -704.7 | -491.4 | 1,104.9 | 1,098.1 | 6.86 | 161.000 | |
| 1,700.0 | 1,672.0 | 1,932.7 | 1,921.7 | 5.8 | 3.9 | -175.11 | -689.2 | -479.0 | 1,108.6 | 1,101.2 | 7.35 | 150.789 | |
| 1,800.0 | 1,768.5 | 2,047.1 | 2,033.0 | 6.3 | 4.4 | -175.47 | -669.9 | -461.1 | 1,112.2 | 1,104.3 | 7.90 | 140.717 | |
| 1,900.0 | 1,864.9 | 2,156.1 | 2,138.7 | 6.8 | 4.8 | -175.74 | -649.2 | -444.1 | 1,114.2 | 1,105.8 | 8.46 | 131.713 | |
| 2,000.0 | 1,961.4 | 2,252.0 | 2,231.7 | 7.4 | 5.3 | -175.99 | -631.3 | -429.3 | 1,116.5 | 1,107.5 | 8.98 | 124.269 | |
| 2,100.0 | 2,057.9 | 2,356.8 | 2,333.3 | 7.9 | 5.7 | -176.27 | -611.9 | -412.7 | 1,118.8 | 1,109.2 | 9.54 | 117.299 | |
| 2,200.0 | 2,154.3 | 2,456.6 | 2,430.1 | 8.4 | 6.2 | -176.57 | -593.4 | -396.3 | 1,120.7 | 1,110.6 | 10.09 | 111.119 | |
| 2,300.0 | 2,250.8 | 2,579.6 | 2,548.9 | 9.0 | 6.8 | -177.00 | -570.4 | -374.4 | 1,121.7 | 1,111.0 | 10.70 | 104.798 | |
| 2,381.5 | 2,329.4 | 2,661.0 | 2,627.3 | 9.4 | 7.2 | -177.31 | -554.6 | -359.0 | 1,121.7 | 1,110.5 | 11.17 | 100.444 | |
| 2,400.0 | 2,347.3 | 2,677.7 | 2,643.4 | 9.5 | 7.3 | -177.37 | -551.4 | -355.9 | 1,121.7 | 1,110.4 | 11.27 | 99.562 | |
| 2,500.0 | 2,443.7 | 2,754.0 | 2,717.0 | 10.0 | 7.6 | -177.61 | -536.7 | -342.6 | 1,122.6 | 1,110.9 | 11.76 | 95.435 | |
| 2,600.0 | 2,540.2 | 2,847.0 | 2,807.3 | 10.6 | 8.0 | -177.86 | -519.7 | -328.0 | 1,125.2 | 1,112.9 | 12.30 | 91.483 | |
| 2,700.0 | 2,636.7 | 2,953.9 | 2,911.1 | 11.1 | 8.5 | -178.15 | -500.2 | -311.2 | 1,128.0 | 1,115.1 | 12.88 | 87.582 | |
| 2,800.0 | 2,733.1 | 3,034.0 | 2,988.8 | 11.6 | 8.9 | -178.37 | -485.7 | -298.6 | 1,130.9 | 1,117.5 | 13.39 | 84.470 | |
| 2,900.0 | 2,829.6 | 3,127.0 | 3,079.4 | 12.2 | 9.3 | -178.59 | -469.8 | -285.1 | 1,135.3 | 1,121.4 | 13.92 | 81.532 | |
| 3,000.0 | 2,926.0 | 3,220.0 | 3,170.2 | 12.7 | 9.7 | -178.77 | -453.9 | -272.6 | 1,140.3 | 1,125.9 | 14.46 | 78.852 | |
| 3,100.0 | 3,022.5 | 3,296.6 | 3,245.1 | 13.2 | 10.0 | -178.94 | -441.7 | -262.2 | 1,146.4 | 1,131.4 | 14.95 | 76.656 | |
| 3,200.0 | 3,119.0 | 3,378.7 | 3,325.7 | 13.8 | 10.3 | -179.18 | -430.7 | -251.1 | 1,154.6 | 1,139.1 | 15.46 | 74.680 | |
| 3,300.0 | 3,215.4 | 3,472.8 | 3,418.3 | 14.3 | 10.7 | -179.47 | -419.2 | -238.4 | 1,163.8 | 1,147.8 | 16.00 | 72.742 | |
| 3,400.0 | 3,311.9 | 3,577.8 | 3,521.3 | 14.9 | 11.1 | -179.84 | -406.8 | -223.1 | 1,173.0 | 1,156.5 | 16.58 | 70.759 | |
| 3,500.0 | 3,408.4 | 3,670.9 | 3,612.6 | 15.4 | 11.5 | 179.74 | -396.6 | -208.0 | 1,182.2 | 1,165.1 | 17.14 | 68.990 | |
| 3,600.0 | 3,504.8 | 3,770.5 | 3,710.5 | 15.9 | 11.8 | 179.37 | -385.4 | -193.1 | 1,191.8 | 1,174.1 | 17.71 | 67.306 | |
| 3,700.0 | 3,601.3 | 3,900.5 | 3,838.1 | 16.5 | 12.4 | 179.04 | -367.9 | -175.7 | 1,200.2 | 1,181.9 | 18.35 | 65.397 | |
| 3,800.0 | 3,697.7 | 4,010.2 | 3,945.3 | 17.0 | 12.8 | 178.82 | -350.3 | -160.8 | 1,206.2 | 1,187.2 | 18.95 | 63.666 | |
| 3,900.0 | 3,794.2 | 4,094.0 | 4,027.5 | 17.5 | 13.2 | 178.66 | -337.4 | -149.9 | 1,213.1 | 1,193.6 | 19.46 | 62.323 | |
| 4,000.0 | 3,890.7 | 4,187.1 | 4,118.8 | 18.1 | 13.5 | 178.49 | -324.0 | -138.2 | 1,221.1 | 1,201.1 | 20.01 | 61.033 | |
| 4,100.0 | 3,987.1 | 4,293.7 | 4,223.5 | 18.6 | 13.9 | 178.29 | -308.4 | -124.8 | 1,228.9 | 1,208.3 | 20.59 | 59.687 | |
| 4,200.0 | 4,083.6 | 4,389.5 | 4,317.3 | 19.2 | 14.3 | 178.08 | -294.5 | -111.9 | 1,236.4 | 1,215.2 | 21.15 | 58.467 | |
| 4,300.0 | 4,180.1 | 4,473.9 | 4,400.2 | 19.7 | 14.7 | 177.91 | -282.7 | -101.2 | 1,244.8 | 1,223.1 | 21.67 | 57.445 | |
| 4,400.0 | 4,276.5 | 4,548.2 | 4,473.4 | 20.2 | 14.9 | 177.78 | -273.2 | -92.4 | 1,254.7 | 1,232.5 | 22.16 | 56.623 | |
| 4,500.0 | 4,373.0 | 4,617.0 | 4,541.5 | 20.8 | 15.2 | 177.70 | -265.6 | -86.0 | 1,267.2 | 1,244.6 | 22.62 | 56.012 | |
| 4,600.0 | 4,469.5 | 4,688.1 | 4,612.0 | 21.3 | 15.4 | 177.65 | -259.0 | -80.6 | 1,282.0 | 1,258.9 | 23.08 | 55.544 | |
| 4,700.0 | 4,565.9 | 4,762.9 | 4,686.4 | 21.9 | 15.6 | 177.60 | -253.1 | -75.7 | 1,298.5 | 1,275.0 | 23.54 | 55.160 | |
| 4,800.0 | 4,662.4 | 4,837.5 | 4,760.8 | 22.4 | 15.8 | 177.58 | -248.2 | -71.9 | 1,316.9 | 1,292.9 | 23.99 | 54.887 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD WALTERS 23-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 704-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,900.0 | 4,758.8 | 4,911.7 | 4,834.8 | 22.9 | 15.9 | 177.56 | -244.5 | -68.6 | 1,337.0 | 1,312.5 | 24.44 | 54.706 | |
| 5,000.0 | 4,855.3 | 4,989.0 | 4,912.0 | 23.5 | 16.1 | 177.54 | -242.0 | -66.1 | 1,359.1 | 1,334.2 | 24.89 | 54.611 | |
| 5,100.0 | 4,951.8 | 5,056.4 | 4,979.4 | 24.0 | 16.2 | 177.55 | -240.8 | -64.8 | 1,382.9 | 1,357.6 | 25.31 | 54.649 | |
| 5,200.0 | 5,048.2 | 5,142.2 | 5,065.2 | 24.6 | 16.3 | 177.58 | -240.0 | -64.0 | 1,408.0 | 1,382.2 | 25.75 | 54.673 | |
| 5,300.0 | 5,144.7 | 5,234.9 | 5,157.9 | 25.1 | 16.4 | 177.61 | -239.3 | -63.5 | 1,433.5 | 1,407.3 | 26.21 | 54.696 | |
| 5,400.0 | 5,241.2 | 5,328.9 | 5,251.9 | 25.6 | 16.6 | 177.66 | -238.7 | -63.3 | 1,459.2 | 1,432.5 | 26.67 | 54.722 | |
| 5,500.0 | 5,337.6 | 5,423.6 | 5,346.6 | 26.2 | 16.7 | 177.70 | -238.3 | -63.2 | 1,485.1 | 1,457.9 | 27.12 | 54.751 | |
| 5,600.0 | 5,434.1 | 5,518.6 | 5,441.6 | 26.7 | 16.8 | 177.75 | -237.8 | -63.3 | 1,511.0 | 1,483.5 | 27.58 | 54.782 | |
| 5,700.0 | 5,530.5 | 5,610.4 | 5,533.4 | 27.3 | 16.9 | 177.80 | -237.5 | -63.5 | 1,537.2 | 1,509.1 | 28.04 | 54.829 | |
| 5,757.1 | 5,585.6 | 5,662.0 | 5,585.0 | 27.6 | 17.0 | 177.83 | -237.5 | -63.6 | 1,552.3 | 1,524.0 | 28.29 | 54.864 | |
| 5,800.0 | 5,627.1 | 5,700.7 | 5,623.7 | 27.8 | 17.1 | 177.85 | -237.5 | -63.7 | 1,563.4 | 1,534.9 | 28.50 | 54.863 | |
| 5,900.0 | 5,724.4 | 5,793.8 | 5,716.8 | 28.2 | 17.2 | 177.90 | -238.0 | -64.0 | 1,587.1 | 1,558.2 | 28.92 | 54.874 | |
| 6,000.0 | 5,822.4 | 5,889.0 | 5,811.9 | 28.5 | 17.3 | 177.94 | -238.6 | -64.2 | 1,607.6 | 1,578.3 | 29.31 | 54.844 | |
| 6,100.0 | 5,921.0 | 5,987.7 | 5,910.6 | 28.8 | 17.4 | 177.97 | -239.4 | -64.4 | 1,624.8 | 1,595.1 | 29.66 | 54.771 | |
| 6,200.0 | 6,020.2 | 6,088.4 | 6,011.3 | 29.0 | 17.6 | 177.99 | -240.2 | -64.6 | 1,638.4 | 1,608.4 | 29.98 | 54.654 | |
| 6,300.0 | 6,119.7 | 6,188.7 | 6,111.6 | 29.3 | 17.7 | 178.00 | -240.8 | -64.8 | 1,648.5 | 1,618.3 | 30.25 | 54.501 | |
| 6,400.0 | 6,219.5 | 6,289.1 | 6,212.1 | 29.4 | 17.8 | 178.02 | -241.3 | -65.3 | 1,655.1 | 1,624.7 | 30.47 | 54.314 | |
| 6,500.0 | 6,319.5 | 6,392.8 | 6,315.8 | 29.5 | 18.0 | 178.04 | -241.6 | -65.8 | 1,658.1 | 1,627.4 | 30.66 | 54.074 | |
| 6,521.3 | 6,340.8 | 6,415.0 | 6,337.9 | 29.6 | 18.0 | -153.61 | -241.6 | -65.9 | 1,658.3 | 1,611.0 | 47.29 | 35.068 | |
| 6,551.3 | 6,370.8 | 6,446.1 | 6,369.1 | 29.6 | 18.1 | -153.61 | -241.6 | -66.1 | 1,658.3 | 1,611.0 | 47.36 | 35.017 | |
| 6,600.0 | 6,419.5 | 6,495.6 | 6,418.6 | 29.6 | 18.1 | -63.70 | -241.7 | -66.3 | 1,657.7 | 1,626.9 | 30.82 | 53.782 | |
| 6,650.0 | 6,469.2 | 6,543.7 | 6,466.7 | 29.6 | 18.2 | -64.00 | -241.7 | -66.4 | 1,655.6 | 1,624.7 | 30.83 | 53.699 | |
| 6,700.0 | 6,518.4 | 6,591.3 | 6,514.3 | 29.6 | 18.3 | -64.51 | -241.8 | -66.7 | 1,652.0 | 1,621.1 | 30.85 | 53.557 | |
| 6,750.0 | 6,567.0 | 6,638.3 | 6,561.2 | 29.6 | 18.3 | -65.23 | -241.9 | -66.9 | 1,647.0 | 1,616.1 | 30.88 | 53.334 | |
| 6,800.0 | 6,614.5 | 6,684.6 | 6,607.5 | 29.6 | 18.4 | -66.14 | -242.0 | -67.2 | 1,640.7 | 1,609.7 | 30.95 | 53.004 | |
| 6,850.0 | 6,660.9 | 6,730.1 | 6,653.1 | 29.5 | 18.5 | -67.25 | -242.2 | -67.5 | 1,633.1 | 1,602.0 | 31.08 | 52.542 | |
| 6,900.0 | 6,705.9 | 6,774.3 | 6,697.3 | 29.4 | 18.5 | -68.53 | -242.4 | -67.8 | 1,624.5 | 1,593.2 | 31.28 | 51.937 | |
| 6,950.0 | 6,749.2 | 6,817.0 | 6,740.0 | 29.3 | 18.6 | -69.97 | -242.6 | -68.1 | 1,614.9 | 1,583.3 | 31.55 | 51.182 | |
| 7,000.0 | 6,790.7 | 6,858.1 | 6,781.0 | 29.2 | 18.6 | -71.55 | -242.8 | -68.3 | 1,604.5 | 1,572.6 | 31.91 | 50.285 | |
| 7,050.0 | 6,830.2 | 6,898.1 | 6,821.1 | 29.1 | 18.7 | -73.27 | -243.0 | -68.6 | 1,593.5 | 1,561.2 | 32.35 | 49.257 | |
| 7,100.0 | 6,867.4 | 6,935.9 | 6,858.9 | 29.0 | 18.8 | -75.07 | -243.2 | -68.8 | 1,582.1 | 1,549.2 | 32.86 | 48.141 | |
| 7,150.0 | 6,902.2 | 6,971.2 | 6,894.2 | 28.9 | 18.8 | -76.91 | -243.4 | -69.0 | 1,570.4 | 1,537.0 | 33.43 | 46.974 | |
| 7,200.0 | 6,934.4 | 7,004.0 | 6,926.9 | 28.7 | 18.8 | -78.77 | -243.6 | -69.2 | 1,558.8 | 1,524.8 | 34.04 | 45.795 | |
| 7,250.0 | 6,963.8 | 7,033.9 | 6,956.8 | 28.6 | 18.9 | -80.59 | -243.7 | -69.4 | 1,547.4 | 1,512.7 | 34.66 | 44.638 | |
| 7,300.0 | 6,990.4 | 7,060.9 | 6,983.9 | 28.5 | 18.9 | -82.34 | -243.9 | -69.5 | 1,536.4 | 1,501.1 | 35.30 | 43.527 | |
| 7,350.0 | 7,013.9 | 7,084.9 | 7,007.9 | 28.4 | 19.0 | -83.97 | -244.0 | -69.6 | 1,526.2 | 1,490.2 | 35.93 | 42.478 | |
| 7,400.0 | 7,034.4 | 7,105.6 | 7,028.6 | 28.2 | 19.0 | -85.46 | -244.1 | -69.6 | 1,516.8 | 1,480.2 | 36.55 | 41.497 | |
| 7,450.0 | 7,051.5 | 7,123.1 | 7,046.0 | 28.1 | 19.0 | -86.75 | -244.2 | -69.7 | 1,508.5 | 1,471.3 | 37.17 | 40.583 | |
| 7,500.0 | 7,065.4 | 7,137.1 | 7,060.1 | 28.0 | 19.0 | -87.84 | -244.3 | -69.7 | 1,501.4 | 1,463.6 | 37.79 | 39.731 | |
| 7,550.0 | 7,075.9 | 7,147.7 | 7,070.7 | 27.9 | 19.1 | -88.69 | -244.3 | -69.7 | 1,495.8 | 1,457.4 | 38.42 | 38.933 | |
| 7,600.0 | 7,082.9 | 7,154.8 | 7,077.8 | 27.8 | 19.1 | -89.29 | -244.3 | -69.7 | 1,491.7 | 1,452.6 | 39.06 | 38.185 | |
| 7,650.0 | 7,086.5 | 7,158.5 | 7,081.4 | 27.7 | 19.1 | -89.64 | -244.4 | -69.7 | 1,489.1 | 1,449.4 | 39.73 | 37.483 | |
| 7,677.7 | 7,087.0 | 7,159.0 | 7,081.9 | 27.6 | 19.1 | -89.71 | -244.4 | -69.7 | 1,488.5 | 1,448.4 | 40.11 | 37.113 | |
| 7,700.0 | 7,087.0 | 7,158.9 | 7,081.9 | 27.6 | 19.1 | -89.71 | -244.4 | -69.7 | 1,488.3 | 1,447.9 | 40.42 | 36.824 | |
| 7,700.9 | 7,087.0 | 7,158.9 | 7,081.9 | 27.6 | 19.1 | -89.71 | -244.4 | -69.7 | 1,488.3 | 1,447.9 | 40.43 | 36.812 | |
| 7,800.0 | 7,086.8 | 7,158.9 | 7,081.8 | 27.5 | 19.1 | -89.71 | -244.4 | -69.7 | 1,491.6 | 1,449.6 | 41.95 | 35.557 | |
| 7,900.0 | 7,086.6 | 7,158.8 | 7,081.7 | 27.9 | 19.1 | -89.70 | -244.4 | -69.7 | 1,501.5 | 1,457.9 | 43.69 | 34.369 | |
| 8,000.0 | 7,086.4 | 7,158.7 | 7,081.6 | 29.5 | 19.1 | -89.70 | -244.4 | -69.7 | 1,518.0 | 1,472.4 | 45.60 | 33.292 | |
| 8,100.0 | 7,086.2 | 7,158.6 | 7,081.6 | 31.5 | 19.1 | -89.70 | -244.4 | -69.7 | 1,540.9 | 1,493.2 | 47.65 | 32.340 | |
| 8,200.0 | 7,086.0 | 7,158.5 | 7,081.5 | 33.7 | 19.1 | -89.69 | -244.4 | -69.7 | 1,569.7 | 1,519.9 | 49.81 | 31.518 | |
| 8,300.0 | 7,085.8 | 7,158.4 | 7,081.4 | 36.0 | 19.1 | -89.69 | -244.4 | -69.7 | 1,604.3 | 1,552.3 | 52.06 | 30.819 | |
| 8,400.0 | 7,085.6 | 7,158.3 | 7,081.3 | 38.3 | 19.1 | -89.69 | -244.4 | -69.7 | 1,644.3 | 1,589.9 | 54.38 | 30.236 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD WALTERS 23-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 704-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,500.0 | 7,085.4 | 7,158.2 | 7,081.2 | 40.7 | 19.1 | -89.68 | -244.4 | -69.7 | 1,689.3 | 1,632.5 | 56.77 | 29.755 | |
| 8,600.0 | 7,085.2 | 7,158.2 | 7,081.1 | 43.1 | 19.1 | -89.68 | -244.4 | -69.7 | 1,738.8 | 1,679.6 | 59.21 | 29.366 | |
| 8,700.0 | 7,085.0 | 7,158.1 | 7,081.0 | 45.6 | 19.1 | -89.68 | -244.4 | -69.7 | 1,792.6 | 1,730.9 | 61.69 | 29.055 | |
| 8,800.0 | 7,084.8 | 7,158.0 | 7,081.0 | 48.1 | 19.1 | -89.67 | -244.4 | -69.7 | 1,850.2 | 1,785.9 | 64.21 | 28.812 | |
| 8,900.0 | 7,084.6 | 7,157.9 | 7,080.9 | 50.7 | 19.1 | -89.67 | -244.4 | -69.7 | 1,911.3 | 1,844.5 | 66.76 | 28.627 | |
| 9,000.0 | 7,084.4 | 7,157.8 | 7,080.8 | 53.2 | 19.1 | -89.67 | -244.4 | -69.7 | 1,975.5 | 1,906.2 | 69.34 | 28.490 | |
| 9,100.0 | 7,084.2 | 7,157.7 | 7,080.7 | 55.8 | 19.1 | -89.66 | -244.4 | -69.7 | 2,042.7 | 1,970.7 | 71.94 | 28.394 | |
| 9,200.0 | 7,084.0 | 7,157.7 | 7,080.6 | 58.4 | 19.1 | -89.66 | -244.4 | -69.7 | 2,112.4 | 2,037.9 | 74.56 | 28.332 | |
| 9,300.0 | 7,083.8 | 7,157.6 | 7,080.5 | 61.1 | 19.1 | -89.66 | -244.4 | -69.7 | 2,184.5 | 2,107.3 | 77.19 | 28.299 | |
| 9,400.0 | 7,083.7 | 7,157.5 | 7,080.4 | 63.7 | 19.1 | -89.65 | -244.4 | -69.7 | 2,258.8 | 2,178.9 | 79.85 | 28.289 | SF |
| 9,500.0 | 7,083.5 | 7,157.4 | 7,080.4 | 66.3 | 19.1 | -89.65 | -244.4 | -69.7 | 2,334.9 | 2,252.4 | 82.51 | 28.299 | |
| 9,600.0 | 7,083.3 | 7,157.3 | 7,080.3 | 69.0 | 19.1 | -89.65 | -244.4 | -69.7 | 2,412.8 | 2,327.6 | 85.18 | 28.325 | |
| 9,700.0 | 7,083.1 | 7,157.2 | 7,080.2 | 71.7 | 19.1 | -89.64 | -244.4 | -69.7 | 2,492.3 | 2,404.4 | 87.87 | 28.363 | |
| 9,800.0 | 7,082.9 | 7,157.2 | 7,080.1 | 74.4 | 19.1 | -89.64 | -244.4 | -69.7 | 2,573.2 | 2,482.6 | 90.56 | 28.413 | |
| 9,900.0 | 7,082.7 | 7,157.1 | 7,080.0 | 77.1 | 19.1 | -89.64 | -244.4 | -69.7 | 2,655.4 | 2,562.1 | 93.27 | 28.471 | |
| 10,000.0 | 7,082.5 | 7,157.0 | 7,080.0 | 79.7 | 19.1 | -89.63 | -244.4 | -69.7 | 2,738.8 | 2,642.8 | 95.98 | 28.536 | |
| 10,100.0 | 7,082.3 | 7,156.9 | 7,079.9 | 82.5 | 19.1 | -89.63 | -244.4 | -69.7 | 2,823.3 | 2,724.6 | 98.69 | 28.606 | |
| 10,200.0 | 7,082.1 | 7,156.8 | 7,079.8 | 85.2 | 19.1 | -89.63 | -244.4 | -69.7 | 2,908.7 | 2,807.3 | 101.42 | 28.681 | |
| 10,300.0 | 7,081.9 | 7,156.8 | 7,079.7 | 87.9 | 19.1 | -89.62 | -244.4 | -69.7 | 2,995.1 | 2,890.9 | 104.15 | 28.759 | |
| 10,400.0 | 7,081.7 | 7,156.7 | 7,079.6 | 90.6 | 19.1 | -89.62 | -244.4 | -69.7 | 3,082.3 | 2,975.4 | 106.88 | 28.839 | |
| 10,500.0 | 7,081.5 | 7,156.6 | 7,079.6 | 93.3 | 19.1 | -89.62 | -244.4 | -69.7 | 3,170.2 | 3,060.6 | 109.62 | 28.921 | |
| 10,600.0 | 7,081.3 | 7,156.5 | 7,079.5 | 96.1 | 19.1 | -89.61 | -244.4 | -69.7 | 3,258.8 | 3,146.5 | 112.36 | 29.004 | |
| 10,700.0 | 7,081.1 | 7,156.4 | 7,079.4 | 98.8 | 19.1 | -89.61 | -244.4 | -69.7 | 3,348.1 | 3,233.0 | 115.10 | 29.088 | |
| 10,800.0 | 7,080.9 | 7,156.4 | 7,079.3 | 101.5 | 19.1 | -89.61 | -244.4 | -69.7 | 3,438.0 | 3,320.1 | 117.85 | 29.172 | |
| 10,900.0 | 7,080.7 | 7,156.3 | 7,079.2 | 104.3 | 19.1 | -89.60 | -244.4 | -69.7 | 3,528.4 | 3,407.8 | 120.60 | 29.256 | |
| 11,000.0 | 7,080.5 | 7,156.2 | 7,079.2 | 107.0 | 19.1 | -89.60 | -244.3 | -69.7 | 3,619.3 | 3,495.9 | 123.36 | 29.339 | |
| 11,100.0 | 7,080.3 | 7,156.1 | 7,079.1 | 109.8 | 19.1 | -89.60 | -244.3 | -69.7 | 3,710.7 | 3,584.5 | 126.12 | 29.422 | |
| 11,200.0 | 7,080.1 | 7,156.0 | 7,079.0 | 112.5 | 19.1 | -89.59 | -244.3 | -69.7 | 3,802.5 | 3,673.6 | 128.88 | 29.505 | |
| 11,300.0 | 7,079.9 | 7,156.0 | 7,078.9 | 115.3 | 19.1 | -89.59 | -244.3 | -69.7 | 3,894.7 | 3,763.1 | 131.64 | 29.586 | |
| 11,400.0 | 7,079.7 | 7,155.9 | 7,078.9 | 118.0 | 19.1 | -89.59 | -244.3 | -69.7 | 3,987.3 | 3,852.9 | 134.40 | 29.666 | |
| 11,500.0 | 7,079.5 | 7,155.8 | 7,078.8 | 120.8 | 19.1 | -89.58 | -244.3 | -69.7 | 4,080.2 | 3,943.1 | 137.17 | 29.746 | |
| 11,600.0 | 7,079.3 | 7,155.7 | 7,078.7 | 123.6 | 19.1 | -89.58 | -244.3 | -69.7 | 4,173.5 | 4,033.6 | 139.94 | 29.824 | |
| 11,700.0 | 7,079.1 | 7,155.7 | 7,078.6 | 126.3 | 19.1 | -89.58 | -244.3 | -69.7 | 4,267.1 | 4,124.4 | 142.71 | 29.900 | |
| 11,800.0 | 7,078.9 | 7,155.6 | 7,078.5 | 129.1 | 19.1 | -89.57 | -244.3 | -69.7 | 4,360.9 | 4,215.5 | 145.48 | 29.976 | |
| 11,900.0 | 7,078.7 | 7,155.5 | 7,078.5 | 131.9 | 19.1 | -89.57 | -244.3 | -69.7 | 4,455.1 | 4,306.8 | 148.26 | 30.050 | |
| 12,000.0 | 7,078.5 | 7,155.4 | 7,078.4 | 134.6 | 19.1 | -89.57 | -244.3 | -69.7 | 4,549.4 | 4,398.4 | 151.03 | 30.123 | |
| 12,100.0 | 7,078.3 | 7,155.4 | 7,078.3 | 137.4 | 19.1 | -89.56 | -244.3 | -69.7 | 4,644.1 | 4,490.3 | 153.81 | 30.194 | |
| 12,200.0 | 7,078.1 | 7,155.3 | 7,078.2 | 140.2 | 19.1 | -89.56 | -244.3 | -69.7 | 4,738.9 | 4,582.3 | 156.58 | 30.264 | |
| 12,300.0 | 7,077.9 | 7,155.2 | 7,078.2 | 142.9 | 19.1 | -89.56 | -244.3 | -69.7 | 4,833.9 | 4,674.6 | 159.36 | 30.333 | |
| 12,400.0 | 7,077.7 | 7,155.1 | 7,078.1 | 145.7 | 19.1 | -89.55 | -244.3 | -69.7 | 4,929.2 | 4,767.0 | 162.14 | 30.400 | |
| 12,500.0 | 7,077.5 | 7,155.1 | 7,078.0 | 148.5 | 19.1 | -89.55 | -244.3 | -69.7 | 5,024.6 | 4,859.7 | 164.92 | 30.466 | |
| 12,600.0 | 7,077.3 | 7,155.0 | 7,077.9 | 151.3 | 19.1 | -89.55 | -244.3 | -69.7 | 5,120.2 | 4,952.5 | 167.71 | 30.531 | |
| 12,700.0 | 7,077.1 | 7,154.9 | 7,077.9 | 154.0 | 19.1 | -89.55 | -244.3 | -69.7 | 5,216.0 | 5,045.5 | 170.49 | 30.594 | |
| 12,800.0 | 7,076.9 | 7,154.8 | 7,077.8 | 156.8 | 19.1 | -89.54 | -244.3 | -69.7 | 5,311.9 | 5,138.6 | 173.27 | 30.656 | |
| 12,900.0 | 7,076.7 | 7,154.8 | 7,077.7 | 159.6 | 19.1 | -89.54 | -244.3 | -69.7 | 5,407.9 | 5,231.9 | 176.06 | 30.717 | |
| 13,000.0 | 7,076.5 | 7,154.7 | 7,077.7 | 162.4 | 19.1 | -89.54 | -244.3 | -69.7 | 5,504.2 | 5,325.3 | 178.84 | 30.777 | |
| 13,100.0 | 7,076.3 | 7,154.6 | 7,077.6 | 165.2 | 19.1 | -89.53 | -244.3 | -69.7 | 5,600.5 | 5,418.9 | 181.63 | 30.835 | |
| 13,200.0 | 7,076.1 | 7,154.6 | 7,077.5 | 168.0 | 19.1 | -89.53 | -244.3 | -69.7 | 5,697.0 | 5,512.5 | 184.42 | 30.892 | |
| 13,300.0 | 7,075.9 | 7,154.5 | 7,077.4 | 170.7 | 19.1 | -89.53 | -244.3 | -69.7 | 5,793.5 | 5,606.3 | 187.20 | 30.948 | |
| 13,400.0 | 7,075.7 | 7,154.4 | 7,077.4 | 173.5 | 19.1 | -89.52 | -244.3 | -69.7 | 5,890.2 | 5,700.3 | 189.99 | 31.003 | |
| 13,500.0 | 7,075.5 | 7,154.3 | 7,077.3 | 176.3 | 19.1 | -89.52 | -244.3 | -69.7 | 5,987.1 | 5,794.3 | 192.78 | 31.056 | |
| 13,600.0 | 7,075.3 | 7,154.3 | 7,077.2 | 179.1 | 19.1 | -89.52 | -244.3 | -69.7 | 6,084.0 | 5,888.4 | 195.57 | 31.109 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD WALTERS 23-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 704-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,700.0 | 7,075.1 | 7,154.2 | 7,077.2 | 181.9 | 19.1 | -89.51 | -244.3 | -69.7 | 6,181.0 | 5,982.6 | 198.36 | 31.161 | |
| 13,800.0 | 7,074.9 | 7,154.1 | 7,077.1 | 184.7 | 19.1 | -89.51 | -244.3 | -69.7 | 6,278.1 | 6,076.9 | 201.15 | 31.211 | |
| 13,900.0 | 7,074.7 | 7,154.1 | 7,077.0 | 187.5 | 19.1 | -89.51 | -244.3 | -69.7 | 6,375.3 | 6,171.3 | 203.94 | 31.260 | |
| 14,000.0 | 7,074.5 | 7,154.0 | 7,076.9 | 190.2 | 19.1 | -89.50 | -244.3 | -69.7 | 6,472.6 | 6,265.8 | 206.73 | 31.309 | |
| 14,100.0 | 7,074.2 | 7,153.9 | 7,076.9 | 193.0 | 19.1 | -89.50 | -244.3 | -69.7 | 6,569.9 | 6,360.4 | 209.52 | 31.356 | |
| 14,200.0 | 7,074.0 | 7,153.8 | 7,076.8 | 195.8 | 19.1 | -89.50 | -244.3 | -69.7 | 6,667.4 | 6,455.0 | 212.32 | 31.403 | |
| 14,221.4 | 7,074.0 | 7,153.8 | 7,076.8 | 196.4 | 19.1 | -89.50 | -244.3 | -69.7 | 6,688.2 | 6,475.3 | 212.91 | 31.413 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD WEDCO #13-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 705-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -144.94 | -768.3 | -539.2 | 938.6 | | | | |
| 100.0 | 100.0 | 100.7 | 100.7 | 0.1 | 0.1 | -144.94 | -768.4 | -539.3 | 938.7 | 938.5 | 0.20 | 4,642.418 | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.3 | 0.2 | -144.93 | -768.5 | -539.5 | 939.0 | 938.5 | 0.53 | 1,773.712 | ES |
| 300.0 | 300.0 | 297.2 | 297.2 | 0.5 | 0.3 | -144.92 | -768.8 | -539.9 | 939.5 | 938.6 | 0.86 | 1,096.753 | |
| 400.0 | 400.0 | 395.5 | 395.5 | 0.8 | 0.4 | -144.91 | -769.2 | -540.4 | 940.1 | 939.0 | 1.18 | 794.169 | |
| 500.0 | 500.0 | 493.7 | 493.7 | 1.0 | 0.5 | -173.24 | -769.8 | -541.1 | 942.7 | 941.2 | 1.51 | 622.730 | |
| 600.0 | 599.8 | 591.8 | 591.8 | 1.2 | 0.6 | -173.25 | -770.4 | -542.0 | 948.9 | 947.1 | 1.85 | 512.196 | |
| 700.0 | 699.5 | 689.5 | 689.5 | 1.5 | 0.7 | -173.26 | -771.2 | -543.0 | 958.8 | 956.6 | 2.20 | 435.225 | |
| 800.0 | 798.7 | 788.7 | 788.7 | 1.7 | 0.9 | -173.29 | -771.9 | -544.1 | 972.2 | 969.6 | 2.64 | 368.891 | |
| 900.0 | 897.5 | 885.5 | 885.5 | 2.0 | 1.1 | -173.32 | -772.7 | -545.3 | 989.1 | 986.0 | 3.08 | 321.232 | |
| 1,000.0 | 995.6 | 1,011.4 | 1,011.3 | 2.4 | 1.4 | -173.33 | -771.8 | -546.8 | 1,008.1 | 1,004.5 | 3.56 | 283.001 | |
| 1,100.0 | 1,093.1 | 1,111.9 | 1,111.7 | 2.8 | 1.6 | -173.17 | -767.6 | -549.5 | 1,028.6 | 1,024.6 | 4.01 | 256.714 | |
| 1,164.2 | 1,155.2 | 1,163.1 | 1,162.8 | 3.1 | 1.7 | -172.99 | -764.9 | -552.5 | 1,044.1 | 1,039.8 | 4.28 | 243.673 | |
| 1,200.0 | 1,189.7 | 1,193.1 | 1,192.6 | 3.2 | 1.8 | -172.88 | -763.1 | -554.8 | 1,053.4 | 1,048.9 | 4.45 | 236.618 | |
| 1,300.0 | 1,286.2 | 1,277.9 | 1,276.7 | 3.7 | 2.0 | -172.45 | -757.4 | -563.7 | 1,080.0 | 1,075.1 | 4.93 | 218.871 | |
| 1,400.0 | 1,382.6 | 1,359.0 | 1,356.8 | 4.2 | 2.2 | -171.92 | -751.2 | -574.8 | 1,107.9 | 1,102.5 | 5.44 | 203.739 | |
| 1,500.0 | 1,479.1 | 1,428.3 | 1,425.0 | 4.7 | 2.5 | -171.42 | -746.1 | -586.0 | 1,137.7 | 1,131.7 | 5.94 | 191.592 | |
| 1,600.0 | 1,575.6 | 1,508.4 | 1,503.6 | 5.3 | 2.8 | -170.79 | -740.7 | -600.9 | 1,169.3 | 1,162.8 | 6.50 | 179.963 | |
| 1,700.0 | 1,672.0 | 1,592.0 | 1,584.8 | 5.8 | 3.1 | -170.00 | -733.6 | -619.4 | 1,201.9 | 1,194.8 | 7.11 | 169.131 | |
| 1,800.0 | 1,768.5 | 1,670.2 | 1,660.2 | 6.3 | 3.5 | -169.20 | -726.2 | -638.8 | 1,235.7 | 1,228.0 | 7.74 | 159.735 | |
| 1,900.0 | 1,864.9 | 1,745.4 | 1,732.1 | 6.8 | 3.9 | -168.37 | -718.9 | -659.3 | 1,271.0 | 1,262.6 | 8.39 | 151.508 | |
| 2,000.0 | 1,961.4 | 1,834.2 | 1,816.6 | 7.4 | 4.4 | -167.37 | -709.6 | -685.1 | 1,307.3 | 1,298.1 | 9.14 | 142.986 | |
| 2,100.0 | 2,057.9 | 1,918.0 | 1,896.1 | 7.9 | 4.8 | -166.45 | -700.5 | -709.9 | 1,344.0 | 1,334.1 | 9.89 | 135.896 | |
| 2,200.0 | 2,154.3 | 1,991.1 | 1,965.6 | 8.4 | 5.3 | -165.70 | -693.3 | -731.5 | 1,381.8 | 1,371.3 | 10.57 | 130.737 | |
| 2,300.0 | 2,250.8 | 2,096.5 | 2,065.7 | 9.0 | 5.9 | -164.70 | -683.9 | -762.8 | 1,420.6 | 1,409.2 | 11.41 | 124.526 | |
| 2,400.0 | 2,347.3 | 2,173.8 | 2,139.2 | 9.5 | 6.3 | -163.97 | -676.3 | -786.0 | 1,459.1 | 1,447.0 | 12.12 | 120.398 | |
| 2,500.0 | 2,443.7 | 2,260.2 | 2,221.2 | 10.0 | 6.8 | -163.22 | -668.6 | -812.0 | 1,498.6 | 1,485.7 | 12.87 | 116.455 | |
| 2,600.0 | 2,540.2 | 2,356.6 | 2,312.8 | 10.6 | 7.3 | -162.43 | -659.9 | -840.8 | 1,538.1 | 1,524.5 | 13.66 | 112.574 | |
| 2,700.0 | 2,636.7 | 2,486.5 | 2,436.3 | 11.1 | 8.1 | -161.41 | -646.8 | -878.5 | 1,576.7 | 1,562.0 | 14.64 | 107.661 | |
| 2,800.0 | 2,733.1 | 2,570.5 | 2,516.0 | 11.6 | 8.6 | -160.73 | -636.5 | -903.2 | 1,614.3 | 1,598.9 | 15.43 | 104.598 | |
| 2,900.0 | 2,829.6 | 2,661.6 | 2,601.7 | 12.2 | 9.2 | -159.96 | -624.0 | -931.4 | 1,652.4 | 1,636.1 | 16.31 | 101.286 | |
| 3,000.0 | 2,926.0 | 2,771.4 | 2,704.8 | 12.7 | 10.0 | -159.02 | -607.6 | -965.6 | 1,690.2 | 1,672.8 | 17.32 | 97.612 | |
| 3,100.0 | 3,022.5 | 2,872.8 | 2,800.5 | 13.2 | 10.6 | -158.25 | -593.0 | -995.4 | 1,727.3 | 1,709.0 | 18.22 | 94.778 | |
| 3,200.0 | 3,119.0 | 2,958.9 | 2,882.0 | 13.8 | 11.2 | -157.64 | -581.0 | -1,020.4 | 1,764.6 | 1,745.5 | 19.04 | 92.662 | |
| 3,300.0 | 3,215.4 | 3,055.0 | 2,973.1 | 14.3 | 11.8 | -157.00 | -567.8 | -1,048.2 | 1,802.1 | 1,782.2 | 19.91 | 90.494 | |
| 3,400.0 | 3,311.9 | 3,153.4 | 3,066.7 | 14.9 | 12.3 | -156.40 | -554.6 | -1,075.7 | 1,839.3 | 1,818.5 | 20.77 | 88.554 | |
| 3,500.0 | 3,408.4 | 3,237.6 | 3,146.9 | 15.4 | 12.8 | -155.94 | -544.2 | -1,098.7 | 1,876.7 | 1,855.2 | 21.55 | 87.099 | |
| 3,600.0 | 3,504.8 | 3,326.6 | 3,231.8 | 15.9 | 13.4 | -155.46 | -533.0 | -1,123.4 | 1,914.5 | 1,892.1 | 22.36 | 85.611 | |
| 3,700.0 | 3,601.3 | 3,408.0 | 3,309.2 | 16.5 | 13.9 | -155.04 | -523.3 | -1,146.3 | 1,953.0 | 1,929.8 | 23.14 | 84.388 | |
| 3,800.0 | 3,697.7 | 3,493.9 | 3,390.8 | 17.0 | 14.4 | -154.60 | -512.8 | -1,171.0 | 1,991.9 | 1,967.9 | 23.96 | 83.151 | |
| 3,900.0 | 3,794.2 | 3,584.8 | 3,477.0 | 17.5 | 15.0 | -154.13 | -500.9 | -1,197.5 | 2,030.8 | 2,006.0 | 24.80 | 81.875 | |
| 4,000.0 | 3,890.7 | 3,734.3 | 3,619.4 | 18.1 | 15.8 | -153.42 | -481.2 | -1,238.6 | 2,068.5 | 2,042.6 | 25.92 | 79.788 | |
| 4,100.0 | 3,987.1 | 3,843.0 | 3,724.0 | 18.6 | 16.4 | -153.03 | -468.3 | -1,265.0 | 2,104.4 | 2,077.6 | 26.80 | 78.518 | |
| 4,200.0 | 4,083.6 | 3,949.3 | 3,826.0 | 19.2 | 17.0 | -152.62 | -454.1 | -1,291.2 | 2,140.1 | 2,112.4 | 27.69 | 77.283 | |
| 4,300.0 | 4,180.1 | 4,032.3 | 3,905.5 | 19.7 | 17.5 | -152.29 | -442.2 | -1,312.0 | 2,175.5 | 2,147.0 | 28.48 | 76.387 | |
| 4,400.0 | 4,276.5 | 4,133.6 | 4,002.5 | 20.2 | 18.1 | -151.89 | -427.9 | -1,337.6 | 2,211.3 | 2,182.0 | 29.36 | 75.328 | |
| 4,500.0 | 4,373.0 | 4,200.4 | 4,066.7 | 20.8 | 18.5 | -151.66 | -419.2 | -1,353.9 | 2,247.2 | 2,217.2 | 30.04 | 74.817 | |
| 4,600.0 | 4,469.5 | 4,262.9 | 4,126.9 | 21.3 | 18.8 | -151.49 | -412.6 | -1,369.4 | 2,284.6 | 2,253.9 | 30.69 | 74.450 | |
| 4,700.0 | 4,565.9 | 4,361.8 | 4,222.2 | 21.9 | 19.3 | -151.23 | -402.9 | -1,393.9 | 2,322.4 | 2,290.9 | 31.49 | 73.748 | |
| 4,800.0 | 4,662.4 | 4,479.0 | 4,335.5 | 22.4 | 19.9 | -150.98 | -392.2 | -1,421.4 | 2,359.6 | 2,327.3 | 32.35 | 72.946 | |
| 4,900.0 | 4,758.8 | 4,602.9 | 4,456.3 | 22.9 | 20.5 | -150.80 | -382.6 | -1,447.8 | 2,395.7 | 2,362.6 | 33.18 | 72.198 | |
| 5,000.0 | 4,855.3 | 4,763.7 | 4,614.2 | 23.5 | 21.1 | -150.72 | -372.8 | -1,476.4 | 2,430.0 | 2,396.0 | 34.07 | 71.333 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD WEDCO #13-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 705-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 4,951.8 | 4,906.6 | 4,755.6 | 24.0 | 21.6 | -150.77 | -366.3 | -1,496.1 | 2,461.9 | 2,427.1 | 34.82 | 70.714 | |
| 5,200.0 | 5,048.2 | 5,076.6 | 4,924.6 | 24.6 | 22.0 | -150.96 | -360.5 | -1,513.0 | 2,491.1 | 2,455.6 | 35.55 | 70.073 | |
| 5,300.0 | 5,144.7 | 5,233.1 | 5,080.8 | 25.1 | 22.3 | -151.26 | -357.8 | -1,522.0 | 2,518.1 | 2,482.0 | 36.16 | 69.631 | |
| 5,400.0 | 5,241.2 | 5,343.4 | 5,191.0 | 25.6 | 22.4 | -151.53 | -357.4 | -1,525.2 | 2,543.6 | 2,506.9 | 36.66 | 69.375 | |
| 5,500.0 | 5,337.6 | 5,439.1 | 5,286.8 | 26.2 | 22.6 | -151.78 | -357.3 | -1,527.6 | 2,569.0 | 2,531.8 | 37.14 | 69.176 | |
| 5,600.0 | 5,434.1 | 5,529.1 | 5,376.7 | 26.7 | 22.7 | -152.01 | -357.5 | -1,529.9 | 2,594.5 | 2,556.9 | 37.60 | 69.005 | |
| 5,700.0 | 5,530.5 | 5,623.4 | 5,470.9 | 27.3 | 22.8 | -152.25 | -358.0 | -1,532.2 | 2,620.3 | 2,582.3 | 38.06 | 68.845 | |
| 5,757.1 | 5,585.6 | 5,684.1 | 5,531.6 | 27.6 | 22.9 | -152.41 | -358.5 | -1,533.6 | 2,635.0 | 2,596.7 | 38.33 | 68.747 | |
| 5,800.0 | 5,627.1 | 5,732.3 | 5,579.8 | 27.8 | 22.9 | -152.64 | -358.9 | -1,534.5 | 2,645.7 | 2,607.1 | 38.60 | 68.549 | |
| 5,900.0 | 5,724.4 | 5,830.2 | 5,677.7 | 28.2 | 23.0 | -153.07 | -359.5 | -1,536.3 | 2,668.3 | 2,629.2 | 39.13 | 68.184 | |
| 6,000.0 | 5,822.4 | 5,946.2 | 5,793.7 | 28.5 | 23.2 | -153.46 | -360.3 | -1,537.8 | 2,687.5 | 2,647.9 | 39.64 | 67.803 | |
| 6,100.0 | 5,921.0 | 6,051.9 | 5,899.4 | 28.8 | 23.3 | -153.78 | -361.2 | -1,538.5 | 2,703.2 | 2,663.2 | 40.07 | 67.458 | |
| 6,200.0 | 6,020.2 | 6,152.8 | 6,000.3 | 29.0 | 23.4 | -154.02 | -362.0 | -1,538.9 | 2,715.7 | 2,675.2 | 40.45 | 67.137 | |
| 6,300.0 | 6,119.7 | 6,252.3 | 6,099.8 | 29.3 | 23.5 | -154.20 | -363.0 | -1,539.3 | 2,725.0 | 2,684.3 | 40.77 | 66.836 | |
| 6,400.0 | 6,219.5 | 6,349.1 | 6,196.6 | 29.4 | 23.6 | -154.32 | -363.8 | -1,539.7 | 2,731.2 | 2,690.2 | 41.04 | 66.553 | |
| 6,500.0 | 6,319.5 | 6,447.9 | 6,295.4 | 29.5 | 23.7 | -154.38 | -364.9 | -1,540.1 | 2,734.5 | 2,693.2 | 41.25 | 66.283 | |
| 6,521.3 | 6,340.8 | 6,470.1 | 6,317.5 | 29.6 | 23.7 | -126.04 | -365.1 | -1,540.2 | 2,734.8 | 2,689.5 | 45.24 | 60.444 | |
| 6,551.3 | 6,370.8 | 6,500.7 | 6,348.2 | 29.6 | 23.8 | -126.05 | -365.5 | -1,540.2 | 2,735.0 | 2,689.7 | 45.32 | 60.347 | |
| 6,600.0 | 6,419.5 | 6,550.0 | 6,397.4 | 29.6 | 23.8 | -36.12 | -366.1 | -1,540.4 | 2,734.1 | 2,692.8 | 41.34 | 66.141 | |
| 6,650.0 | 6,469.2 | 6,600.0 | 6,447.5 | 29.6 | 23.9 | -36.37 | -366.7 | -1,540.5 | 2,730.4 | 2,689.3 | 41.17 | 66.316 | |
| 6,700.0 | 6,518.4 | 6,649.3 | 6,496.7 | 29.6 | 23.9 | -36.80 | -367.3 | -1,540.6 | 2,723.9 | 2,683.1 | 40.88 | 66.629 | |
| 6,750.0 | 6,567.0 | 6,701.7 | 6,549.1 | 29.6 | 24.0 | -37.42 | -367.9 | -1,540.7 | 2,714.7 | 2,674.2 | 40.48 | 67.064 | |
| 6,800.0 | 6,614.5 | 6,755.2 | 6,602.7 | 29.6 | 24.1 | -38.26 | -368.3 | -1,540.8 | 2,702.6 | 2,662.7 | 39.98 | 67.606 | |
| 6,850.0 | 6,660.9 | 6,795.9 | 6,643.4 | 29.5 | 24.1 | -39.24 | -368.7 | -1,540.8 | 2,688.0 | 2,648.6 | 39.38 | 68.256 | |
| 6,900.0 | 6,705.9 | 6,834.0 | 6,681.4 | 29.4 | 24.1 | -40.42 | -369.1 | -1,541.0 | 2,670.9 | 2,632.2 | 38.73 | 68.961 | |
| 6,950.0 | 6,749.2 | 6,873.5 | 6,721.0 | 29.3 | 24.2 | -41.83 | -369.6 | -1,541.1 | 2,651.6 | 2,613.5 | 38.07 | 69.654 | |
| 7,000.0 | 6,790.7 | 6,914.6 | 6,762.1 | 29.2 | 24.2 | -43.51 | -370.1 | -1,541.3 | 2,630.0 | 2,592.6 | 37.44 | 70.244 | |
| 7,050.0 | 6,830.2 | 6,953.2 | 6,800.6 | 29.1 | 24.3 | -45.44 | -370.6 | -1,541.5 | 2,606.3 | 2,569.4 | 36.90 | 70.627 | |
| 7,100.0 | 6,867.4 | 6,987.2 | 6,834.6 | 29.0 | 24.3 | -47.60 | -371.1 | -1,541.7 | 2,580.7 | 2,544.2 | 36.51 | 70.683 | |
| 7,150.0 | 6,902.2 | 7,019.0 | 6,866.4 | 28.9 | 24.4 | -50.04 | -371.6 | -1,541.9 | 2,553.3 | 2,517.0 | 36.33 | 70.275 | |
| 7,200.0 | 6,934.4 | 7,048.4 | 6,895.8 | 28.7 | 24.4 | -52.75 | -372.2 | -1,542.0 | 2,524.3 | 2,487.9 | 36.42 | 69.304 | |
| 7,250.0 | 6,963.8 | 7,075.3 | 6,922.7 | 28.6 | 24.4 | -55.75 | -372.7 | -1,542.2 | 2,493.9 | 2,457.1 | 36.82 | 67.741 | |
| 7,300.0 | 6,990.4 | 7,099.7 | 6,947.1 | 28.5 | 24.4 | -59.02 | -373.1 | -1,542.4 | 2,462.3 | 2,424.8 | 37.51 | 65.643 | |
| 7,350.0 | 7,013.9 | 7,121.5 | 6,968.9 | 28.4 | 24.5 | -62.55 | -373.5 | -1,542.6 | 2,429.7 | 2,391.2 | 38.48 | 63.149 | |
| 7,400.0 | 7,034.4 | 7,141.7 | 6,989.1 | 28.2 | 24.5 | -66.33 | -373.9 | -1,542.8 | 2,396.3 | 2,356.6 | 39.66 | 60.419 | |
| 7,450.0 | 7,051.5 | 7,160.3 | 7,007.7 | 28.1 | 24.5 | -70.32 | -374.2 | -1,543.0 | 2,362.2 | 2,321.2 | 40.99 | 57.627 | |
| 7,500.0 | 7,065.4 | 7,175.4 | 7,022.8 | 28.0 | 24.5 | -74.42 | -374.5 | -1,543.2 | 2,327.7 | 2,285.4 | 42.37 | 54.943 | |
| 7,550.0 | 7,075.9 | 7,186.9 | 7,034.3 | 27.9 | 24.6 | -78.54 | -374.7 | -1,543.3 | 2,293.1 | 2,249.4 | 43.71 | 52.455 | |
| 7,600.0 | 7,082.9 | 7,194.8 | 7,042.2 | 27.8 | 24.6 | -82.59 | -374.8 | -1,543.4 | 2,258.4 | 2,213.4 | 44.98 | 50.206 | |
| 7,650.0 | 7,086.5 | 7,199.1 | 7,046.5 | 27.7 | 24.6 | -86.52 | -374.9 | -1,543.4 | 2,224.0 | 2,177.9 | 46.14 | 48.198 | |
| 7,677.7 | 7,087.0 | 7,199.9 | 7,047.3 | 27.6 | 24.6 | -88.61 | -374.9 | -1,543.4 | 2,205.2 | 2,158.4 | 46.74 | 47.182 | |
| 7,700.0 | 7,087.0 | 7,200.1 | 7,047.5 | 27.6 | 24.6 | -88.61 | -374.9 | -1,543.4 | 2,190.1 | 2,143.0 | 47.05 | 46.551 | |
| 7,800.0 | 7,086.8 | 7,200.9 | 7,048.3 | 27.5 | 24.6 | -88.64 | -374.9 | -1,543.4 | 2,124.0 | 2,075.4 | 48.58 | 43.719 | |
| 7,900.0 | 7,086.6 | 7,201.7 | 7,049.1 | 27.9 | 24.6 | -88.67 | -374.9 | -1,543.4 | 2,060.7 | 2,010.4 | 50.33 | 40.946 | |
| 8,000.0 | 7,086.4 | 7,202.5 | 7,049.9 | 29.5 | 24.6 | -88.70 | -374.9 | -1,543.4 | 2,000.4 | 1,948.2 | 52.24 | 38.291 | |
| 8,100.0 | 7,086.2 | 7,203.3 | 7,050.6 | 31.5 | 24.6 | -88.73 | -374.9 | -1,543.4 | 1,943.4 | 1,889.1 | 54.29 | 35.794 | |
| 8,200.0 | 7,086.0 | 7,204.0 | 7,051.4 | 33.7 | 24.6 | -88.76 | -374.9 | -1,543.4 | 1,889.9 | 1,833.5 | 56.46 | 33.475 | |
| 8,300.0 | 7,085.8 | 7,204.8 | 7,052.2 | 36.0 | 24.6 | -88.78 | -375.0 | -1,543.5 | 1,840.3 | 1,781.6 | 58.71 | 31.344 | |
| 8,400.0 | 7,085.6 | 7,205.6 | 7,053.0 | 38.3 | 24.6 | -88.81 | -375.0 | -1,543.5 | 1,795.0 | 1,733.9 | 61.05 | 29.404 | |
| 8,500.0 | 7,085.4 | 7,206.4 | 7,053.8 | 40.7 | 24.6 | -88.84 | -375.0 | -1,543.5 | 1,754.1 | 1,690.7 | 63.44 | 27.651 | |
| 8,600.0 | 7,085.2 | 7,207.2 | 7,054.6 | 43.1 | 24.6 | -88.87 | -375.0 | -1,543.5 | 1,718.2 | 1,652.3 | 65.88 | 26.079 | |
| 8,700.0 | 7,085.0 | 7,207.9 | 7,055.3 | 45.6 | 24.6 | -88.89 | -375.0 | -1,543.5 | 1,687.4 | 1,619.0 | 68.37 | 24.680 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD WEDCO #13-21DU - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 705-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,800.0 | 7,084.8 | 7,208.7 | 7,056.1 | 48.1 | 24.6 | -88.92 | -375.0 | -1,543.5 | 1,662.0 | 1,591.1 | 70.89 | 23.443 | |
| 8,900.0 | 7,084.6 | 7,209.5 | 7,056.9 | 50.7 | 24.6 | -88.95 | -375.0 | -1,543.5 | 1,642.3 | 1,568.9 | 73.45 | 22.361 | |
| 9,000.0 | 7,084.4 | 7,210.2 | 7,057.6 | 53.2 | 24.6 | -88.98 | -375.1 | -1,543.5 | 1,628.6 | 1,552.6 | 76.03 | 21.421 | |
| 9,100.0 | 7,084.2 | 7,211.0 | 7,058.4 | 55.8 | 24.6 | -89.00 | -375.1 | -1,543.5 | 1,620.9 | 1,542.3 | 78.63 | 20.614 | |
| 9,174.7 | 7,084.1 | 7,211.6 | 7,059.0 | 57.8 | 24.6 | -89.02 | -375.1 | -1,543.5 | 1,619.2 | 1,538.6 | 80.59 | 20.092 | |
| 9,200.0 | 7,084.0 | 7,211.8 | 7,059.2 | 58.4 | 24.6 | -89.03 | -375.1 | -1,543.5 | 1,619.4 | 1,538.2 | 81.25 | 19.930 | |
| 9,300.0 | 7,083.8 | 7,212.5 | 7,059.9 | 61.1 | 24.6 | -89.06 | -375.1 | -1,543.5 | 1,624.1 | 1,540.2 | 83.89 | 19.358 | |
| 9,400.0 | 7,083.7 | 7,213.3 | 7,060.7 | 63.7 | 24.6 | -89.08 | -375.1 | -1,543.5 | 1,634.8 | 1,548.3 | 86.55 | 18.889 | |
| 9,500.0 | 7,083.5 | 7,214.0 | 7,061.4 | 66.3 | 24.6 | -89.11 | -375.1 | -1,543.5 | 1,651.6 | 1,562.3 | 89.22 | 18.512 | |
| 9,600.0 | 7,083.3 | 7,214.8 | 7,062.2 | 69.0 | 24.6 | -89.14 | -375.1 | -1,543.5 | 1,674.1 | 1,582.2 | 91.90 | 18.218 | |
| 9,700.0 | 7,083.1 | 7,215.5 | 7,062.9 | 71.7 | 24.6 | -89.16 | -375.1 | -1,543.6 | 1,702.3 | 1,607.7 | 94.59 | 17.997 | |
| 9,800.0 | 7,082.9 | 7,216.2 | 7,063.6 | 74.4 | 24.6 | -89.19 | -375.2 | -1,543.6 | 1,735.8 | 1,638.5 | 97.28 | 17.842 | |
| 9,900.0 | 7,082.7 | 7,217.0 | 7,064.4 | 77.1 | 24.6 | -89.21 | -375.2 | -1,543.6 | 1,774.2 | 1,674.2 | 99.99 | 17.744 | |
| 10,000.0 | 7,082.5 | 7,217.7 | 7,065.1 | 79.7 | 24.6 | -89.24 | -375.2 | -1,543.6 | 1,817.4 | 1,714.7 | 102.70 | 17.695 | |
| 10,100.0 | 7,082.3 | 7,218.4 | 7,065.8 | 82.5 | 24.6 | -89.27 | -375.2 | -1,543.6 | 1,864.9 | 1,759.5 | 105.43 | 17.690 | SF |
| 10,200.0 | 7,082.1 | 7,219.2 | 7,066.6 | 85.2 | 24.6 | -89.29 | -375.2 | -1,543.6 | 1,916.5 | 1,808.4 | 108.15 | 17.721 | |
| 10,300.0 | 7,081.9 | 7,219.9 | 7,067.3 | 87.9 | 24.6 | -89.32 | -375.2 | -1,543.6 | 1,971.8 | 1,860.9 | 110.88 | 17.783 | |
| 10,400.0 | 7,081.7 | 7,220.6 | 7,068.0 | 90.6 | 24.6 | -89.34 | -375.2 | -1,543.6 | 2,030.6 | 1,916.9 | 113.62 | 17.871 | |
| 10,500.0 | 7,081.5 | 7,221.3 | 7,068.7 | 93.3 | 24.6 | -89.37 | -375.2 | -1,543.6 | 2,092.4 | 1,976.1 | 116.36 | 17.982 | |
| 10,600.0 | 7,081.3 | 7,222.1 | 7,069.4 | 96.1 | 24.6 | -89.39 | -375.3 | -1,543.6 | 2,157.1 | 2,038.0 | 119.11 | 18.111 | |
| 10,700.0 | 7,081.1 | 7,222.8 | 7,070.2 | 98.8 | 24.6 | -89.42 | -375.3 | -1,543.6 | 2,224.5 | 2,102.6 | 121.86 | 18.255 | |
| 10,800.0 | 7,080.9 | 7,223.5 | 7,070.9 | 101.5 | 24.6 | -89.44 | -375.3 | -1,543.6 | 2,294.2 | 2,169.6 | 124.61 | 18.411 | |
| 10,900.0 | 7,080.7 | 7,224.2 | 7,071.6 | 104.3 | 24.6 | -89.47 | -375.3 | -1,543.6 | 2,366.1 | 2,238.7 | 127.36 | 18.578 | |
| 11,000.0 | 7,080.5 | 7,224.9 | 7,072.3 | 107.0 | 24.6 | -89.49 | -375.3 | -1,543.6 | 2,440.0 | 2,309.8 | 130.12 | 18.751 | |
| 11,100.0 | 7,080.3 | 7,225.6 | 7,073.0 | 109.8 | 24.6 | -89.52 | -375.3 | -1,543.6 | 2,515.6 | 2,382.8 | 132.88 | 18.931 | |
| 11,200.0 | 7,080.1 | 7,227.0 | 7,074.4 | 112.5 | 24.6 | -89.57 | -375.3 | -1,543.7 | 2,593.0 | 2,457.3 | 135.65 | 19.115 | |
| 11,300.0 | 7,079.9 | 7,227.0 | 7,074.4 | 115.3 | 24.6 | -89.57 | -375.3 | -1,543.7 | 2,671.8 | 2,533.4 | 138.41 | 19.303 | |
| 11,400.0 | 7,079.7 | 7,227.0 | 7,074.4 | 118.0 | 24.6 | -89.57 | -375.3 | -1,543.7 | 2,752.0 | 2,610.8 | 141.18 | 19.493 | |
| 11,500.0 | 7,079.5 | 7,227.0 | 7,074.4 | 120.8 | 24.6 | -89.57 | -375.3 | -1,543.7 | 2,833.5 | 2,689.5 | 143.94 | 19.685 | |
| 11,600.0 | 7,079.3 | 7,229.0 | 7,076.4 | 123.6 | 24.6 | -89.64 | -375.4 | -1,543.7 | 2,916.1 | 2,769.4 | 146.72 | 19.875 | |
| 11,700.0 | 7,079.1 | 7,229.7 | 7,077.1 | 126.3 | 24.6 | -89.66 | -375.4 | -1,543.7 | 2,999.8 | 2,850.3 | 149.50 | 20.066 | |
| 11,800.0 | 7,078.9 | 7,230.4 | 7,077.8 | 129.1 | 24.6 | -89.69 | -375.4 | -1,543.7 | 3,084.4 | 2,932.2 | 152.27 | 20.256 | |
| 11,900.0 | 7,078.7 | 7,231.1 | 7,078.5 | 131.9 | 24.6 | -89.71 | -375.4 | -1,543.7 | 3,170.0 | 3,014.9 | 155.05 | 20.445 | |
| 12,000.0 | 7,078.5 | 7,231.8 | 7,079.2 | 134.6 | 24.6 | -89.73 | -375.4 | -1,543.7 | 3,256.4 | 3,098.5 | 157.83 | 20.633 | |
| 12,100.0 | 7,078.3 | 7,232.5 | 7,079.8 | 137.4 | 24.6 | -89.76 | -375.4 | -1,543.7 | 3,343.5 | 3,182.9 | 160.60 | 20.818 | |
| 12,200.0 | 7,078.1 | 7,233.1 | 7,080.5 | 140.2 | 24.6 | -89.78 | -375.4 | -1,543.7 | 3,431.3 | 3,267.9 | 163.39 | 21.001 | |
| 12,300.0 | 7,077.9 | 7,233.8 | 7,081.2 | 142.9 | 24.6 | -89.81 | -375.5 | -1,543.7 | 3,519.8 | 3,353.6 | 166.17 | 21.182 | |
| 12,400.0 | 7,077.7 | 7,234.5 | 7,081.9 | 145.7 | 24.6 | -89.83 | -375.5 | -1,543.7 | 3,608.9 | 3,439.9 | 168.95 | 21.361 | |
| 12,500.0 | 7,077.5 | 7,235.2 | 7,082.6 | 148.5 | 24.6 | -89.85 | -375.5 | -1,543.7 | 3,698.5 | 3,526.8 | 171.73 | 21.536 | |
| 12,600.0 | 7,077.3 | 7,235.9 | 7,083.3 | 151.3 | 24.6 | -89.88 | -375.5 | -1,543.7 | 3,788.7 | 3,614.1 | 174.52 | 21.709 | |
| 12,700.0 | 7,077.1 | 7,236.6 | 7,083.9 | 154.0 | 24.6 | -89.90 | -375.5 | -1,543.7 | 3,879.3 | 3,702.0 | 177.31 | 21.879 | |
| 12,800.0 | 7,076.9 | 7,237.2 | 7,084.6 | 156.8 | 24.6 | -89.93 | -375.5 | -1,543.8 | 3,970.4 | 3,790.3 | 180.09 | 22.046 | |
| 12,900.0 | 7,076.7 | 7,237.9 | 7,085.3 | 159.6 | 24.6 | -89.95 | -375.5 | -1,543.8 | 4,061.9 | 3,879.0 | 182.88 | 22.211 | |
| 13,000.0 | 7,076.5 | 7,238.6 | 7,086.0 | 162.4 | 24.6 | -89.97 | -375.5 | -1,543.8 | 4,153.8 | 3,968.1 | 185.67 | 22.372 | |
| 13,100.0 | 7,076.3 | 7,239.3 | 7,086.7 | 165.2 | 24.6 | -90.00 | -375.5 | -1,543.8 | 4,246.1 | 4,057.6 | 188.46 | 22.531 | |
| 13,200.0 | 7,076.1 | 7,240.0 | 7,087.3 | 168.0 | 24.6 | -90.02 | -375.6 | -1,543.8 | 4,338.7 | 4,147.4 | 191.25 | 22.686 | |
| 13,300.0 | 7,075.9 | 7,240.6 | 7,088.0 | 170.7 | 24.6 | -90.05 | -375.6 | -1,543.8 | 4,431.6 | 4,237.6 | 194.04 | 22.839 | |
| 13,400.0 | 7,075.7 | 7,241.3 | 7,088.7 | 173.5 | 24.6 | -90.07 | -375.6 | -1,543.8 | 4,524.8 | 4,328.0 | 196.83 | 22.989 | |
| 13,500.0 | 7,075.5 | 7,242.0 | 7,089.4 | 176.3 | 24.6 | -90.09 | -375.6 | -1,543.8 | 4,618.4 | 4,418.7 | 199.62 | 23.136 | |
| 13,600.0 | 7,075.3 | 7,242.7 | 7,090.1 | 179.1 | 24.6 | -90.12 | -375.6 | -1,543.8 | 4,712.1 | 4,509.7 | 202.41 | 23.280 | |
| 13,700.0 | 7,075.1 | 7,243.4 | 7,090.7 | 181.9 | 24.6 | -90.14 | -375.6 | -1,543.8 | 4,806.2 | 4,601.0 | 205.21 | 23.421 | |
| 13,800.0 | 7,074.9 | 7,244.0 | 7,091.4 | 184.7 | 24.6 | -90.16 | -375.6 | -1,543.8 | 4,900.4 | 4,692.4 | 208.00 | 23.560 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST DD WEDCO #13-21DU - Wellbore #1 - Wellbore #1

**Offset Site Error:** 0.0 usft

**Survey Program:** 705-MWD

**Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,900.0 | 7,074.7 | 7,244.7 | 7,092.1 | 187.5 | 24.6 | -90.19 | -375.6 | -1,543.8 | 4,994.9 | 4,784.1 | 210.79 | 23.696 | |
| 14,000.0 | 7,074.5 | 7,245.4 | 7,092.8 | 190.2 | 24.6 | -90.21 | -375.7 | -1,543.8 | 5,089.6 | 4,876.0 | 213.59 | 23.829 | |
| 14,100.0 | 7,074.2 | 7,246.1 | 7,093.5 | 193.0 | 24.6 | -90.23 | -375.7 | -1,543.8 | 5,184.5 | 4,968.1 | 216.38 | 23.960 | |
| 14,200.0 | 7,074.0 | 7,246.7 | 7,094.1 | 195.8 | 24.6 | -90.26 | -375.7 | -1,543.8 | 5,279.6 | 5,060.4 | 219.18 | 24.088 | |
| 14,221.4 | 7,074.0 | 7,246.9 | 7,094.3 | 196.4 | 24.6 | -90.26 | -375.7 | -1,543.8 | 5,300.0 | 5,080.2 | 219.78 | 24.115 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT BUNYAN #1 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 100-GYD_CT — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -138.50 | -589.1 | -521.1 | 786.6 | | | | |
| 100.0 | 100.0 | 87.9 | 87.9 | 0.1 | 0.1 | -138.50 | -589.0 | -521.1 | 786.4 | 786.3 | 0.15 | 5,111.330 | |
| 118.8 | 118.8 | 106.4 | 106.4 | 0.1 | 0.1 | -138.50 | -589.0 | -521.1 | 786.4 | 786.2 | 0.21 | 3,744.282 | CC |
| 200.0 | 200.0 | 183.1 | 183.1 | 0.3 | 0.1 | -138.49 | -589.0 | -521.4 | 786.7 | 786.2 | 0.47 | 1,690.416 | ES |
| 300.0 | 300.0 | 286.1 | 286.1 | 0.5 | 0.2 | -138.48 | -589.3 | -521.8 | 787.1 | 786.4 | 0.77 | 1,015.969 | |
| 400.0 | 400.0 | 380.3 | 380.3 | 0.8 | 0.3 | -138.47 | -589.6 | -522.1 | 787.6 | 786.5 | 1.06 | 742.925 | |
| 500.0 | 500.0 | 480.8 | 480.8 | 1.0 | 0.4 | -166.82 | -590.2 | -523.0 | 790.3 | 788.9 | 1.37 | 577.432 | |
| 600.0 | 599.8 | 578.1 | 578.1 | 1.2 | 0.4 | -166.85 | -590.7 | -523.8 | 796.3 | 794.6 | 1.67 | 475.593 | |
| 700.0 | 699.5 | 680.0 | 680.0 | 1.5 | 0.5 | -166.90 | -591.0 | -525.1 | 805.9 | 803.9 | 1.98 | 406.465 | |
| 800.0 | 798.7 | 779.3 | 779.3 | 1.7 | 0.5 | -167.00 | -591.2 | -526.1 | 818.6 | 816.3 | 2.29 | 358.199 | |
| 900.0 | 897.5 | 873.3 | 873.3 | 2.0 | 0.6 | -167.15 | -592.0 | -526.8 | 834.9 | 832.3 | 2.60 | 320.966 | |
| 1,000.0 | 995.6 | 970.0 | 969.9 | 2.4 | 0.6 | -167.32 | -592.9 | -528.0 | 855.0 | 852.1 | 2.93 | 291.942 | |
| 1,100.0 | 1,093.1 | 1,067.4 | 1,067.3 | 2.8 | 0.7 | -167.54 | -594.0 | -528.9 | 878.5 | 875.2 | 3.26 | 269.336 | |
| 1,164.2 | 1,155.2 | 1,130.8 | 1,130.8 | 3.1 | 0.7 | -167.69 | -594.7 | -529.6 | 895.3 | 891.8 | 3.48 | 257.458 | |
| 1,200.0 | 1,189.7 | 1,167.1 | 1,167.0 | 3.2 | 0.7 | -167.81 | -594.9 | -530.0 | 904.9 | 901.4 | 3.58 | 252.434 | |
| 1,300.0 | 1,286.2 | 1,261.2 | 1,261.1 | 3.7 | 0.7 | -168.10 | -595.3 | -531.2 | 931.8 | 927.9 | 3.89 | 239.489 | |
| 1,400.0 | 1,382.6 | 1,358.4 | 1,358.3 | 4.2 | 0.8 | -168.40 | -596.0 | -532.5 | 959.1 | 954.9 | 4.20 | 228.160 | |
| 1,500.0 | 1,479.1 | 1,454.9 | 1,454.8 | 4.7 | 0.8 | -168.67 | -596.4 | -533.7 | 986.0 | 981.5 | 4.52 | 218.278 | |
| 1,600.0 | 1,575.6 | 1,548.1 | 1,548.0 | 5.3 | 0.9 | -168.94 | -597.2 | -534.7 | 1,013.2 | 1,008.4 | 4.83 | 209.573 | |
| 1,700.0 | 1,672.0 | 1,642.9 | 1,642.8 | 5.8 | 0.9 | -169.18 | -598.0 | -536.1 | 1,040.6 | 1,035.5 | 5.16 | 201.785 | |
| 1,800.0 | 1,768.5 | 1,743.3 | 1,743.1 | 6.3 | 0.9 | -169.41 | -598.8 | -537.6 | 1,068.0 | 1,062.6 | 5.48 | 195.033 | |
| 1,900.0 | 1,864.9 | 1,844.9 | 1,844.7 | 6.8 | 1.0 | -169.62 | -598.8 | -538.9 | 1,094.8 | 1,089.0 | 5.79 | 189.085 | |
| 2,000.0 | 1,961.4 | 1,936.7 | 1,936.6 | 7.4 | 1.0 | -169.81 | -598.8 | -540.1 | 1,121.5 | 1,115.4 | 6.11 | 183.615 | |
| 2,100.0 | 2,057.9 | 2,027.3 | 2,027.2 | 7.9 | 1.0 | -169.99 | -599.4 | -541.5 | 1,148.9 | 1,142.5 | 6.44 | 178.471 | |
| 2,200.0 | 2,154.3 | 2,127.7 | 2,127.6 | 8.4 | 1.1 | -170.19 | -600.1 | -542.9 | 1,176.3 | 1,169.5 | 6.78 | 173.514 | |
| 2,300.0 | 2,250.8 | 2,226.4 | 2,226.2 | 9.0 | 1.2 | -170.39 | -600.7 | -543.8 | 1,203.3 | 1,196.2 | 7.12 | 169.029 | |
| 2,400.0 | 2,347.3 | 2,320.0 | 2,319.8 | 9.5 | 1.2 | -170.56 | -601.1 | -545.0 | 1,230.4 | 1,222.9 | 7.45 | 165.079 | |
| 2,500.0 | 2,443.7 | 2,414.0 | 2,413.8 | 10.0 | 1.3 | -170.70 | -601.5 | -546.5 | 1,257.7 | 1,249.9 | 7.79 | 161.472 | |
| 2,600.0 | 2,540.2 | 2,511.0 | 2,510.8 | 10.6 | 1.3 | -170.85 | -601.9 | -548.1 | 1,285.0 | 1,276.9 | 8.13 | 158.135 | |
| 2,700.0 | 2,636.7 | 2,607.9 | 2,607.7 | 11.1 | 1.4 | -171.00 | -602.5 | -549.4 | 1,312.3 | 1,303.9 | 8.46 | 155.065 | |
| 2,800.0 | 2,733.1 | 2,703.8 | 2,703.6 | 11.6 | 1.4 | -171.14 | -603.0 | -550.8 | 1,339.6 | 1,330.8 | 8.80 | 152.269 | |
| 2,900.0 | 2,829.6 | 2,799.7 | 2,799.5 | 12.2 | 1.5 | -171.26 | -603.3 | -552.4 | 1,366.9 | 1,357.8 | 9.13 | 149.672 | |
| 3,000.0 | 2,926.0 | 2,898.3 | 2,898.0 | 12.7 | 1.5 | -171.38 | -603.5 | -554.2 | 1,394.1 | 1,384.7 | 9.46 | 147.303 | |
| 3,100.0 | 3,022.5 | 2,997.0 | 2,996.7 | 13.2 | 1.5 | -171.47 | -603.3 | -556.1 | 1,421.2 | 1,411.4 | 9.80 | 145.057 | |
| 3,200.0 | 3,119.0 | 3,091.2 | 3,090.9 | 13.8 | 1.6 | -171.56 | -603.1 | -557.9 | 1,448.3 | 1,438.1 | 10.13 | 142.983 | |
| 3,300.0 | 3,215.4 | 3,185.2 | 3,184.9 | 14.3 | 1.6 | -171.65 | -603.2 | -559.6 | 1,475.5 | 1,465.0 | 10.46 | 141.061 | |
| 3,400.0 | 3,311.9 | 3,287.2 | 3,286.8 | 14.9 | 1.7 | -171.74 | -603.2 | -561.5 | 1,502.6 | 1,491.8 | 10.79 | 139.267 | |
| 3,500.0 | 3,408.4 | 3,390.8 | 3,390.5 | 15.4 | 1.7 | -171.81 | -602.4 | -563.6 | 1,529.3 | 1,518.2 | 11.12 | 137.544 | |
| 3,600.0 | 3,504.8 | 3,486.7 | 3,486.4 | 15.9 | 1.7 | -171.86 | -601.2 | -565.7 | 1,555.7 | 1,544.3 | 11.45 | 135.931 | |
| 3,700.0 | 3,601.3 | 3,581.9 | 3,581.4 | 16.5 | 1.8 | -171.89 | -599.9 | -568.2 | 1,582.3 | 1,570.5 | 11.77 | 134.414 | |
| 3,800.0 | 3,697.7 | 3,682.9 | 3,682.5 | 17.0 | 1.8 | -171.91 | -598.3 | -571.0 | 1,608.7 | 1,596.6 | 12.10 | 132.959 | |
| 3,900.0 | 3,794.2 | 3,785.7 | 3,785.1 | 17.5 | 1.9 | -171.93 | -596.3 | -573.7 | 1,634.8 | 1,622.4 | 12.43 | 131.544 | |
| 4,000.0 | 3,890.7 | 3,875.8 | 3,875.3 | 18.1 | 1.9 | -171.94 | -594.5 | -576.1 | 1,660.9 | 1,648.1 | 12.75 | 130.218 | |
| 4,100.0 | 3,987.1 | 3,963.8 | 3,963.1 | 18.6 | 1.9 | -171.95 | -593.1 | -578.6 | 1,687.4 | 1,674.3 | 13.08 | 128.998 | |
| 4,200.0 | 4,083.6 | 4,062.4 | 4,061.7 | 19.2 | 2.0 | -171.97 | -591.9 | -581.6 | 1,714.2 | 1,700.8 | 13.41 | 127.834 | |
| 4,300.0 | 4,180.1 | 4,169.0 | 4,168.2 | 19.7 | 2.0 | -172.02 | -590.6 | -583.8 | 1,740.6 | 1,726.9 | 13.74 | 126.684 | |
| 4,400.0 | 4,276.5 | 4,267.5 | 4,266.8 | 20.2 | 2.0 | -172.08 | -589.4 | -585.1 | 1,766.6 | 1,752.5 | 14.06 | 125.608 | |
| 4,500.0 | 4,373.0 | 4,362.6 | 4,361.9 | 20.8 | 2.1 | -172.13 | -588.3 | -586.5 | 1,792.6 | 1,778.2 | 14.39 | 124.596 | |
| 4,600.0 | 4,469.5 | 4,459.6 | 4,458.9 | 21.3 | 2.1 | -172.19 | -587.3 | -587.8 | 1,818.6 | 1,803.9 | 14.71 | 123.624 | |
| 4,700.0 | 4,565.9 | 4,557.9 | 4,557.1 | 21.9 | 2.1 | -172.26 | -586.3 | -588.8 | 1,844.6 | 1,829.6 | 15.04 | 122.688 | |
| 4,800.0 | 4,662.4 | 4,650.3 | 4,649.5 | 22.4 | 2.2 | -172.34 | -585.6 | -589.5 | 1,870.6 | 1,855.2 | 15.36 | 121.797 | |
| 4,900.0 | 4,758.8 | 4,738.1 | 4,737.3 | 22.9 | 2.2 | -172.40 | -585.2 | -590.6 | 1,897.0 | 1,881.3 | 15.68 | 120.966 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT BUNYAN #1 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 100-GYD_CT — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,000.0 | 4,855.3 | 4,831.6 | 4,830.8 | 23.5 | 2.2 | -172.45 | -584.8 | -592.2 | 1,923.8 | 1,907.8 | 16.01 | 120.179 | |
| 5,100.0 | 4,951.8 | 4,939.5 | 4,938.7 | 24.0 | 2.3 | -172.52 | -584.2 | -593.6 | 1,950.2 | 1,933.9 | 16.34 | 119.381 | |
| 5,200.0 | 5,048.2 | 5,039.0 | 5,038.2 | 24.6 | 2.3 | -172.59 | -583.4 | -594.4 | 1,976.2 | 1,959.6 | 16.66 | 118.606 | |
| 5,300.0 | 5,144.7 | 5,127.4 | 5,126.6 | 25.1 | 2.3 | -172.65 | -582.9 | -595.3 | 2,002.5 | 1,985.5 | 16.98 | 117.895 | |
| 5,400.0 | 5,241.2 | 5,218.1 | 5,217.3 | 25.6 | 2.3 | -172.70 | -582.6 | -596.4 | 2,029.1 | 2,011.8 | 17.31 | 117.236 | |
| 5,500.0 | 5,337.6 | 5,320.4 | 5,319.5 | 26.2 | 2.3 | -172.78 | -582.5 | -597.3 | 2,055.6 | 2,038.0 | 17.63 | 116.630 | |
| 5,600.0 | 5,434.1 | 5,422.4 | 5,421.6 | 26.7 | 2.3 | -172.88 | -582.6 | -597.4 | 2,081.9 | 2,064.0 | 17.94 | 116.048 | |
| 5,700.0 | 5,530.5 | 5,523.6 | 5,522.7 | 27.3 | 2.3 | -172.97 | -582.5 | -597.3 | 2,108.0 | 2,089.7 | 18.25 | 115.509 | |
| 5,757.1 | 5,585.6 | 5,581.4 | 5,580.6 | 27.6 | 2.3 | -173.02 | -582.4 | -597.2 | 2,122.8 | 2,104.4 | 18.43 | 115.202 | |
| 5,800.0 | 5,627.1 | 5,620.4 | 5,619.6 | 27.8 | 2.3 | -173.08 | -582.2 | -597.2 | 2,133.6 | 2,115.1 | 18.51 | 115.257 | |
| 5,900.0 | 5,724.4 | 5,704.0 | 5,703.2 | 28.2 | 2.3 | -173.20 | -582.2 | -597.3 | 2,156.7 | 2,138.0 | 18.67 | 115.532 | |
| 6,000.0 | 5,822.4 | 5,800.0 | 5,799.2 | 28.5 | 2.4 | -173.30 | -582.7 | -597.9 | 2,177.1 | 2,158.3 | 18.80 | 115.820 | |
| 6,100.0 | 5,921.0 | 5,893.1 | 5,892.2 | 28.8 | 2.4 | -173.38 | -583.2 | -598.7 | 2,194.3 | 2,175.4 | 18.92 | 115.977 | |
| 6,200.0 | 6,020.2 | 6,002.1 | 6,001.3 | 29.0 | 2.4 | -173.43 | -583.3 | -599.6 | 2,207.7 | 2,188.6 | 19.03 | 116.039 | |
| 6,300.0 | 6,119.7 | 6,103.8 | 6,103.0 | 29.3 | 2.4 | -173.48 | -583.3 | -600.0 | 2,217.3 | 2,198.2 | 19.09 | 116.172 | |
| 6,400.0 | 6,219.5 | 6,205.9 | 6,205.0 | 29.4 | 2.4 | -173.52 | -583.7 | -599.7 | 2,223.4 | 2,204.2 | 19.13 | 116.232 | |
| 6,500.0 | 6,319.5 | 6,309.9 | 6,309.0 | 29.5 | 2.4 | -173.55 | -584.0 | -599.2 | 2,225.8 | 2,206.7 | 19.15 | 116.217 | |
| 6,521.3 | 6,340.8 | 6,332.1 | 6,331.2 | 29.6 | 2.4 | -145.20 | -584.0 | -599.2 | 2,225.9 | 2,194.2 | 31.70 | 70.215 | |
| 6,551.3 | 6,370.8 | 6,363.3 | 6,362.4 | 29.6 | 2.4 | -145.20 | -584.0 | -599.2 | 2,225.8 | 2,194.1 | 31.73 | 70.151 | |
| 6,600.0 | 6,419.5 | 6,412.4 | 6,411.6 | 29.6 | 2.4 | -55.31 | -583.8 | -599.2 | 2,224.8 | 2,205.7 | 19.14 | 116.241 | |
| 6,650.0 | 6,469.2 | 6,458.6 | 6,457.8 | 29.6 | 2.4 | -55.60 | -583.7 | -599.2 | 2,221.8 | 2,202.7 | 19.06 | 116.581 | |
| 6,700.0 | 6,518.4 | 6,504.4 | 6,503.5 | 29.6 | 2.4 | -56.09 | -583.7 | -599.2 | 2,216.9 | 2,198.0 | 18.97 | 116.860 | |
| 6,750.0 | 6,567.0 | 6,549.4 | 6,548.6 | 29.6 | 2.4 | -56.78 | -583.9 | -599.2 | 2,210.3 | 2,191.4 | 18.88 | 117.041 | |
| 6,800.0 | 6,614.5 | 6,600.0 | 6,599.1 | 29.6 | 2.4 | -57.71 | -584.1 | -599.1 | 2,201.8 | 2,183.0 | 18.81 | 117.076 | |
| 6,850.0 | 6,660.9 | 6,637.9 | 6,637.0 | 29.5 | 2.4 | -58.75 | -584.4 | -599.0 | 2,191.7 | 2,173.0 | 18.76 | 116.848 | |
| 6,900.0 | 6,705.9 | 6,681.1 | 6,680.2 | 29.4 | 2.4 | -60.02 | -584.7 | -599.0 | 2,180.0 | 2,161.3 | 18.74 | 116.339 | |
| 6,950.0 | 6,749.2 | 6,722.7 | 6,721.9 | 29.3 | 2.4 | -61.47 | -585.1 | -598.9 | 2,166.8 | 2,148.1 | 18.76 | 115.487 | |
| 7,000.0 | 6,790.7 | 6,762.6 | 6,761.8 | 29.2 | 2.4 | -63.10 | -585.5 | -598.9 | 2,152.3 | 2,133.5 | 18.84 | 114.234 | |
| 7,050.0 | 6,830.2 | 6,800.0 | 6,799.1 | 29.1 | 2.4 | -64.87 | -585.8 | -598.8 | 2,136.6 | 2,117.6 | 18.98 | 112.555 | |
| 7,100.0 | 6,867.4 | 6,836.4 | 6,835.6 | 29.0 | 2.5 | -66.80 | -586.2 | -598.8 | 2,119.9 | 2,100.7 | 19.19 | 110.452 | |
| 7,150.0 | 6,902.2 | 6,870.1 | 6,869.2 | 28.9 | 2.5 | -68.84 | -586.5 | -598.9 | 2,102.3 | 2,082.9 | 19.47 | 107.978 | |
| 7,200.0 | 6,934.4 | 6,901.4 | 6,900.6 | 28.7 | 2.5 | -70.97 | -586.8 | -599.0 | 2,084.1 | 2,064.3 | 19.81 | 105.205 | |
| 7,250.0 | 6,963.8 | 6,930.2 | 6,929.4 | 28.6 | 2.5 | -73.17 | -587.1 | -599.2 | 2,065.4 | 2,045.2 | 20.21 | 102.224 | |
| 7,300.0 | 6,990.4 | 6,956.4 | 6,955.5 | 28.5 | 2.5 | -75.38 | -587.3 | -599.4 | 2,046.5 | 2,025.8 | 20.65 | 99.118 | |
| 7,350.0 | 7,013.9 | 6,979.7 | 6,978.8 | 28.4 | 2.5 | -77.59 | -587.5 | -599.6 | 2,027.4 | 2,006.3 | 21.13 | 95.958 | |
| 7,400.0 | 7,034.4 | 7,000.1 | 6,999.2 | 28.2 | 2.5 | -79.75 | -587.6 | -599.8 | 2,008.5 | 1,986.9 | 21.65 | 92.788 | |
| 7,450.0 | 7,051.5 | 7,021.0 | 7,020.1 | 28.1 | 2.5 | -81.93 | -587.8 | -600.0 | 1,989.9 | 1,967.7 | 22.21 | 89.609 | |
| 7,500.0 | 7,065.4 | 7,037.8 | 7,037.0 | 28.0 | 2.5 | -83.98 | -587.9 | -600.2 | 1,971.7 | 1,948.9 | 22.80 | 86.468 | |
| 7,550.0 | 7,075.9 | 7,050.6 | 7,049.7 | 27.9 | 2.5 | -85.85 | -587.9 | -600.3 | 1,954.3 | 1,930.8 | 23.44 | 83.368 | |
| 7,600.0 | 7,082.9 | 7,059.3 | 7,058.4 | 27.8 | 2.5 | -87.53 | -588.0 | -600.4 | 1,937.6 | 1,913.5 | 24.12 | 80.322 | |
| 7,650.0 | 7,086.5 | 7,063.9 | 7,063.0 | 27.7 | 2.5 | -88.99 | -588.0 | -600.4 | 1,922.0 | 1,897.1 | 24.85 | 77.350 | |
| 7,677.7 | 7,087.0 | 7,064.7 | 7,063.8 | 27.6 | 2.5 | -89.70 | -588.0 | -600.4 | 1,913.8 | 1,888.5 | 25.27 | 75.745 | |
| 7,700.0 | 7,087.0 | 7,064.8 | 7,063.9 | 27.6 | 2.5 | -89.70 | -588.0 | -600.4 | 1,907.5 | 1,881.9 | 25.58 | 74.579 | |
| 7,800.0 | 7,086.8 | 7,065.4 | 7,064.5 | 27.5 | 2.5 | -89.72 | -588.0 | -600.4 | 1,882.0 | 1,854.9 | 27.11 | 69.420 | |
| 7,900.0 | 7,086.6 | 7,066.0 | 7,065.1 | 27.9 | 2.5 | -89.74 | -588.0 | -600.4 | 1,861.7 | 1,832.8 | 28.85 | 64.523 | |
| 8,000.0 | 7,086.4 | 7,066.5 | 7,065.7 | 29.5 | 2.5 | -89.76 | -588.0 | -600.4 | 1,846.5 | 1,815.7 | 30.76 | 60.021 | |
| 8,100.0 | 7,086.2 | 7,067.1 | 7,066.2 | 31.5 | 2.5 | -89.77 | -588.0 | -600.4 | 1,836.6 | 1,803.8 | 32.81 | 55.972 | |
| 8,200.0 | 7,086.0 | 7,067.7 | 7,066.8 | 33.7 | 2.5 | -89.79 | -588.0 | -600.4 | 1,832.2 | 1,797.2 | 34.97 | 52.386 | |
| 8,231.5 | 7,085.9 | 7,067.8 | 7,067.0 | 34.4 | 2.5 | -89.80 | -588.0 | -600.4 | 1,831.9 | 1,796.2 | 35.68 | 51.336 | |
| 8,300.0 | 7,085.8 | 7,068.2 | 7,067.3 | 36.0 | 2.5 | -89.81 | -588.0 | -600.4 | 1,833.2 | 1,796.0 | 37.23 | 49.243 | |
| 8,400.0 | 7,085.6 | 7,068.7 | 7,067.9 | 38.3 | 2.5 | -89.83 | -588.0 | -600.4 | 1,839.6 | 1,800.1 | 39.55 | 46.508 | |
| 8,500.0 | 7,085.4 | 7,069.3 | 7,068.4 | 40.7 | 2.5 | -89.84 | -588.0 | -600.4 | 1,851.5 | 1,809.5 | 41.94 | 44.140 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT BUNYAN #1 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 100-GYD_CT — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,600.0 | 7,085.2 | 7,069.8 | 7,068.9 | 43.1 | 2.5 | -89.86 | -588.0 | -600.4 | 1,868.6 | 1,824.2 | 44.39 | 42.098 | |
| 8,700.0 | 7,085.0 | 7,070.3 | 7,069.4 | 45.6 | 2.5 | -89.88 | -588.0 | -600.4 | 1,890.8 | 1,844.0 | 46.87 | 40.342 | |
| 8,800.0 | 7,084.8 | 7,070.8 | 7,069.9 | 48.1 | 2.5 | -89.89 | -588.0 | -600.4 | 1,918.1 | 1,868.7 | 49.39 | 38.834 | |
| 8,900.0 | 7,084.6 | 7,071.3 | 7,070.5 | 50.7 | 2.5 | -89.91 | -588.0 | -600.4 | 1,950.0 | 1,898.1 | 51.94 | 37.542 | |
| 9,000.0 | 7,084.4 | 7,071.8 | 7,071.0 | 53.2 | 2.5 | -89.92 | -588.0 | -600.4 | 1,986.5 | 1,932.0 | 54.52 | 36.437 | |
| 9,100.0 | 7,084.2 | 7,072.3 | 7,071.4 | 55.8 | 2.5 | -89.94 | -588.0 | -600.4 | 2,027.3 | 1,970.2 | 57.12 | 35.492 | |
| 9,200.0 | 7,084.0 | 7,072.8 | 7,071.9 | 58.4 | 2.5 | -89.95 | -588.0 | -600.4 | 2,072.1 | 2,012.4 | 59.74 | 34.685 | |
| 9,300.0 | 7,083.8 | 7,073.3 | 7,072.4 | 61.1 | 2.5 | -89.97 | -588.0 | -600.4 | 2,120.7 | 2,058.3 | 62.38 | 33.998 | |
| 9,400.0 | 7,083.7 | 7,073.8 | 7,072.9 | 63.7 | 2.5 | -89.98 | -588.0 | -600.5 | 2,172.8 | 2,107.8 | 65.03 | 33.412 | |
| 9,500.0 | 7,083.5 | 7,074.2 | 7,073.4 | 66.3 | 2.5 | -90.00 | -588.0 | -600.5 | 2,228.2 | 2,160.5 | 67.69 | 32.915 | |
| 9,600.0 | 7,083.3 | 7,074.7 | 7,073.8 | 69.0 | 2.5 | -90.01 | -588.0 | -600.5 | 2,286.6 | 2,216.2 | 70.37 | 32.493 | |
| 9,700.0 | 7,083.1 | 7,075.2 | 7,074.3 | 71.7 | 2.5 | -90.03 | -588.0 | -600.5 | 2,347.8 | 2,274.7 | 73.06 | 32.136 | |
| 9,800.0 | 7,082.9 | 7,075.6 | 7,074.7 | 74.4 | 2.5 | -90.04 | -588.0 | -600.5 | 2,411.6 | 2,335.9 | 75.75 | 31.835 | |
| 9,900.0 | 7,082.7 | 7,076.1 | 7,075.2 | 77.1 | 2.5 | -90.05 | -588.0 | -600.5 | 2,477.8 | 2,399.4 | 78.46 | 31.581 | |
| 10,000.0 | 7,082.5 | 7,076.5 | 7,075.6 | 79.7 | 2.5 | -90.07 | -588.0 | -600.5 | 2,546.2 | 2,465.1 | 81.17 | 31.369 | |
| 10,100.0 | 7,082.3 | 7,076.9 | 7,076.0 | 82.5 | 2.5 | -90.08 | -588.0 | -600.5 | 2,616.7 | 2,532.8 | 83.89 | 31.193 | |
| 10,200.0 | 7,082.1 | 7,077.4 | 7,076.5 | 85.2 | 2.5 | -90.09 | -588.0 | -600.5 | 2,689.0 | 2,602.4 | 86.61 | 31.047 | |
| 10,300.0 | 7,081.9 | 7,077.8 | 7,076.9 | 87.9 | 2.5 | -90.11 | -588.0 | -600.5 | 2,763.0 | 2,673.7 | 89.34 | 30.927 | |
| 10,400.0 | 7,081.7 | 7,078.2 | 7,077.3 | 90.6 | 2.5 | -90.12 | -588.0 | -600.5 | 2,838.7 | 2,746.6 | 92.07 | 30.830 | |
| 10,500.0 | 7,081.5 | 7,078.6 | 7,077.7 | 93.3 | 2.5 | -90.13 | -588.0 | -600.5 | 2,915.8 | 2,820.9 | 94.81 | 30.753 | |
| 10,600.0 | 7,081.3 | 7,079.0 | 7,078.2 | 96.1 | 2.5 | -90.15 | -588.0 | -600.5 | 2,994.2 | 2,896.7 | 97.56 | 30.692 | |
| 10,700.0 | 7,081.1 | 7,079.4 | 7,078.6 | 98.8 | 2.5 | -90.16 | -588.0 | -600.5 | 3,073.9 | 2,973.6 | 100.30 | 30.647 | |
| 10,800.0 | 7,080.9 | 7,079.8 | 7,079.0 | 101.5 | 2.5 | -90.17 | -588.0 | -600.5 | 3,154.8 | 3,051.7 | 103.05 | 30.613 | |
| 10,900.0 | 7,080.7 | 7,080.2 | 7,079.4 | 104.3 | 2.5 | -90.18 | -588.0 | -600.5 | 3,236.7 | 3,130.9 | 105.81 | 30.591 | |
| 11,000.0 | 7,080.5 | 7,080.6 | 7,079.7 | 107.0 | 2.5 | -90.20 | -588.0 | -600.5 | 3,319.6 | 3,211.1 | 108.56 | 30.579 | |
| 11,100.0 | 7,080.3 | 7,081.0 | 7,080.1 | 109.8 | 2.5 | -90.21 | -588.0 | -600.5 | 3,403.5 | 3,292.2 | 111.32 | 30.574 | SF |
| 11,200.0 | 7,080.1 | 7,081.4 | 7,080.5 | 112.5 | 2.5 | -90.22 | -588.0 | -600.5 | 3,488.2 | 3,374.1 | 114.08 | 30.576 | |
| 11,300.0 | 7,079.9 | 7,081.8 | 7,080.9 | 115.3 | 2.5 | -90.23 | -588.0 | -600.5 | 3,573.7 | 3,456.8 | 116.84 | 30.585 | |
| 11,400.0 | 7,079.7 | 7,082.2 | 7,081.3 | 118.0 | 2.5 | -90.24 | -588.0 | -600.5 | 3,659.9 | 3,540.3 | 119.61 | 30.598 | |
| 11,500.0 | 7,079.5 | 7,082.5 | 7,081.6 | 120.8 | 2.5 | -90.25 | -588.0 | -600.5 | 3,746.8 | 3,624.4 | 122.38 | 30.617 | |
| 11,600.0 | 7,079.3 | 7,082.9 | 7,082.0 | 123.6 | 2.5 | -90.27 | -588.0 | -600.5 | 3,834.3 | 3,709.2 | 125.15 | 30.639 | |
| 11,700.0 | 7,079.1 | 7,083.3 | 7,082.4 | 126.3 | 2.5 | -90.28 | -588.0 | -600.5 | 3,922.5 | 3,794.6 | 127.92 | 30.664 | |
| 11,800.0 | 7,078.9 | 7,083.6 | 7,082.7 | 129.1 | 2.5 | -90.29 | -588.0 | -600.5 | 4,011.2 | 3,880.5 | 130.69 | 30.692 | |
| 11,900.0 | 7,078.7 | 7,084.0 | 7,083.1 | 131.9 | 2.5 | -90.30 | -588.0 | -600.5 | 4,100.4 | 3,966.9 | 133.47 | 30.722 | |
| 12,000.0 | 7,078.5 | 7,084.3 | 7,083.4 | 134.6 | 2.5 | -90.31 | -588.0 | -600.5 | 4,190.1 | 4,053.8 | 136.24 | 30.755 | |
| 12,100.0 | 7,078.3 | 7,084.7 | 7,083.8 | 137.4 | 2.5 | -90.32 | -588.0 | -600.5 | 4,280.2 | 4,141.2 | 139.02 | 30.789 | |
| 12,200.0 | 7,078.1 | 7,085.0 | 7,084.1 | 140.2 | 2.5 | -90.33 | -588.0 | -600.5 | 4,370.8 | 4,229.0 | 141.80 | 30.825 | |
| 12,300.0 | 7,077.9 | 7,085.4 | 7,084.5 | 142.9 | 2.5 | -90.34 | -588.0 | -600.5 | 4,461.8 | 4,317.2 | 144.58 | 30.861 | |
| 12,400.0 | 7,077.7 | 7,085.7 | 7,084.8 | 145.7 | 2.5 | -90.35 | -588.0 | -600.5 | 4,553.2 | 4,405.8 | 147.36 | 30.899 | |
| 12,500.0 | 7,077.5 | 7,086.0 | 7,085.1 | 148.5 | 2.5 | -90.36 | -588.0 | -600.5 | 4,644.9 | 4,494.8 | 150.14 | 30.937 | |
| 12,600.0 | 7,077.3 | 7,086.4 | 7,085.5 | 151.3 | 2.5 | -90.37 | -588.0 | -600.5 | 4,737.0 | 4,584.1 | 152.92 | 30.976 | |
| 12,700.0 | 7,077.1 | 7,086.7 | 7,085.8 | 154.0 | 2.5 | -90.38 | -588.0 | -600.5 | 4,829.3 | 4,673.6 | 155.71 | 31.016 | |
| 12,800.0 | 7,076.9 | 7,087.0 | 7,086.1 | 156.8 | 2.5 | -90.39 | -588.0 | -600.5 | 4,922.0 | 4,763.5 | 158.49 | 31.056 | |
| 12,900.0 | 7,076.7 | 7,087.3 | 7,086.4 | 159.6 | 2.5 | -90.40 | -588.0 | -600.5 | 5,015.0 | 4,853.7 | 161.28 | 31.096 | |
| 13,000.0 | 7,076.5 | 7,087.6 | 7,086.8 | 162.4 | 2.5 | -90.41 | -588.0 | -600.5 | 5,108.2 | 4,944.1 | 164.06 | 31.136 | |
| 13,100.0 | 7,076.3 | 7,087.9 | 7,087.1 | 165.2 | 2.5 | -90.42 | -588.0 | -600.5 | 5,201.7 | 5,034.8 | 166.85 | 31.176 | |
| 13,200.0 | 7,076.1 | 7,088.3 | 7,087.4 | 168.0 | 2.5 | -90.43 | -588.0 | -600.5 | 5,295.4 | 5,125.7 | 169.64 | 31.216 | |
| 13,300.0 | 7,075.9 | 7,088.6 | 7,087.7 | 170.7 | 2.5 | -90.44 | -588.0 | -600.5 | 5,389.3 | 5,216.9 | 172.42 | 31.256 | |
| 13,400.0 | 7,075.7 | 7,088.9 | 7,088.0 | 173.5 | 2.5 | -90.45 | -588.0 | -600.5 | 5,483.5 | 5,308.2 | 175.21 | 31.296 | |
| 13,500.0 | 7,075.5 | 7,089.2 | 7,088.3 | 176.3 | 2.5 | -90.46 | -588.0 | -600.5 | 5,577.8 | 5,399.8 | 178.00 | 31.335 | |
| 13,600.0 | 7,075.3 | 7,089.5 | 7,088.6 | 179.1 | 2.5 | -90.47 | -588.0 | -600.5 | 5,672.4 | 5,491.6 | 180.79 | 31.375 | |
| 13,700.0 | 7,075.1 | 7,089.8 | 7,088.9 | 181.9 | 2.5 | -90.47 | -588.1 | -600.5 | 5,767.1 | 5,583.5 | 183.58 | 31.414 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - EXIST VERT BUNYAN #1 - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 100-GYD_CT — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.0 | 7,074.9 | 7,090.1 | 7,089.2 | 184.7 | 2.5 | -90.48 | -588.1 | -600.6 | 5,862.0 | 5,675.6 | 186.38 | 31.453 | |
| 13,900.0 | 7,074.7 | 7,090.3 | 7,089.5 | 187.5 | 2.5 | -90.49 | -588.1 | -600.6 | 5,957.1 | 5,767.9 | 189.17 | 31.491 | |
| 14,000.0 | 7,074.5 | 7,090.6 | 7,089.7 | 190.2 | 2.5 | -90.50 | -588.1 | -600.6 | 6,052.3 | 5,860.3 | 191.96 | 31.529 | |
| 14,100.0 | 7,074.2 | 7,090.9 | 7,090.0 | 193.0 | 2.5 | -90.51 | -588.1 | -600.6 | 6,147.7 | 5,952.9 | 194.75 | 31.567 | |
| 14,200.0 | 7,074.0 | 7,091.2 | 7,090.3 | 195.8 | 2.5 | -90.52 | -588.1 | -600.6 | 6,243.2 | 6,045.7 | 197.55 | 31.604 | |
| 14,221.4 | 7,074.0 | 7,091.2 | 7,090.4 | 196.4 | 2.5 | -90.52 | -588.1 | -600.6 | 6,263.7 | 6,065.5 | 198.14 | 31.612 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - WALTERS 21P-314 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 179.35 | -1,237.5 | 13.9 | 1,237.6 | | | | |
| 100.0 | 100.0 | 99.0 | 99.0 | 0.1 | 0.1 | 179.35 | -1,237.5 | 13.9 | 1,237.6 | 1,237.4 | 0.19 | 6,397.608 | |
| 200.0 | 200.0 | 199.0 | 199.0 | 0.3 | 0.3 | 179.35 | -1,237.5 | 13.9 | 1,237.6 | 1,237.0 | 0.64 | 1,928.640 | |
| 300.0 | 300.0 | 299.0 | 299.0 | 0.5 | 0.5 | 179.35 | -1,237.5 | 13.9 | 1,237.6 | 1,236.5 | 1.09 | 1,134.143 | |
| 400.0 | 400.0 | 437.3 | 437.3 | 0.8 | 0.9 | 179.24 | -1,235.4 | 16.4 | 1,236.1 | 1,234.5 | 1.62 | 761.100 | |
| 500.0 | 500.0 | 575.6 | 575.2 | 1.0 | 1.2 | 150.63 | -1,228.9 | 23.9 | 1,233.0 | 1,230.8 | 2.17 | 567.537 | |
| 600.0 | 599.8 | 713.3 | 711.9 | 1.2 | 1.6 | 150.23 | -1,218.0 | 36.4 | 1,229.8 | 1,227.1 | 2.75 | 446.396 | |
| 700.0 | 699.5 | 850.3 | 846.9 | 1.5 | 2.0 | 149.71 | -1,203.0 | 53.7 | 1,226.7 | 1,223.3 | 3.40 | 360.917 | |
| 800.0 | 798.7 | 963.2 | 957.5 | 1.7 | 2.5 | 149.22 | -1,187.9 | 71.1 | 1,224.2 | 1,220.2 | 4.02 | 304.437 | |
| 836.1 | 834.5 | 999.2 | 992.7 | 1.8 | 2.6 | 149.07 | -1,182.9 | 76.8 | 1,224.0 | 1,219.8 | 4.24 | 288.737 | CC, ES |
| 900.0 | 897.5 | 1,062.9 | 1,055.0 | 2.0 | 2.9 | 148.82 | -1,174.3 | 86.8 | 1,224.7 | 1,220.0 | 4.63 | 264.438 | |
| 1,000.0 | 995.6 | 1,162.6 | 1,152.5 | 2.4 | 3.3 | 148.48 | -1,160.7 | 102.4 | 1,228.1 | 1,222.8 | 5.27 | 233.111 | |
| 1,100.0 | 1,093.1 | 1,262.3 | 1,250.0 | 2.8 | 3.7 | 148.20 | -1,147.1 | 118.1 | 1,234.6 | 1,228.6 | 5.93 | 208.033 | |
| 1,164.2 | 1,155.2 | 1,326.2 | 1,312.5 | 3.1 | 4.0 | 148.05 | -1,138.3 | 128.1 | 1,240.3 | 1,233.9 | 6.37 | 194.688 | |
| 1,200.0 | 1,189.7 | 1,361.8 | 1,347.3 | 3.2 | 4.1 | 148.01 | -1,133.5 | 133.7 | 1,243.8 | 1,237.2 | 6.63 | 187.708 | |
| 1,300.0 | 1,286.2 | 1,461.3 | 1,444.7 | 3.7 | 4.6 | 147.89 | -1,119.9 | 149.3 | 1,253.6 | 1,246.3 | 7.35 | 170.538 | |
| 1,400.0 | 1,382.6 | 1,560.8 | 1,542.0 | 4.2 | 5.0 | 147.78 | -1,106.3 | 164.9 | 1,263.5 | 1,255.4 | 8.09 | 156.240 | |
| 1,500.0 | 1,479.1 | 1,660.3 | 1,639.3 | 4.7 | 5.5 | 147.67 | -1,092.8 | 180.5 | 1,273.3 | 1,264.5 | 8.83 | 144.179 | |
| 1,600.0 | 1,575.6 | 1,759.8 | 1,736.6 | 5.3 | 5.9 | 147.56 | -1,079.2 | 196.1 | 1,283.2 | 1,273.6 | 9.58 | 133.895 | |
| 1,700.0 | 1,672.0 | 1,859.2 | 1,833.9 | 5.8 | 6.3 | 147.45 | -1,065.6 | 211.8 | 1,293.1 | 1,282.7 | 10.34 | 125.036 | |
| 1,800.0 | 1,768.5 | 1,958.7 | 1,931.2 | 6.3 | 6.8 | 147.35 | -1,052.1 | 227.4 | 1,302.9 | 1,291.8 | 11.10 | 117.335 | |
| 1,900.0 | 1,864.9 | 2,058.2 | 2,028.5 | 6.8 | 7.2 | 147.24 | -1,038.5 | 243.0 | 1,312.8 | 1,300.9 | 11.87 | 110.585 | |
| 2,000.0 | 1,961.4 | 2,157.7 | 2,125.8 | 7.4 | 7.7 | 147.14 | -1,024.9 | 258.6 | 1,322.7 | 1,310.0 | 12.64 | 104.625 | |
| 2,100.0 | 2,057.9 | 2,257.2 | 2,223.1 | 7.9 | 8.1 | 147.04 | -1,011.4 | 274.2 | 1,332.6 | 1,319.1 | 13.42 | 99.327 | |
| 2,200.0 | 2,154.3 | 2,356.7 | 2,320.4 | 8.4 | 8.6 | 146.94 | -997.8 | 289.8 | 1,342.4 | 1,328.2 | 14.19 | 94.587 | |
| 2,300.0 | 2,250.8 | 2,456.1 | 2,417.7 | 9.0 | 9.0 | 146.84 | -984.2 | 305.5 | 1,352.3 | 1,337.4 | 14.97 | 90.325 | |
| 2,400.0 | 2,347.3 | 2,555.6 | 2,515.1 | 9.5 | 9.5 | 146.74 | -970.7 | 321.1 | 1,362.2 | 1,346.5 | 15.75 | 86.471 | |
| 2,500.0 | 2,443.7 | 2,655.1 | 2,612.4 | 10.0 | 9.9 | 146.65 | -957.1 | 336.7 | 1,372.1 | 1,355.6 | 16.54 | 82.971 | |
| 2,600.0 | 2,540.2 | 2,754.6 | 2,709.7 | 10.6 | 10.4 | 146.55 | -943.5 | 352.3 | 1,382.0 | 1,364.7 | 17.32 | 79.779 | |
| 2,700.0 | 2,636.7 | 2,854.1 | 2,807.0 | 11.1 | 10.8 | 146.46 | -929.9 | 367.9 | 1,391.9 | 1,373.8 | 18.11 | 76.856 | |
| 2,800.0 | 2,733.1 | 2,953.6 | 2,904.3 | 11.6 | 11.2 | 146.37 | -916.4 | 383.5 | 1,401.8 | 1,382.9 | 18.90 | 74.170 | |
| 2,900.0 | 2,829.6 | 3,053.0 | 3,001.6 | 12.2 | 11.7 | 146.28 | -902.8 | 399.1 | 1,411.7 | 1,392.0 | 19.69 | 71.694 | |
| 3,000.0 | 2,926.0 | 3,152.5 | 3,098.9 | 12.7 | 12.1 | 146.19 | -889.2 | 414.8 | 1,421.6 | 1,401.2 | 20.48 | 69.403 | |
| 3,100.0 | 3,022.5 | 3,252.0 | 3,196.2 | 13.2 | 12.6 | 146.10 | -875.7 | 430.4 | 1,431.6 | 1,410.3 | 21.28 | 67.279 | |
| 3,200.0 | 3,119.0 | 3,351.5 | 3,293.5 | 13.8 | 13.0 | 146.01 | -862.1 | 446.0 | 1,441.5 | 1,419.4 | 22.07 | 65.304 | |
| 3,300.0 | 3,215.4 | 3,451.0 | 3,390.8 | 14.3 | 13.5 | 145.93 | -848.5 | 461.6 | 1,451.4 | 1,428.5 | 22.87 | 63.462 | |
| 3,400.0 | 3,311.9 | 3,550.5 | 3,488.1 | 14.9 | 13.9 | 145.84 | -835.0 | 477.2 | 1,461.3 | 1,437.7 | 23.67 | 61.741 | |
| 3,500.0 | 3,408.4 | 3,649.9 | 3,585.4 | 15.4 | 14.4 | 145.76 | -821.4 | 492.8 | 1,471.3 | 1,446.8 | 24.47 | 60.130 | |
| 3,600.0 | 3,504.8 | 3,749.4 | 3,682.8 | 15.9 | 14.8 | 145.68 | -807.8 | 508.4 | 1,481.2 | 1,455.9 | 25.27 | 58.618 | |
| 3,700.0 | 3,601.3 | 3,848.9 | 3,780.1 | 16.5 | 15.3 | 145.60 | -794.2 | 524.1 | 1,491.1 | 1,465.1 | 26.07 | 57.196 | |
| 3,800.0 | 3,697.7 | 3,948.4 | 3,877.4 | 17.0 | 15.7 | 145.52 | -780.7 | 539.7 | 1,501.1 | 1,474.2 | 26.87 | 55.857 | |
| 3,900.0 | 3,794.2 | 4,047.9 | 3,974.7 | 17.5 | 16.2 | 145.44 | -767.1 | 555.3 | 1,511.0 | 1,483.3 | 27.68 | 54.594 | |
| 4,000.0 | 3,890.7 | 4,147.4 | 4,072.0 | 18.1 | 16.6 | 145.36 | -753.5 | 570.9 | 1,520.9 | 1,492.5 | 28.48 | 53.400 | |
| 4,100.0 | 3,987.1 | 4,246.8 | 4,169.3 | 18.6 | 17.1 | 145.28 | -740.0 | 586.5 | 1,530.9 | 1,501.6 | 29.29 | 52.270 | |
| 4,200.0 | 4,083.6 | 4,346.3 | 4,266.6 | 19.2 | 17.5 | 145.21 | -726.4 | 602.1 | 1,540.8 | 1,510.7 | 30.10 | 51.199 | |
| 4,300.0 | 4,180.1 | 4,445.8 | 4,363.9 | 19.7 | 18.0 | 145.13 | -712.8 | 617.7 | 1,550.8 | 1,519.9 | 30.90 | 50.182 | |
| 4,400.0 | 4,276.5 | 4,545.3 | 4,461.2 | 20.2 | 18.4 | 145.06 | -699.3 | 633.4 | 1,560.7 | 1,529.0 | 31.71 | 49.216 | |
| 4,500.0 | 4,373.0 | 4,640.5 | 4,554.4 | 20.8 | 18.8 | 144.99 | -686.3 | 648.3 | 1,570.7 | 1,538.2 | 32.50 | 48.336 | |
| 4,600.0 | 4,469.5 | 4,716.1 | 4,628.6 | 21.3 | 19.1 | 144.98 | -676.8 | 659.2 | 1,581.7 | 1,548.6 | 33.14 | 47.730 | |
| 4,700.0 | 4,565.9 | 4,800.0 | 4,711.4 | 21.9 | 19.4 | 145.03 | -667.9 | 669.5 | 1,594.2 | 1,560.5 | 33.74 | 47.248 | |
| 4,800.0 | 4,662.4 | 4,866.5 | 4,777.2 | 22.4 | 19.5 | 145.13 | -661.9 | 676.3 | 1,608.1 | 1,573.9 | 34.26 | 46.933 | |
| 4,900.0 | 4,758.8 | 4,940.9 | 4,851.2 | 22.9 | 19.7 | 145.28 | -656.4 | 682.7 | 1,623.6 | 1,588.8 | 34.77 | 46.689 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - WALTERS 21P-314 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,000.0 | 4,855.3 | 5,014.8 | 4,924.8 | 23.5 | 19.9 | 145.49 | -652.2 | 687.5 | 1,640.6 | 1,605.3 | 35.25 | 46.539 | |
| 5,100.0 | 4,951.8 | 5,100.0 | 5,009.8 | 24.0 | 20.0 | 145.80 | -648.9 | 691.3 | 1,659.1 | 1,623.4 | 35.70 | 46.475 | |
| 5,200.0 | 5,048.2 | 5,160.5 | 5,070.3 | 24.6 | 20.1 | 146.05 | -647.5 | 692.9 | 1,679.0 | 1,642.9 | 36.10 | 46.516 | |
| 5,300.0 | 5,144.7 | 5,233.9 | 5,143.7 | 25.1 | 20.2 | 146.40 | -647.0 | 693.4 | 1,700.5 | 1,664.1 | 36.47 | 46.625 | |
| 5,400.0 | 5,241.2 | 5,330.4 | 5,240.2 | 25.6 | 20.3 | 146.88 | -647.0 | 693.4 | 1,722.8 | 1,685.9 | 36.84 | 46.766 | |
| 5,500.0 | 5,337.6 | 5,426.8 | 5,336.6 | 26.2 | 20.4 | 147.35 | -647.0 | 693.4 | 1,745.1 | 1,707.9 | 37.21 | 46.895 | |
| 5,600.0 | 5,434.1 | 5,523.3 | 5,433.1 | 26.7 | 20.5 | 147.81 | -647.0 | 693.4 | 1,767.6 | 1,730.0 | 37.59 | 47.023 | |
| 5,700.0 | 5,530.5 | 5,619.8 | 5,529.5 | 27.3 | 20.7 | 148.25 | -647.0 | 693.4 | 1,790.2 | 1,752.2 | 37.97 | 47.149 | |
| 5,757.1 | 5,585.6 | 5,674.9 | 5,584.6 | 27.6 | 20.7 | 148.50 | -647.0 | 693.4 | 1,803.1 | 1,765.0 | 38.19 | 47.219 | |
| 5,800.0 | 5,627.1 | 5,716.3 | 5,626.1 | 27.8 | 20.8 | 148.78 | -647.0 | 693.4 | 1,812.6 | 1,774.3 | 38.33 | 47.293 | |
| 5,900.0 | 5,724.4 | 5,813.6 | 5,723.4 | 28.2 | 20.9 | 149.37 | -647.0 | 693.4 | 1,832.7 | 1,794.1 | 38.61 | 47.467 | |
| 6,000.0 | 5,822.4 | 5,911.6 | 5,821.4 | 28.5 | 21.0 | 149.85 | -647.0 | 693.4 | 1,849.9 | 1,811.0 | 38.88 | 47.580 | |
| 6,100.0 | 5,921.0 | 6,010.2 | 5,920.0 | 28.8 | 21.2 | 150.25 | -647.0 | 693.4 | 1,864.1 | 1,825.0 | 39.13 | 47.635 | |
| 6,200.0 | 6,020.2 | 6,109.4 | 6,019.2 | 29.0 | 21.3 | 150.55 | -647.0 | 693.4 | 1,875.4 | 1,836.0 | 39.37 | 47.635 | |
| 6,300.0 | 6,119.7 | 6,208.9 | 6,118.7 | 29.3 | 21.4 | 150.78 | -647.0 | 693.4 | 1,883.6 | 1,844.0 | 39.59 | 47.581 | |
| 6,400.0 | 6,219.5 | 6,308.8 | 6,218.5 | 29.4 | 21.6 | 150.92 | -647.0 | 693.4 | 1,888.8 | 1,849.0 | 39.79 | 47.474 | |
| 6,500.0 | 6,319.5 | 6,408.7 | 6,318.5 | 29.5 | 21.7 | 150.97 | -647.0 | 693.4 | 1,891.0 | 1,851.0 | 39.97 | 47.315 | |
| 6,521.3 | 6,340.8 | 6,430.0 | 6,339.8 | 29.6 | 21.7 | 179.32 | -647.0 | 693.4 | 1,891.1 | 1,846.0 | 45.06 | 41.968 | |
| 6,551.3 | 6,370.8 | 6,460.0 | 6,369.8 | 29.6 | 21.8 | 179.32 | -647.0 | 693.4 | 1,891.1 | 1,845.9 | 45.14 | 41.894 | |
| 6,600.0 | 6,419.5 | 6,508.7 | 6,418.5 | 29.6 | 21.8 | -90.73 | -647.0 | 693.4 | 1,891.1 | 1,850.9 | 40.24 | 47.001 | |
| 6,650.0 | 6,469.2 | 6,558.6 | 6,468.4 | 29.6 | 21.9 | -90.88 | -647.0 | 693.4 | 1,891.2 | 1,850.8 | 40.38 | 46.834 | |
| 6,700.0 | 6,518.4 | 6,610.6 | 6,520.3 | 29.6 | 22.0 | -91.07 | -647.0 | 691.1 | 1,891.3 | 1,850.8 | 40.49 | 46.715 | |
| 6,750.0 | 6,567.0 | 6,663.0 | 6,572.4 | 29.6 | 22.0 | -91.26 | -647.0 | 685.0 | 1,891.4 | 1,850.9 | 40.52 | 46.676 | |
| 6,800.0 | 6,614.5 | 6,716.0 | 6,624.3 | 29.6 | 22.0 | -91.44 | -647.0 | 675.0 | 1,891.6 | 1,851.1 | 40.50 | 46.707 | |
| 6,850.0 | 6,660.9 | 6,769.4 | 6,675.9 | 29.5 | 21.9 | -91.62 | -647.0 | 661.0 | 1,891.7 | 1,851.3 | 40.42 | 46.802 | |
| 6,900.0 | 6,705.9 | 6,823.4 | 6,726.8 | 29.4 | 21.9 | -91.79 | -647.0 | 643.0 | 1,891.9 | 1,851.6 | 40.29 | 46.952 | |
| 6,950.0 | 6,749.2 | 6,877.8 | 6,776.6 | 29.3 | 21.8 | -91.95 | -647.0 | 621.1 | 1,892.1 | 1,851.9 | 40.13 | 47.145 | |
| 7,000.0 | 6,790.7 | 6,932.7 | 6,825.0 | 29.2 | 21.7 | -92.10 | -647.0 | 595.1 | 1,892.2 | 1,852.3 | 39.95 | 47.364 | |
| 7,050.0 | 6,830.2 | 6,988.1 | 6,871.6 | 29.1 | 21.5 | -92.24 | -647.0 | 565.3 | 1,892.4 | 1,852.6 | 39.77 | 47.589 | |
| 7,100.0 | 6,867.4 | 7,043.9 | 6,916.1 | 29.0 | 21.4 | -92.37 | -647.0 | 531.7 | 1,892.6 | 1,853.0 | 39.60 | 47.793 | |
| 7,150.0 | 6,902.2 | 7,100.0 | 6,958.2 | 28.9 | 21.3 | -92.49 | -647.0 | 494.5 | 1,892.7 | 1,853.3 | 39.48 | 47.945 | |
| 7,200.0 | 6,934.4 | 7,156.6 | 6,997.4 | 28.7 | 21.2 | -92.59 | -647.0 | 453.9 | 1,892.9 | 1,853.5 | 39.43 | 48.005 | |
| 7,250.0 | 6,963.8 | 7,213.4 | 7,033.5 | 28.6 | 21.0 | -92.68 | -647.0 | 410.0 | 1,893.0 | 1,853.5 | 39.49 | 47.942 | |
| 7,300.0 | 6,990.4 | 7,270.5 | 7,066.2 | 28.5 | 21.0 | -92.76 | -647.0 | 363.1 | 1,893.1 | 1,853.5 | 39.67 | 47.723 | |
| 7,350.0 | 7,013.9 | 7,327.9 | 7,095.1 | 28.4 | 20.9 | -92.82 | -647.0 | 313.6 | 1,893.2 | 1,853.2 | 40.01 | 47.324 | |
| 7,400.0 | 7,034.4 | 7,385.4 | 7,120.0 | 28.2 | 20.9 | -92.86 | -647.0 | 261.8 | 1,893.3 | 1,852.8 | 40.51 | 46.732 | |
| 7,450.0 | 7,051.5 | 7,443.0 | 7,140.8 | 28.1 | 21.0 | -92.89 | -647.0 | 208.1 | 1,893.3 | 1,852.1 | 41.21 | 45.949 | |
| 7,500.0 | 7,065.4 | 7,500.7 | 7,157.2 | 28.0 | 21.2 | -92.90 | -647.0 | 152.8 | 1,893.4 | 1,851.3 | 42.09 | 44.989 | |
| 7,550.0 | 7,075.9 | 7,558.4 | 7,169.0 | 27.9 | 21.6 | -92.89 | -647.0 | 96.3 | 1,893.4 | 1,850.2 | 43.16 | 43.871 | |
| 7,600.0 | 7,082.9 | 7,616.0 | 7,176.3 | 27.8 | 22.1 | -92.87 | -647.0 | 39.2 | 1,893.3 | 1,848.9 | 44.40 | 42.645 | |
| 7,650.0 | 7,086.5 | 7,673.6 | 7,179.0 | 27.7 | 22.7 | -92.83 | -647.0 | -18.3 | 1,893.3 | 1,847.5 | 45.78 | 41.355 | |
| 7,677.7 | 7,087.0 | 7,702.2 | 7,178.9 | 27.6 | 23.1 | -92.81 | -647.0 | -46.9 | 1,893.2 | 1,846.7 | 46.56 | 40.662 | |
| 7,700.0 | 7,087.0 | 7,724.5 | 7,178.8 | 27.6 | 23.4 | -92.81 | -647.0 | -69.2 | 1,893.2 | 1,846.0 | 47.22 | 40.090 | |
| 7,800.0 | 7,086.8 | 7,824.5 | 7,178.5 | 27.5 | 25.0 | -92.81 | -647.0 | -169.2 | 1,893.2 | 1,842.8 | 50.39 | 37.568 | |
| 7,900.0 | 7,086.6 | 7,924.5 | 7,178.1 | 27.9 | 26.8 | -92.80 | -647.0 | -269.2 | 1,893.2 | 1,839.3 | 53.95 | 35.090 | |
| 8,000.0 | 7,086.4 | 8,024.5 | 7,177.7 | 29.5 | 28.8 | -92.80 | -647.0 | -369.2 | 1,893.2 | 1,835.4 | 57.84 | 32.733 | |
| 8,100.0 | 7,086.2 | 8,124.5 | 7,177.4 | 31.5 | 31.0 | -92.79 | -647.0 | -469.2 | 1,893.2 | 1,831.2 | 61.99 | 30.542 | |
| 8,200.0 | 7,086.0 | 8,224.5 | 7,177.0 | 33.7 | 33.2 | -92.79 | -647.0 | -569.2 | 1,893.2 | 1,826.8 | 66.35 | 28.532 | |
| 8,300.0 | 7,085.8 | 8,324.5 | 7,176.6 | 36.0 | 35.5 | -92.78 | -647.0 | -669.2 | 1,893.2 | 1,822.3 | 70.89 | 26.704 | |
| 8,400.0 | 7,085.6 | 8,424.5 | 7,176.3 | 38.3 | 37.9 | -92.78 | -647.0 | -769.2 | 1,893.2 | 1,817.6 | 75.58 | 25.049 | |
| 8,500.0 | 7,085.4 | 8,524.5 | 7,175.9 | 40.7 | 40.3 | -92.77 | -647.0 | -869.2 | 1,893.2 | 1,812.8 | 80.38 | 23.552 | |
| 8,600.0 | 7,085.2 | 8,624.5 | 7,175.5 | 43.1 | 42.8 | -92.77 | -647.0 | -969.2 | 1,893.1 | 1,807.9 | 85.29 | 22.198 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - WALTERS 21P-314 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,700.0 | 7,085.0 | 8,724.5 | 7,175.2 | 45.6 | 45.3 | -92.76 | -647.0 | -1,069.2 | 1,893.1 | 1,802.9 | 90.27 | 20.972 | |
| 8,800.0 | 7,084.8 | 8,824.5 | 7,174.8 | 48.1 | 47.9 | -92.75 | -647.0 | -1,169.2 | 1,893.1 | 1,797.8 | 95.33 | 19.859 | |
| 8,900.0 | 7,084.6 | 8,924.5 | 7,174.4 | 50.7 | 50.5 | -92.75 | -647.0 | -1,269.2 | 1,893.1 | 1,792.7 | 100.44 | 18.848 | |
| 9,000.0 | 7,084.4 | 9,024.5 | 7,174.1 | 53.2 | 53.1 | -92.74 | -647.0 | -1,369.2 | 1,893.1 | 1,787.5 | 105.61 | 17.926 | |
| 9,100.0 | 7,084.2 | 9,124.5 | 7,173.7 | 55.8 | 55.7 | -92.74 | -647.0 | -1,469.2 | 1,893.1 | 1,782.3 | 110.81 | 17.084 | |
| 9,200.0 | 7,084.0 | 9,224.5 | 7,173.4 | 58.4 | 58.3 | -92.73 | -647.0 | -1,569.2 | 1,893.1 | 1,777.0 | 116.06 | 16.311 | |
| 9,300.0 | 7,083.8 | 9,324.5 | 7,173.0 | 61.1 | 61.0 | -92.73 | -647.0 | -1,669.2 | 1,893.1 | 1,771.7 | 121.34 | 15.602 | |
| 9,400.0 | 7,083.7 | 9,424.5 | 7,172.6 | 63.7 | 63.6 | -92.72 | -647.0 | -1,769.2 | 1,893.1 | 1,766.4 | 126.65 | 14.948 | |
| 9,500.0 | 7,083.5 | 9,524.5 | 7,172.3 | 66.3 | 66.3 | -92.72 | -647.0 | -1,869.2 | 1,893.1 | 1,761.1 | 131.98 | 14.344 | |
| 9,600.0 | 7,083.3 | 9,624.5 | 7,171.9 | 69.0 | 69.0 | -92.71 | -647.0 | -1,969.2 | 1,893.1 | 1,755.7 | 137.34 | 13.784 | |
| 9,700.0 | 7,083.1 | 9,724.5 | 7,171.5 | 71.7 | 71.7 | -92.71 | -647.0 | -2,069.2 | 1,893.1 | 1,750.3 | 142.71 | 13.265 | |
| 9,800.0 | 7,082.9 | 9,824.5 | 7,171.2 | 74.4 | 74.4 | -92.70 | -647.0 | -2,169.2 | 1,893.0 | 1,744.9 | 148.10 | 12.782 | |
| 9,900.0 | 7,082.7 | 9,924.5 | 7,170.8 | 77.1 | 77.1 | -92.70 | -647.0 | -2,269.2 | 1,893.0 | 1,739.5 | 153.51 | 12.332 | |
| 10,000.0 | 7,082.5 | 10,024.5 | 7,170.4 | 79.7 | 79.8 | -92.69 | -647.0 | -2,369.2 | 1,893.0 | 1,734.1 | 158.93 | 11.911 | |
| 10,100.0 | 7,082.3 | 10,124.5 | 7,170.1 | 82.5 | 82.5 | -92.69 | -647.0 | -2,469.2 | 1,893.0 | 1,728.6 | 164.37 | 11.517 | |
| 10,200.0 | 7,082.1 | 10,224.5 | 7,169.7 | 85.2 | 85.3 | -92.68 | -647.0 | -2,569.2 | 1,893.0 | 1,723.2 | 169.82 | 11.147 | |
| 10,300.0 | 7,081.9 | 10,324.5 | 7,169.4 | 87.9 | 88.0 | -92.68 | -647.0 | -2,669.2 | 1,893.0 | 1,717.7 | 175.27 | 10.800 | |
| 10,400.0 | 7,081.7 | 10,424.5 | 7,169.0 | 90.6 | 90.7 | -92.67 | -647.0 | -2,769.2 | 1,893.0 | 1,712.3 | 180.74 | 10.474 | |
| 10,500.0 | 7,081.5 | 10,524.5 | 7,168.6 | 93.3 | 93.5 | -92.67 | -647.0 | -2,869.2 | 1,893.0 | 1,706.8 | 186.22 | 10.166 | |
| 10,600.0 | 7,081.3 | 10,624.5 | 7,168.3 | 96.1 | 96.2 | -92.66 | -647.0 | -2,969.2 | 1,893.0 | 1,701.3 | 191.70 | 9.875 | |
| 10,700.0 | 7,081.1 | 10,724.5 | 7,167.9 | 98.8 | 99.0 | -92.66 | -647.0 | -3,069.2 | 1,893.0 | 1,695.8 | 197.19 | 9.600 | |
| 10,800.0 | 7,080.9 | 10,824.5 | 7,167.5 | 101.5 | 101.7 | -92.65 | -647.0 | -3,169.2 | 1,893.0 | 1,690.3 | 202.69 | 9.339 | |
| 10,900.0 | 7,080.7 | 10,924.5 | 7,167.2 | 104.3 | 104.5 | -92.65 | -647.0 | -3,269.2 | 1,892.9 | 1,684.8 | 208.19 | 9.092 | |
| 11,000.0 | 7,080.5 | 11,024.5 | 7,166.8 | 107.0 | 107.2 | -92.64 | -647.0 | -3,369.2 | 1,892.9 | 1,679.2 | 213.70 | 8.858 | |
| 11,100.0 | 7,080.3 | 11,124.5 | 7,166.4 | 109.8 | 110.0 | -92.64 | -647.0 | -3,469.2 | 1,892.9 | 1,673.7 | 219.22 | 8.635 | |
| 11,200.0 | 7,080.1 | 11,224.5 | 7,166.1 | 112.5 | 112.8 | -92.63 | -647.0 | -3,569.2 | 1,892.9 | 1,668.2 | 224.73 | 8.423 | |
| 11,300.0 | 7,079.9 | 11,324.5 | 7,165.7 | 115.3 | 115.5 | -92.63 | -647.0 | -3,669.2 | 1,892.9 | 1,662.7 | 230.26 | 8.221 | |
| 11,400.0 | 7,079.7 | 11,424.5 | 7,165.4 | 118.0 | 118.3 | -92.62 | -647.0 | -3,769.2 | 1,892.9 | 1,657.1 | 235.79 | 8.028 | |
| 11,500.0 | 7,079.5 | 11,524.5 | 7,165.0 | 120.8 | 121.1 | -92.62 | -647.0 | -3,869.2 | 1,892.9 | 1,651.6 | 241.32 | 7.844 | |
| 11,600.0 | 7,079.3 | 11,624.5 | 7,164.6 | 123.6 | 123.8 | -92.61 | -647.0 | -3,969.2 | 1,892.9 | 1,646.0 | 246.86 | 7.668 | |
| 11,700.0 | 7,079.1 | 11,724.5 | 7,164.3 | 126.3 | 126.6 | -92.61 | -647.0 | -4,069.2 | 1,892.9 | 1,640.5 | 252.39 | 7.500 | |
| 11,762.6 | 7,079.0 | 11,787.2 | 7,164.1 | 128.1 | 128.3 | -92.61 | -647.0 | -4,131.9 | 1,892.9 | 1,637.0 | 255.87 | 7.398 | |
| 11,800.0 | 7,078.9 | 11,802.2 | 7,164.0 | 129.1 | 128.8 | -92.61 | -647.0 | -4,146.9 | 1,893.0 | 1,635.7 | 257.32 | 7.357 | |
| 11,900.0 | 7,078.7 | 11,802.2 | 7,164.0 | 131.9 | 128.8 | -92.61 | -647.0 | -4,146.9 | 1,896.8 | 1,636.7 | 260.09 | 7.293 | |
| 12,000.0 | 7,078.5 | 11,802.2 | 7,164.0 | 134.6 | 128.8 | -92.61 | -647.0 | -4,146.9 | 1,905.9 | 1,643.0 | 262.86 | 7.250 | |
| 12,100.0 | 7,078.3 | 11,802.2 | 7,164.0 | 137.4 | 128.8 | -92.61 | -647.0 | -4,146.9 | 1,920.1 | 1,654.5 | 265.63 | 7.228 | |
| 12,200.0 | 7,078.1 | 11,802.2 | 7,164.0 | 140.2 | 128.8 | -92.61 | -647.0 | -4,146.9 | 1,939.4 | 1,671.0 | 268.41 | 7.225 | SF |
| 12,300.0 | 7,077.9 | 11,802.2 | 7,164.0 | 142.9 | 128.8 | -92.61 | -647.0 | -4,146.9 | 1,963.6 | 1,692.4 | 271.19 | 7.241 | |
| 12,400.0 | 7,077.7 | 11,802.2 | 7,164.0 | 145.7 | 128.8 | -92.61 | -647.0 | -4,146.9 | 1,992.5 | 1,718.5 | 273.96 | 7.273 | |
| 12,500.0 | 7,077.5 | 11,802.2 | 7,164.0 | 148.5 | 128.8 | -92.61 | -647.0 | -4,146.9 | 2,026.0 | 1,749.2 | 276.74 | 7.321 | |
| 12,600.0 | 7,077.3 | 11,802.2 | 7,164.0 | 151.3 | 128.8 | -92.61 | -647.0 | -4,146.9 | 2,063.7 | 1,784.2 | 279.52 | 7.383 | |
| 12,700.0 | 7,077.1 | 11,802.2 | 7,164.0 | 154.0 | 128.8 | -92.61 | -647.0 | -4,146.9 | 2,105.6 | 1,823.3 | 282.30 | 7.459 | |
| 12,800.0 | 7,076.9 | 11,802.2 | 7,164.0 | 156.8 | 128.8 | -92.61 | -647.0 | -4,146.9 | 2,151.2 | 1,866.1 | 285.08 | 7.546 | |
| 12,900.0 | 7,076.7 | 11,802.2 | 7,164.0 | 159.6 | 128.8 | -92.61 | -647.0 | -4,146.9 | 2,200.5 | 1,912.6 | 287.87 | 7.644 | |
| 13,000.0 | 7,076.5 | 11,802.2 | 7,164.0 | 162.4 | 128.8 | -92.61 | -647.0 | -4,146.9 | 2,253.1 | 1,962.5 | 290.65 | 7.752 | |
| 13,100.0 | 7,076.3 | 11,802.2 | 7,164.0 | 165.2 | 128.8 | -92.61 | -647.0 | -4,146.9 | 2,308.9 | 2,015.5 | 293.43 | 7.869 | |
| 13,200.0 | 7,076.1 | 11,802.2 | 7,164.0 | 168.0 | 128.8 | -92.61 | -647.0 | -4,146.9 | 2,367.6 | 2,071.4 | 296.22 | 7.993 | |
| 13,300.0 | 7,075.9 | 11,802.2 | 7,164.0 | 170.7 | 128.8 | -92.61 | -647.0 | -4,146.9 | 2,429.0 | 2,130.0 | 299.00 | 8.124 | |
| 13,400.0 | 7,075.7 | 11,802.2 | 7,164.0 | 173.5 | 128.8 | -92.60 | -647.0 | -4,146.9 | 2,492.9 | 2,191.1 | 301.79 | 8.260 | |
| 13,500.0 | 7,075.5 | 11,802.2 | 7,164.0 | 176.3 | 128.8 | -92.60 | -647.0 | -4,146.9 | 2,559.1 | 2,254.5 | 304.58 | 8.402 | |
| 13,600.0 | 7,075.3 | 11,802.2 | 7,164.0 | 179.1 | 128.8 | -92.60 | -647.0 | -4,146.9 | 2,627.4 | 2,320.0 | 307.36 | 8.548 | |
| 13,700.0 | 7,075.1 | 11,802.2 | 7,164.0 | 181.9 | 128.8 | -92.60 | -647.0 | -4,146.9 | 2,697.7 | 2,387.6 | 310.15 | 8.698 | |

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

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** SE SW SEC. 21 T4N R67W 6th P.M. - WALTERS 21P-314 - ORIGINAL WELLBORE - PROPOSAL #1 — **Offset Site Error:** 0.0 usft

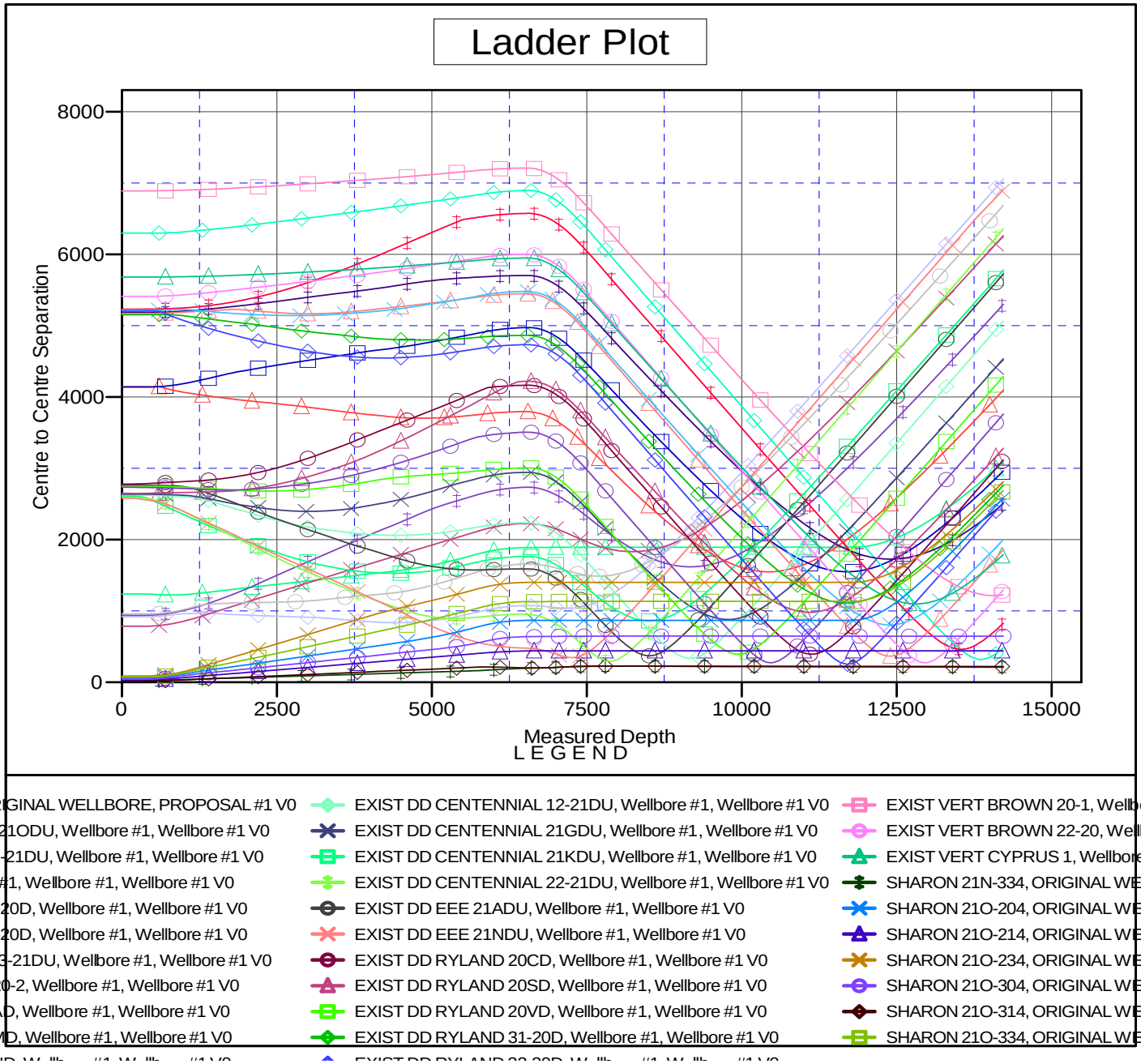
**Survey Program:** 0-MWD — **Offset Well Error:** 0.0 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13,800.0 | 7,074.9 | 11,802.2 | 7,164.0 | 184.7 | 128.8 | -92.60 | -647.0 | -4,146.9 | 2,769.9 | 2,456.9 | 312.94 | 8.851 | |
| 13,900.0 | 7,074.7 | 11,802.2 | 7,164.0 | 187.5 | 128.8 | -92.60 | -647.0 | -4,146.9 | 2,843.7 | 2,528.0 | 315.73 | 9.007 | |
| 14,000.0 | 7,074.5 | 11,802.2 | 7,164.0 | 190.2 | 128.8 | -92.60 | -647.0 | -4,146.9 | 2,919.1 | 2,600.6 | 318.52 | 9.165 | |
| 14,100.0 | 7,074.2 | 11,802.2 | 7,164.0 | 193.0 | 128.8 | -92.60 | -647.0 | -4,146.9 | 2,995.9 | 2,674.6 | 321.31 | 9.324 | |
| 14,200.0 | 7,074.0 | 11,802.2 | 7,164.0 | 195.8 | 128.8 | -92.60 | -647.0 | -4,146.9 | 3,074.1 | 2,750.0 | 324.10 | 9.485 | |
| 14,221.4 | 7,074.0 | 11,802.2 | 7,164.0 | 196.4 | 128.8 | -92.60 | -647.0 | -4,146.9 | 3,090.9 | 2,766.2 | 324.70 | 9.520 | |

| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

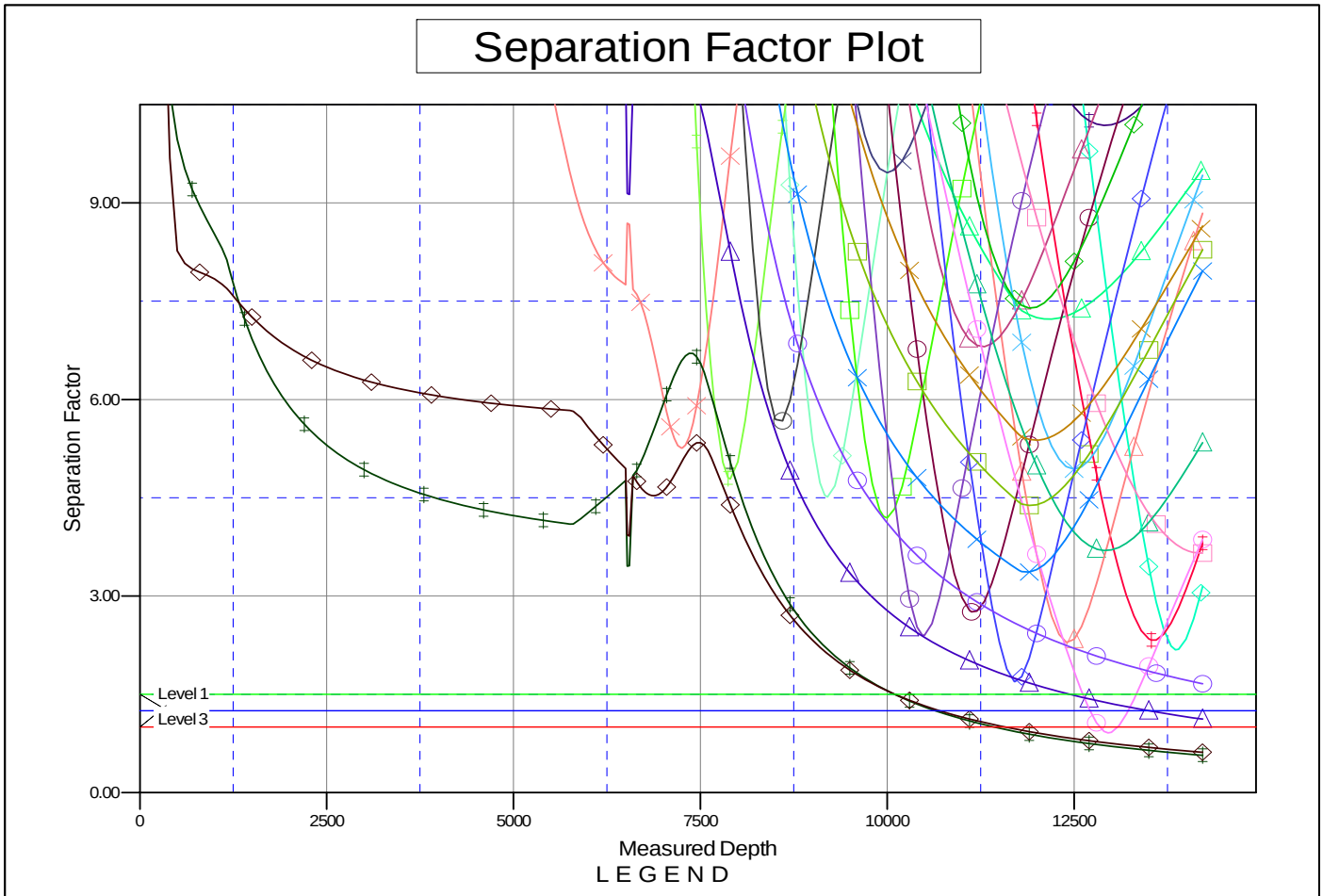
Reference Depths are relative to KB-EST @ 4951.5usft (Original Well E
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: SHARON 21N-234
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.39°



| | | | |
|---|---|---|---|
| **Company:** | PDC ENERGY | **Local Co-ordinate Reference:** | Well SHARON 21N-234 |
| **Project:** | WELD COUNTY, COLORADO | **TVD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Reference Site:** | NE SW SEC. 21 T4N R67W 6th P.M. | **MD Reference:** | KB-EST @ 4951.5usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | True |
| **Reference Well:** | SHARON 21N-234 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | ORIGINAL WELLBORE | **Database:** | EDM 5000.1 Single User Db |
| **Reference Design:** | PROPOSAL #1 | **Offset TVD Reference:** | Offset Datum |

Reference Depths are relative to KB-EST @ 4951.5usft (Original Well E
Coordinates are relative to: SHARON 21N-234
Offset Depths are relative to Offset Datum
Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000
Grid Convergence at Surface is: 0.39°




RIGINAL WELLBORE, PROPOSAL #1 V0
#21ODU, Wellbore #1, Wellbore #1 V0
3-21DU, Wellbore #1, Wellbore #1 V0
J #1, Wellbore #1, Wellbore #1 V0
3-20D, Wellbore #1, Wellbore #1 V0
3-20D, Wellbore #1, Wellbore #1 V0
23-21DU, Wellbore #1, Wellbore #1 V0
20-2, Wellbore #1, Wellbore #1 V0
AD, Wellbore #1, Wellbore #1 V0
MD, Wellbore #1, Wellbore #1 V0
EXIST DD CENTENNIAL 12-21DU, Wellbore #1, Wellbore #1 V0
EXIST DD CENTENNIAL 21GDU, Wellbore #1, Wellbore #1 V0
EXIST DD CENTENNIAL 21KDU, Wellbore #1, Wellbore #1 V0
EXIST DD CENTENNIAL 22-21DU, Wellbore #1, Wellbore #1 V0
EXIST DD EEE 21ADU, Wellbore #1, Wellbore #1 V0
EXIST DD EEE 21NDU, Wellbore #1, Wellbore #1 V0
EXIST DD RYLAND 20CD, Wellbore #1, Wellbore #1 V0
EXIST DD RYLAND 20SD, Wellbore #1, Wellbore #1 V0
EXIST DD RYLAND 20VD, Wellbore #1, Wellbore #1 V0
EXIST DD RYLAND 31-20D, Wellbore #1, Wellbore #1 V0
EXIST VERT BROWN 20-1, Wellbo
EXIST VERT BROWN 22-20, Wellb
EXIST VERT CYPRUS 1, Wellbore
SHARON 21N-334, ORIGINAL WEL
SHARON 21O-204, ORIGINAL WEL
SHARON 21O-214, ORIGINAL WEL
SHARON 21O-234, ORIGINAL WEL
SHARON 21O-304, ORIGINAL WEL
SHARON 21O-314, ORIGINAL WEL
SHARON 21O-334, ORIGINAL WEL