



Company: WHITING PETROLEUM CORP

Lease/Well: VAN DER LINDEN/ 1

Rig Name: PRODUCTION/ CORETECH

State/County: COLORADO/WELD

Latitude: 40.858, Longitude: -103.939

Directions are relative to True North

VS-Azi: 0.000 Degrees



Depth Reference : RKB= GROUND LEVEL

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: run2-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 8/29/2014 / 16:22

VES Survey International

Henderson, CO

303-853-4976

Surveyor: Jay Hinman

Van Der Linden 1 / API 05-123-05784

| Measured Depth FT | Incl Angle Deg | Drift Direction Deg | TVD FT | +N/-S FT | +E/-W FT | Vertical Section FT | Closure Distance FT | Closure Direction Deg | Dogleg Severity Deg/100 |
|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | **** |
| 100.000 | 0.115 | 301.706 | 100.000 | 0.053 | -0.085 | 0.053 | 0.100 | 301.706 | 0.115 |
| 200.000 | 0.307 | 240.409 | 199.999 | -0.027 | -0.404 | -0.027 | 0.405 | 266.185 | 0.271 |
| 300.000 | 0.446 | 211.408 | 299.997 | -0.491 | -0.840 | -0.491 | 0.973 | 239.665 | 0.231 |
| 400.000 | 0.520 | 157.574 | 399.994 | -1.243 | -0.869 | -1.243 | 1.516 | 214.975 | 0.442 |
| 500.000 | 0.581 | 185.130 | 499.990 | -2.167 | -0.742 | -2.167 | 2.290 | 198.892 | 0.269 |
| 600.000 | 0.291 | 133.920 | 599.987 | -2.849 | -0.604 | -2.849 | 2.912 | 191.967 | 0.459 |
| 700.000 | 0.285 | 119.261 | 699.986 | -3.146 | -0.204 | -3.146 | 3.153 | 183.704 | 0.074 |
| 800.000 | 0.092 | 315.554 | 799.985 | -3.211 | -0.043 | -3.211 | 3.211 | 180.769 | 0.374 |
| 900.000 | 0.157 | 261.005 | 899.985 | -3.175 | -0.235 | -3.175 | 3.183 | 184.226 | 0.128 |
| 1000.000 | 0.404 | 334.026 | 999.984 | -2.879 | -0.524 | -2.879 | 2.926 | 190.321 | 0.389 |
| 1100.000 | 0.466 | 333.392 | 1099.981 | -2.198 | -0.861 | -2.198 | 2.361 | 201.384 | 0.062 |
| 1200.000 | 0.265 | 240.553 | 1199.980 | -1.948 | -1.244 | -1.948 | 2.312 | 212.554 | 0.547 |
| 1300.000 | 0.437 | 347.922 | 1299.979 | -1.689 | -1.525 | -1.689 | 2.275 | 222.081 | 0.575 |
| 1400.000 | 0.283 | 234.913 | 1399.978 | -1.457 | -1.807 | -1.457 | 2.321 | 231.111 | 0.607 |
| 1500.000 | 0.468 | 316.816 | 1499.976 | -1.301 | -2.288 | -1.301 | 2.632 | 240.372 | 0.512 |
| 1600.000 | 0.652 | 291.969 | 1599.971 | -0.791 | -3.095 | -0.791 | 3.195 | 255.666 | 0.300 |
| 1700.000 | 0.669 | 292.541 | 1699.965 | -0.355 | -4.161 | -0.355 | 4.176 | 265.130 | 0.018 |
| 1800.000 | 0.679 | 279.275 | 1799.958 | -0.035 | -5.285 | -0.035 | 5.285 | 269.616 | 0.156 |
| 1900.000 | 0.697 | 321.845 | 1899.951 | 0.539 | -6.245 | 0.539 | 6.268 | 274.928 | 0.500 |

| Measured Depth FT | Incl Angle Deg | Drift Direction Deg | TVD FT | +N/-S FT | +E/-W FT | Vertical Section FT | Closure Distance FT | Closure Direction Deg | Dogleg Severity Deg/100 |
|-------------------------|----------------------|---------------------------|-----------|-------------|-------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
| 2000.000 | 0.772 | 336.228 | 1999.943 | 1.634 | -6.893 | 1.634 | 7.084 | 283.333 | 0.198 |
| 2100.000 | 0.467 | 29.759 | 2099.938 | 2.604 | -6.962 | 2.604 | 7.433 | 290.504 | 0.621 |
| 2200.000 | 0.215 | 285.813 | 2199.937 | 3.008 | -6.940 | 3.008 | 7.564 | 293.434 | 0.559 |
| 2300.000 | 0.150 | 156.342 | 2299.936 | 2.939 | -7.068 | 2.939 | 7.655 | 292.578 | 0.331 |
| 2400.000 | 0.416 | 318.635 | 2399.936 | 3.091 | -7.255 | 3.091 | 7.886 | 293.077 | 0.561 |
| 2500.000 | 0.381 | 235.465 | 2499.934 | 3.175 | -7.769 | 3.175 | 8.393 | 292.228 | 0.530 |
| 2600.000 | 0.470 | 280.894 | 2599.931 | 3.064 | -8.446 | 3.064 | 8.984 | 289.939 | 0.339 |
| 2700.000 | 0.129 | 182.001 | 2699.930 | 3.029 | -8.853 | 3.029 | 9.356 | 288.887 | 0.506 |
| 2800.000 | 0.352 | 232.528 | 2799.929 | 2.729 | -9.100 | 2.729 | 9.501 | 286.694 | 0.288 |
| 2900.000 | 0.060 | 171.764 | 2899.929 | 2.490 | -9.337 | 2.490 | 9.663 | 284.934 | 0.327 |
| 3000.000 | 0.382 | 247.582 | 2999.928 | 2.311 | -9.638 | 2.311 | 9.911 | 283.487 | 0.372 |
| 3100.000 | 0.364 | 214.169 | 3099.926 | 1.922 | -10.124 | 1.922 | 10.305 | 280.748 | 0.215 |
| 3200.000 | 0.259 | 338.675 | 3199.925 | 1.870 | -10.384 | 1.870 | 10.551 | 280.209 | 0.553 |
| 3300.000 | 0.472 | 276.178 | 3299.923 | 2.125 | -10.876 | 2.125 | 11.082 | 281.057 | 0.421 |
| 3400.000 | 0.330 | 232.955 | 3399.921 | 1.996 | -11.516 | 1.996 | 11.688 | 279.834 | 0.324 |
| 3500.000 | 0.861 | 298.523 | 3499.916 | 2.181 | -12.406 | 2.181 | 12.596 | 279.973 | 0.784 |
| 3600.000 | 0.960 | 298.893 | 3599.904 | 2.945 | -13.799 | 2.945 | 14.110 | 282.046 | 0.100 |
| 3700.000 | 0.251 | 329.826 | 3699.898 | 3.539 | -14.643 | 3.539 | 15.064 | 283.587 | 0.756 |
| 3800.000 | 0.146 | 298.860 | 3799.897 | 3.790 | -14.864 | 3.790 | 15.340 | 284.303 | 0.147 |
| 3900.000 | 0.811 | 295.944 | 3899.893 | 4.161 | -15.612 | 4.161 | 16.157 | 284.923 | 0.665 |
| 4000.000 | 1.478 | 319.103 | 3999.873 | 5.445 | -17.093 | 5.445 | 17.939 | 287.670 | 0.799 |
| 4100.000 | 2.402 | 325.187 | 4099.815 | 8.141 | -19.133 | 8.141 | 20.793 | 293.048 | 0.945 |
| 4200.000 | 1.752 | 339.115 | 4199.749 | 11.290 | -20.875 | 11.290 | 23.732 | 298.406 | 0.818 |
| 4250.000 | 1.694 | 344.522 | 4249.726 | 12.716 | -21.345 | 12.716 | 24.846 | 300.785 | 0.345 |