Gyroscopic Survey Report for:
KP KAUFMAN
1675 BROADWAY SUITE 2800
DENVER, CO 80202

Well Locati WELD, CO
Well Name RMF 15-9
Rig Name: NA
Survey Dat 1/4/2011
Latitude: 40.06 deg
North Refe True North
Grid Correc 0.00 deg
Depth Refe GL
Calculation Minimum Curvature
Section (VS 0.00N (ft), 0.00E (ft), 282.87Azim (deg)
Definitive S Computed from RMF159.BIN's HighSpeed: OutRun
Operator: P HOLBROOK

| Measured I | Inclination | Azimuth [d | True Vertic | Vertical Se | Northing (L | Easting (De | Dog Leg Se | Closure Dis |
|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | Invalid | 0 |
| 98.79 | 0.24 | 226.34 | 98.79 | 0.11 | -0.14 | -0.15 | 0.24 | 0.21 |
| 124.03 | 0.25 | 249.93 | 124.03 | 0.19 | -0.2 | -0.24 | 0.4 | 0.31 |
| 149.38 | 0.27 | 256.87 | 149.38 | 0.29 | -0.23 | -0.35 | 0.15 | 0.42 |
| 174.92 | 0.13 | 238.16 | 174.92 | 0.36 | -0.26 | -0.43 | 0.61 | 0.5 |
| 199.58 | 0.22 | 255.82 | 199.58 | 0.43 | -0.29 | -0.5 | 0.42 | 0.58 |
| 224.76 | 0.21 | 253.59 | 224.76 | 0.51 | -0.31 | -0.59 | 0.04 | 0.67 |
| 248.96 | 0.24 | 245.06 | 248.96 | 0.59 | -0.34 | -0.68 | 0.17 | 0.76 |
| 274.96 | 0.34 | 258.61 | 274.96 | 0.7 | -0.38 | -0.81 | 0.47 | 0.89 |
| 299.6 | 0.39 | 261.81 | 299.6 | 0.85 | -0.41 | -0.96 | 0.2 | 1.04 |
| 323.74 | 0.39 | 260.85 | 323.74 | 1 | -0.43 | -1.12 | 0.03 | 1.2 |
| 349.36 | 0.37 | 258.1 | 349.36 | 1.15 | -0.46 | -1.29 | 0.11 | 1.37 |
| 374.17 | 0.35 | 258.28 | 374.17 | 1.3 | -0.5 | -1.44 | 0.08 | 1.53 |
| 398.89 | 0.32 | 252.25 | 398.88 | 1.42 | -0.53 | -1.58 | 0.19 | 1.67 |
| 424.51 | 0.37 | 247.91 | 424.51 | 1.55 | -0.59 | -1.73 | 0.24 | 1.82 |
| 448.78 | 0.42 | 254.58 | 448.77 | 1.7 | -0.64 | -1.88 | 0.26 | 1.99 |
| 474.74 | 0.4 | 241.91 | 474.73 | 1.85 | -0.71 | -2.06 | 0.35 | 2.17 |
| 499.73 | 0.43 | 251.03 | 499.72 | 1.99 | -0.78 | -2.22 | 0.29 | 2.35 |
| 523.33 | 0.42 | 250.82 | 523.33 | 2.14 | -0.84 | -2.39 | 0.02 | 2.53 |
| 549.65 | 0.44 | 257.78 | 549.64 | 2.32 | -0.89 | -2.58 | 0.22 | 2.73 |
| 574.54 | 0.45 | 257.96 | 574.53 | 2.49 | -0.93 | -2.77 | 0.03 | 2.92 |
| 598.79 | 0.43 | 262.52 | 598.78 | 2.67 | -0.96 | -2.95 | 0.16 | 3.11 |
| 624.31 | 0.4 | 267.58 | 624.3 | 2.84 | -0.98 | -3.14 | 0.21 | 3.29 |
| 648.97 | 0.47 | 277.22 | 648.96 | 3.02 | -0.97 | -3.32 | 0.42 | 3.46 |
| 674.94 | 0.31 | 261.42 | 674.93 | 3.2 | -0.97 | -3.5 | 0.72 | 3.63 |
| 698.84 | 0.34 | 270.89 | 698.83 | 3.33 | -0.98 | -3.63 | 0.24 | 3.76 |
| 723.66 | 0.33 | 274.33 | 723.65 | 3.47 | -0.97 | -3.78 | 0.08 | 3.9 |
| 749.04 | 0.37 | 274.97 | 749.03 | 3.62 | -0.96 | -3.93 | 0.12 | 4.05 |

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|---|---|---|---|---|---|---|---|---|
| 774.22 | 0.37 | 273.53 | 774.2 | 3.78 | -0.94 | -4.09 | 0.04 | 4.2 |
| 799.77 | 0.52 | 266.68 | 799.76 | 3.97 | -0.95 | -4.29 | 0.64 | 4.39 |
| 824.61 | 0.85 | 272.13 | 824.6 | 4.26 | -0.95 | -4.59 | 1.34 | 4.69 |
| 849.27 | 0.76 | 269.55 | 849.25 | 4.6 | -0.94 | -4.94 | 0.39 | 5.02 |
| 874.84 | 0.79 | 273.38 | 874.82 | 4.94 | -0.93 | -5.28 | 0.23 | 5.36 |
| 898.84 | 0.89 | 273.31 | 898.82 | 5.29 | -0.91 | -5.63 | 0.41 | 5.7 |
| 924.15 | 0.88 | 270.38 | 924.12 | 5.67 | -0.9 | -6.02 | 0.18 | 6.09 |
| 949 | 0.99 | 276.27 | 948.98 | 6.07 | -0.87 | -6.42 | 0.58 | 6.48 |
| 974.01 | 0.94 | 272.05 | 973.98 | 6.48 | -0.84 | -6.84 | 0.33 | 6.89 |
| 999.47 | 1.06 | 274.54 | 999.44 | 6.92 | -0.82 | -7.29 | 0.5 | 7.33 |
| 1024.81 | 1.06 | 282.57 | 1024.77 | 7.39 | -0.75 | -7.75 | 0.59 | 7.79 |
| 1048.6 | 1.1 | 281.63 | 1048.55 | 7.84 | -0.65 | -8.19 | 0.17 | 8.21 |
| 1073.53 | 1.12 | 280.79 | 1073.48 | 8.32 | -0.56 | -8.66 | 0.1 | 8.68 |
| 1099.19 | 1.08 | 280.02 | 1099.13 | 8.81 | -0.47 | -9.14 | 0.16 | 9.16 |
| 1124.8 | 1.12 | 284.41 | 1124.74 | 9.3 | -0.37 | -9.62 | 0.37 | 9.63 |
| 1149.1 | 1.16 | 281.62 | 1149.04 | 9.78 | -0.26 | -10.09 | 0.28 | 10.1 |
| 1173.91 | 1.15 | 280.93 | 1173.84 | 10.28 | -0.16 | -10.59 | 0.07 | 10.59 |
| 1198.83 | 1.2 | 282.08 | 1198.76 | 10.8 | -0.06 | -11.09 | 0.23 | 11.09 |
| 1224.22 | 1.23 | 282.57 | 1224.14 | 11.33 | 0.06 | -11.61 | 0.1 | 11.61 |
| 1249.56 | 1.24 | 282.41 | 1249.47 | 11.88 | 0.17 | -12.15 | 0.04 | 12.15 |
| 1274.23 | 1.22 | 283.38 | 1274.13 | 12.41 | 0.29 | -12.66 | 0.1 | 12.67 |
| 1299.69 | 1.25 | 279.52 | 1299.59 | 12.96 | 0.4 | -13.2 | 0.34 | 13.21 |
| 1324.75 | 1.27 | 284.13 | 1324.64 | 13.51 | 0.51 | -13.74 | 0.41 | 13.75 |
| 1348.91 | 1.33 | 284.63 | 1348.8 | 14.05 | 0.65 | -14.27 | 0.23 | 14.28 |
| 1374.61 | 1.37 | 284.54 | 1374.49 | 14.66 | 0.8 | -14.85 | 0.17 | 14.87 |
| 1399.57 | 1.32 | 285.58 | 1399.44 | 15.24 | 0.95 | -15.42 | 0.24 | 15.45 |
| 1424.01 | 1.29 | 284.91 | 1423.88 | 15.8 | 1.1 | -15.95 | 0.14 | 15.99 |
| 1447.39 | 1.56 | 285.34 | 1447.25 | 16.38 | 1.25 | -16.51 | 1.16 | 16.56 |
| 1450.2 | 1.28 | 282.19 | 1450.06 | 16.45 | 1.27 | -16.58 | 10.28 | 16.63 |
| 1474.92 | 0.61 | 258.6 | 1474.78 | 16.84 | 1.3 | -16.98 | 3.08 | 17.03 |
| 1499.85 | 1.3 | 284.1 | 1499.7 | 17.25 | 1.34 | -17.39 | 3.19 | 17.44 |
| 1524.48 | 1.35 | 283.01 | 1524.32 | 17.82 | 1.48 | -17.94 | 0.22 | 18 |
| 1549.93 | 1.2 | 283.63 | 1549.78 | 18.38 | 1.61 | -18.49 | 0.62 | 18.56 |
| 1573.91 | 1.25 | 284.06 | 1573.75 | 18.9 | 1.73 | -18.99 | 0.21 | 19.07 |
| 1599.8 | 1.31 | 287.37 | 1599.63 | 19.47 | 1.89 | -19.54 | 0.37 | 19.63 |
| 1623.8 | 0.96 | 282.42 | 1623.63 | 19.94 | 2.01 | -20 | 1.49 | 20.1 |
| 1649.12 | 1.21 | 290.63 | 1648.94 | 20.42 | 2.15 | -20.46 | 1.15 | 20.57 |
| 1674.91 | 1.33 | 291.5 | 1674.72 | 20.99 | 2.36 | -20.99 | 0.47 | 21.12 |
| 1698.8 | 1.21 | 292.01 | 1698.61 | 21.51 | 2.55 | -21.48 | 0.52 | 21.63 |
| 1724.02 | 1.32 | 292.81 | 1723.82 | 22.05 | 2.76 | -21.99 | 0.44 | 22.16 |
| 1749.71 | 1.4 | 294.9 | 1749.51 | 22.65 | 3.01 | -22.55 | 0.4 | 22.75 |
| 1774.76 | 1.42 | 295.58 | 1774.54 | 23.26 | 3.27 | -23.11 | 0.1 | 23.34 |
| 1798.68 | 1.5 | 294.38 | 1798.46 | 23.85 | 3.53 | -23.66 | 0.33 | 23.92 |
| 1824.33 | 1.43 | 296.42 | 1824.1 | 24.49 | 3.81 | -24.25 | 0.33 | 24.55 |
| 1849.45 | 1.38 | 297.3 | 1849.22 | 25.09 | 4.09 | -24.8 | 0.2 | 25.13 |
| 1874.58 | 1.43 | 296.95 | 1874.34 | 25.69 | 4.37 | -25.35 | 0.21 | 25.72 |
| 1898.89 | 1.48 | 297.38 | 1898.64 | 26.29 | 4.65 | -25.9 | 0.22 | 26.31 |

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|---|---|---|---|---|---|---|---|---|
| 1924.38 | 1.41 | 296.07 | 1924.12 | 26.91 | 4.94 | -26.48 | 0.3 | 26.93 |
| 1949.98 | 1.52 | 297.52 | 1949.71 | 27.55 | 5.24 | -27.06 | 0.42 | 27.56 |
| 1974.72 | 1.56 | 295.81 | 1974.45 | 28.19 | 5.54 | -27.65 | 0.26 | 28.2 |
| 1998.83 | 1.45 | 296.4 | 1998.55 | 28.81 | 5.82 | -28.22 | 0.45 | 28.82 |
| 2024.29 | 1.48 | 294.35 | 2024 | 29.44 | 6.09 | -28.81 | 0.23 | 29.45 |
| 2049.03 | 1.52 | 293.38 | 2048.73 | 30.08 | 6.36 | -29.4 | 0.19 | 30.08 |
| 2074.65 | 1.48 | 296.76 | 2074.34 | 30.74 | 6.64 | -30.01 | 0.37 | 30.74 |
| 2098.71 | 1.32 | 292.08 | 2098.39 | 31.31 | 6.88 | -30.55 | 0.83 | 31.31 |
| 2124.82 | 1.2 | 296.07 | 2124.5 | 31.88 | 7.12 | -31.07 | 0.56 | 31.88 |
| 2148.34 | 1.23 | 295.02 | 2148.01 | 32.36 | 7.33 | -31.52 | 0.14 | 32.36 |
| 2174.06 | 1.07 | 287.32 | 2173.73 | 32.87 | 7.52 | -32 | 0.85 | 32.87 |
| 2199.4 | 1.1 | 283.88 | 2199.06 | 33.35 | 7.65 | -32.46 | 0.27 | 33.35 |
| 2224.53 | 1.06 | 280.23 | 2224.19 | 33.83 | 7.75 | -32.93 | 0.3 | 33.83 |
| 2249.28 | 0.88 | 278.38 | 2248.93 | 34.25 | 7.82 | -33.34 | 0.73 | 34.25 |
| 2274.95 | 0.83 | 268.29 | 2274.6 | 34.62 | 7.84 | -33.72 | 0.62 | 34.62 |
| 2299.94 | 0.96 | 240.57 | 2299.59 | 34.95 | 7.73 | -34.09 | 1.79 | 34.95 |
| 2323.61 | 0.87 | 235.84 | 2323.25 | 35.22 | 7.53 | -34.41 | 0.51 | 35.23 |
| 2349.09 | 1.04 | 233.81 | 2348.73 | 35.51 | 7.29 | -34.76 | 0.7 | 35.51 |
| 2373.96 | 1.09 | 219.04 | 2373.6 | 35.76 | 6.97 | -35.09 | 1.12 | 35.78 |
| 2398.83 | 1.14 | 216.92 | 2398.47 | 35.97 | 6.59 | -35.39 | 0.25 | 36 |
| 2424.13 | 1.11 | 216.97 | 2423.76 | 36.17 | 6.19 | -35.69 | 0.09 | 36.22 |
| 2449.37 | 1.13 | 212.5 | 2448.99 | 36.35 | 5.79 | -35.97 | 0.36 | 36.43 |
| 2473.62 | 1.18 | 217.51 | 2473.23 | 36.54 | 5.39 | -36.25 | 0.46 | 36.65 |
| 2498.95 | 1.14 | 222.71 | 2498.57 | 36.77 | 4.99 | -36.58 | 0.45 | 36.92 |
| 2524.38 | 1.16 | 235.23 | 2523.98 | 37.07 | 4.66 | -36.96 | 0.99 | 37.26 |
| 2549.07 | 1.14 | 238.68 | 2548.67 | 37.42 | 4.39 | -37.38 | 0.3 | 37.64 |
| 2573.93 | 1.12 | 250.45 | 2573.52 | 37.8 | 4.18 | -37.82 | 0.94 | 38.05 |
| 2599.16 | 1.07 | 264.23 | 2598.76 | 38.23 | 4.07 | -38.29 | 1.06 | 38.5 |
| 2623.86 | 1.06 | 275.35 | 2623.44 | 38.68 | 4.07 | -38.74 | 0.84 | 38.96 |
| 2649.93 | 1.01 | 280.29 | 2649.51 | 39.15 | 4.13 | -39.21 | 0.38 | 39.43 |
| 2673.75 | 1.04 | 296.17 | 2673.33 | 39.57 | 4.27 | -39.61 | 1.19 | 39.84 |
| 2698.84 | 0.95 | 305.2 | 2698.41 | 39.98 | 4.49 | -39.98 | 0.72 | 40.23 |
| 2724.77 | 0.98 | 314.46 | 2724.34 | 40.36 | 4.76 | -40.32 | 0.61 | 40.6 |
| 2749.17 | 1.01 | 327.17 | 2748.74 | 40.7 | 5.09 | -40.58 | 0.91 | 40.9 |
| 2774.18 | 1.01 | 329.88 | 2773.74 | 41 | 5.47 | -40.81 | 0.19 | 41.18 |
| 2798.76 | 0.92 | 328.66 | 2798.32 | 41.29 | 5.82 | -41.02 | 0.4 | 41.43 |
| 2824.54 | 1.01 | 333.19 | 2824.1 | 41.58 | 6.2 | -41.23 | 0.47 | 41.7 |
| 2849.6 | 1.08 | 328.96 | 2849.16 | 41.89 | 6.6 | -41.46 | 0.41 | 41.98 |
| 2874.55 | 1.13 | 329.01 | 2874.1 | 42.22 | 7.02 | -41.7 | 0.18 | 42.29 |
| 2899.91 | 1.08 | 327.72 | 2899.46 | 42.56 | 7.43 | -41.96 | 0.2 | 42.61 |
| 2923.72 | 0.95 | 325.52 | 2923.26 | 42.87 | 7.79 | -42.19 | 0.57 | 42.91 |
| 2949.51 | 0.92 | 324.36 | 2949.05 | 43.18 | 8.13 | -42.43 | 0.15 | 43.21 |
| 2974.12 | 0.83 | 321.85 | 2973.65 | 43.47 | 8.43 | -42.66 | 0.38 | 43.49 |
| 2999.58 | 0.89 | 319.89 | 2999.11 | 43.77 | 8.73 | -42.9 | 0.25 | 43.78 |
| 3023.76 | 0.94 | 312.84 | 3023.29 | 44.09 | 9.01 | -43.17 | 0.5 | 44.1 |
| 3049.78 | 0.86 | 305.74 | 3049.31 | 44.45 | 9.27 | -43.48 | 0.52 | 44.46 |
| 3074.18 | 0.74 | 307.01 | 3073.71 | 44.77 | 9.47 | -43.76 | 0.48 | 44.77 |

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|---|---|---|---|---|---|---|---|---|
| 3099.79 | 0.97 | 297.06 | 3099.31 | 45.13 | 9.67 | -44.08 | 1.04 | 45.13 |
| 3124.93 | 1.09 | 306.03 | 3124.44 | 45.55 | 9.9 | -44.46 | 0.81 | 45.55 |
| 3149.59 | 1.13 | 325.31 | 3149.1 | 45.95 | 10.24 | -44.79 | 1.51 | 45.95 |
| 3174.27 | 1.1 | 322.55 | 3173.78 | 46.31 | 10.63 | -45.07 | 0.24 | 46.31 |
| 3199.2 | 1.12 | 338.71 | 3198.7 | 46.63 | 11.05 | -45.31 | 1.25 | 46.64 |
| 3224.27 | 1.69 | 349.67 | 3223.77 | 46.91 | 11.64 | -45.46 | 2.52 | 46.93 |
| 3249.18 | 1.82 | 346.46 | 3248.67 | 47.24 | 12.39 | -45.62 | 0.65 | 47.27 |
| 3274.19 | 1.92 | 343.47 | 3273.65 | 47.62 | 13.17 | -45.83 | 0.54 | 47.69 |
| 3299.89 | 1.94 | 344.6 | 3299.34 | 48.03 | 14.01 | -46.07 | 0.18 | 48.15 |
| 3324.33 | 1.95 | 345.93 | 3323.77 | 48.42 | 14.81 | -46.28 | 0.19 | 48.59 |
| 3349.39 | 1.83 | 339.08 | 3348.82 | 48.83 | 15.59 | -46.53 | 1.02 | 49.07 |
| 3373.92 | 1.69 | 338.12 | 3373.34 | 49.26 | 16.3 | -46.8 | 0.56 | 49.56 |
| 3399.69 | 1.67 | 332.44 | 3399.09 | 49.72 | 16.98 | -47.12 | 0.65 | 50.09 |
| 3424.5 | 1.62 | 327.52 | 3423.9 | 50.2 | 17.6 | -47.48 | 0.6 | 50.63 |
| 3449.24 | 1.59 | 323.61 | 3448.63 | 50.71 | 18.17 | -47.87 | 0.47 | 51.2 |
| 3473.86 | 1.54 | 317.62 | 3473.24 | 51.24 | 18.69 | -48.29 | 0.69 | 51.78 |
| 3499.44 | 1.54 | 310.55 | 3498.81 | 51.83 | 19.17 | -48.79 | 0.74 | 52.42 |
| 3524.37 | 1.5 | 307.61 | 3523.73 | 52.42 | 19.59 | -49.3 | 0.36 | 53.05 |
| 3549.48 | 1.46 | 306.82 | 3548.83 | 53.01 | 19.98 | -49.82 | 0.18 | 53.67 |
| 3573.52 | 1.34 | 303.07 | 3572.86 | 53.56 | 20.31 | -50.3 | 0.63 | 54.24 |
| 3599.81 | 1.21 | 299.89 | 3599.15 | 54.11 | 20.62 | -50.79 | 0.56 | 54.82 |
| 3624.53 | 1.04 | 298.19 | 3623.86 | 54.57 | 20.86 | -51.22 | 0.7 | 55.3 |
| 3648.85 | 0.85 | 296.91 | 3648.18 | 54.96 | 21.04 | -51.57 | 0.76 | 55.7 |
| 3674.45 | 0.63 | 284.38 | 3673.77 | 55.29 | 21.16 | -51.88 | 1.08 | 56.03 |
| 3699.18 | 0.37 | 279.38 | 3698.5 | 55.5 | 21.21 | -52.09 | 1.07 | 56.24 |
| 3723.98 | 0.34 | 271.83 | 3723.31 | 55.66 | 21.22 | -52.24 | 0.23 | 56.39 |
| 3749.42 | 0.32 | 247.02 | 3748.75 | 55.79 | 21.2 | -52.38 | 0.56 | 56.51 |
| 3774.8 | 0.27 | 236.12 | 3774.13 | 55.89 | 21.14 | -52.5 | 0.31 | 56.59 |
| 3799.44 | 0.25 | 209.25 | 3798.76 | 55.94 | 21.06 | -52.57 | 0.5 | 56.63 |
| 3823.81 | 0.21 | 215.68 | 3823.13 | 55.97 | 20.98 | -52.62 | 0.18 | 56.65 |
| 3849.48 | 0.32 | 203.03 | 3848.8 | 56 | 20.87 | -52.68 | 0.46 | 56.66 |
| 3875 | 0.38 | 195.53 | 3874.32 | 56.02 | 20.73 | -52.73 | 0.31 | 56.66 |
| 3899.65 | 0.41 | 201.16 | 3898.97 | 56.04 | 20.57 | -52.78 | 0.19 | 56.65 |
| 3924.66 | 0.38 | 205.53 | 3923.98 | 56.07 | 20.41 | -52.85 | 0.16 | 56.65 |
| 3949.14 | 0.46 | 188.12 | 3948.46 | 56.08 | 20.24 | -52.9 | 0.6 | 56.64 |
| 3974.81 | 0.43 | 192.99 | 3974.13 | 56.07 | 20.04 | -52.94 | 0.18 | 56.6 |
| 3999.57 | 0.26 | 220.96 | 3998.89 | 56.1 | 19.91 | -52.99 | 0.94 | 56.61 |
| 4024.62 | 0.29 | 222.6 | 4023.94 | 56.15 | 19.82 | -53.07 | 0.11 | 56.65 |
| 4048.49 | 0.41 | 217.84 | 4047.81 | 56.22 | 19.71 | -53.17 | 0.5 | 56.7 |
| 4074.88 | 0.3 | 212.75 | 4074.19 | 56.28 | 19.58 | -53.26 | 0.43 | 56.74 |
| 4099.98 | 0.36 | 217.1 | 4099.3 | 56.34 | 19.46 | -53.34 | 0.27 | 56.78 |
| 4124.44 | 0.38 | 222.55 | 4123.75 | 56.41 | 19.34 | -53.44 | 0.17 | 56.84 |
| 4148.75 | 0.37 | 181.81 | 4148.07 | 56.43 | 19.2 | -53.5 | 1.08 | 56.84 |
| 4173.73 | 0.43 | 198.16 | 4173.04 | 56.43 | 19.03 | -53.53 | 0.51 | 56.82 |
| 4199.9 | 0.53 | 200.6 | 4199.22 | 56.45 | 18.82 | -53.61 | 0.4 | 56.82 |
| 4224.3 | 0.58 | 186.66 | 4223.62 | 56.45 | 18.59 | -53.66 | 0.59 | 56.79 |
| 4248.88 | 0.62 | 186.81 | 4248.19 | 56.43 | 18.34 | -53.69 | 0.14 | 56.74 |

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|---|---|---|---|---|---|---|---|---|
| 4274.31 | 0.78 | 190.89 | 4273.62 | 56.41 | 18.03 | -53.74 | 0.66 | 56.68 |
| 4298.58 | 0.89 | 191.56 | 4297.89 | 56.4 | 17.68 | -53.81 | 0.48 | 56.64 |
| 4324.15 | 1.09 | 191.73 | 4323.45 | 56.39 | 17.25 | -53.9 | 0.75 | 56.59 |
| 4348.87 | 1.12 | 191.14 | 4348.17 | 56.37 | 16.78 | -53.99 | 0.14 | 56.54 |
| 4373.65 | 1.02 | 194 | 4372.94 | 56.37 | 16.33 | -54.09 | 0.46 | 56.51 |
| 4399.12 | 0.92 | 197.46 | 4398.42 | 56.39 | 15.92 | -54.21 | 0.45 | 56.5 |
| 4424.86 | 0.68 | 204.44 | 4424.15 | 56.44 | 15.58 | -54.33 | 1.01 | 56.52 |
| 4449.64 | 0.45 | 219.62 | 4448.93 | 56.51 | 15.38 | -54.46 | 1.08 | 56.59 |
| 4474.38 | 0.51 | 229.9 | 4473.67 | 56.62 | 15.23 | -54.6 | 0.42 | 56.69 |
| 4499.57 | 0.56 | 246.5 | 4498.86 | 56.79 | 15.11 | -54.8 | 0.64 | 56.85 |
| 4524.61 | 0.63 | 249.76 | 4523.9 | 57.01 | 15.01 | -55.04 | 0.32 | 57.05 |
| 4548.73 | 0.71 | 251.46 | 4548.01 | 57.24 | 14.92 | -55.31 | 0.32 | 57.29 |
| 4574.51 | 0.84 | 250.26 | 4573.79 | 57.54 | 14.8 | -55.64 | 0.51 | 57.57 |
| 4598.35 | 0.88 | 247.35 | 4597.63 | 57.83 | 14.67 | -55.97 | 0.27 | 57.86 |
| 4623.51 | 0.99 | 245.73 | 4622.78 | 58.17 | 14.51 | -56.35 | 0.41 | 58.19 |
| 4649.24 | 0.85 | 236.08 | 4648.51 | 58.47 | 14.31 | -56.71 | 0.78 | 58.49 |
| 4674.93 | 0.73 | 240.92 | 4674.2 | 58.73 | 14.13 | -57.01 | 0.55 | 58.74 |
| 4699.18 | 0.76 | 239.64 | 4698.45 | 58.96 | 13.97 | -57.28 | 0.14 | 58.96 |
| 4723.93 | 0.83 | 240.42 | 4723.19 | 59.21 | 13.8 | -57.58 | 0.31 | 59.21 |
| 4749.03 | 0.72 | 251.24 | 4748.29 | 59.48 | 13.66 | -57.89 | 0.74 | 59.48 |
| 4774.15 | 0.79 | 244.44 | 4773.41 | 59.75 | 13.53 | -58.2 | 0.45 | 59.75 |
| 4798.97 | 0.54 | 242.07 | 4798.23 | 59.97 | 13.4 | -58.46 | 1 | 59.97 |
| 4807.06 | 0.54 | 242.05 | 4806.32 | 60.03 | 13.37 | -58.52 | 0 | 60.03 |

| Closure Angle [deg] |
|---|
| 0 |
| 226.34 |
| 230.39 |
| 236.59 |
| 239.06 |
| 240.37 |
| 242.38 |
| 243.22 |
| 244.65 |
| 246.96 |
| 248.89 |
| 250.2 |
| 251.01 |
| 251.39 |
| 251.27 |
| 251.28 |
| 251.03 |
| 250.69 |
| 250.71 |
| 250.98 |
| 251.44 |
| 251.96 |
| 252.68 |
| 253.74 |
| 254.56 |
| 254.98 |
| 255.62 |
| 256.34 |

257.01
257.57
258.35
259.21
260
260.81
261.51
262.25
262.98
263.61
264.5
265.44
266.3
267.05
267.82
268.54
269.13
269.7
270.28
270.83
271.33
271.74
272.15
272.61
273.09
273.54
273.95
274.34
274.38
274.38
274.42
274.71
274.97
275.21
275.51
275.74
276
276.41
276.78
277.16
277.61
278.06
278.49
278.93
279.36
279.78
280.19

280.58
280.96
281.32
281.64
281.94
282.2
282.48
282.7
282.9
283.1
283.23
283.26
283.24
283.2
283.09
282.78
282.35
281.84
281.24
280.55
279.85
279.14
278.45
277.77
277.18
276.7
276.31
276.07
276
276.02
276.15
276.4
276.74
277.15
277.63
278.08
278.56
279.05
279.55
280.05
280.46
280.85
281.18
281.5
281.79
282.03
282.21

282.37
282.56
282.88
283.27
283.7
284.36
285.19
286.04
286.91
287.74
288.53
289.2
289.82
290.34
290.79
291.16
291.45
291.67
291.85
291.99
292.09
292.16
292.2
292.19
292.16
292.11
292.03
291.93
291.83
291.73
291.61
291.46
291.29
291.11
290.94
290.74
290.59
290.48
290.34
290.18
290.04
289.89
289.74
289.57
289.35
289.11
288.86

288.55
288.19
287.75
287.27
286.8
286.37
286
285.77
285.58
285.41
285.25
285.09
284.9
284.69
284.44
284.16
283.92
283.71
283.48
283.27
283.09
282.91
282.87