|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Supplementary Material III; Data on Heavy Metals and PAHs from the sampled wells** |  |  |  | **Iron (Fe)** |  |  |  |  |
| **SAMPLE** | **CONTROL** | **WELL 1** | **WELL 2** | **WELL 3** | **WELL 4** | **WELL 5** | **WELL 6** | **WELL 7** |
| 1 |  | NA | NA | NA | NA | NA | NA | NA |
| 2 |  | WNA | WNA | WNA | 0.795 | 0.230 | WNA | 0.370 |
| 3 | 0.000 | 2.400 | 1.690 | 0.885 | 2.555 | 0.595 | 0.835 | 0.505 |
| 4 | 0.000 | 2.740 | 2.105 | 1.465 | 2.815 | 0.88 | 1.25 | 0.705 |
| 5 | 0.000 | 3.48 | 2.995 | 2.26 | 2.185 | 1.99 | 1.885 | 1.465 |
| **MEAN** | **0.000** | **2.873** | **2.263** | **1.537** | **2.088** | **0.924** | **1.323** | **0.761** |
| **SD** | **0.000** | **0.552** | **0.667** | **0.690** | **0.900** | **0.759** | **0.529** | **0.489** |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  | **Copper (Cu)** |  |  |  |  |
| **SAMPLE** | **CONTROL** | **WELL 1** | **WELL 2** | **WELL 3** | **WELL 4** | **WELL 5** | **WELL 6** | **WELL 7** |
| 1 |  | NA | NA | NA | NA | NA | NA | NA |
| 2 |  | WNA | WNA | WNA | 0.038 | 0.109 | WNA | 0.024 |
| 3 | 0.000 | 0.048 | 0.029 | 0.029 | 0.088 | 0.000 | 0.000 | 0.000 |
| 4 | 0.000 | 0.063 | 0.051 | 0.035 | 0.111 | 0.025 | 0.019 | 0.021 |
| 5 | 0.000 | 0.089 | 0.07 | 0.05 | 0.123 | 0.087 | 0.1115 | 0.108 |
| **MEAN** | **0.000** | **0.067** | **0.050** | **0.038** | **0.090** | **0.055** | **0.044** | **0.038** |
| **SD** | **0.000** | **0.021** | **0.021** | **0.011** | **0.038** | **0.051** | **0.060** | **0.048** |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  | **Lead (Pb)** |  |  |  |  |
| **SAMPLE** | **CONTROL** | **WELL 1** | **WELL 2** | **WELL 3** | **WELL 4** | **WELL 5** | **WELL 6** | **WELL 7** |
| 1 |  | 0.000 | 0.000 | 0.001 | 0.002 | 0.001 | 0.000 | 0.000 |
| 2 |  | WNA | WNA | NA | 0.003 | 0.00067 | WNA | 0.0003 |
| 3 | 0.000 | 0.080 | 0.115 | 0.095 | 0.080 | 0.055 | 0.085 | 0.080 |
| 4 | 0.000 | 0.210 | 0.280 | 0.165 | 0.145 | 0.150 | 0.120 | 0.083 |
| 5 | 0.000 | 0.480 | 0.390 | 0.305 | 0.210 | 0.270 | 0.195 | 0.135 |
| **MEAN** | **0.000** | **0.193** | **0.196** | **0.142** | **0.088** | **0.095** | **0.100** | **0.060** |
| **SD** | **0.000** | **0.210** | **0.173** | **0.128** | **0.091** | **0.115** | **0.081** | **0.059** |
|  |  |  |  | **Chromium (Cr)** |  |  |  |  |
| **SAMPLE** | **CONTROL** | **WELL 1** | **WELL 2** | **WELL 3** | **WELL 4** | **WELL 5** | **WELL 6** | **WELL 7** |
| 1 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2 |  | WNA | WNA | WNA | 0.000 | 0.000 | WNA | 0.000 |
| 3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | 0.000 | 0.013 | 0.017 | 0.012 | 0.009 | 0.01 | 0.008 | 0.010 |
| 5 | 0.000 | 0.032 | 0.025 | 0.021 | 0.018 | 0.023 | 0.0125 | 0.018 |
| **MEAN** | **0.000** | **0.011** | **0.010** | **0.008** | **0.005** | **0.007** | **0.005** | **0.005** |
| **SD** | **0.000** | **0.015** | **0.012** | **0.010** | **0.008** | **0.010** | **0.006** | **0.008** |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  | **Cadmium (Cd)** |  |  |  |  |
| **SAMPLE** | **CONTROL** | **WELL 1** | **WELL 2** | **WELL 3** | **WELL 4** | **WELL 5** | **WELL 6** | **WELL 7** |
| 1 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2 |  | WNA | WNA | WNA | 0.000 | 0.000 | WNA | 0.000 |
| 3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | 0.000 | 0.010 | 0.008 | 0.009 | 0.006 | 0.007 | 0.014 | 0.008 |
| 5 | 0.000 | 0.048 | 0.062 | 0.078 | 0.048 | 0.052 | 0.040 | 0.030 |
| **MEAN** | **0.000** | **0.014** | **0.017** | **0.022** | **0.011** | **0.012** | **0.013** | **0.008** |
| **SD** | **0.000** | **0.023** | **0.030** | **0.038** | **0.021** | **0.023** | **0.019** | **0.013** |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  | **Arsenic (As)** |  |  |  |  |
| **SAMPLE** | **CONTROL** | **WELL 1** | **WELL 2** | **WELL 3** | **WELL 4** | **WELL 5** | **WELL 6** | **WELL 7** |
| 1 |  | 0.010 | 0.000 | 0.040 | 0.020 | 0.040 | 0.020 | 0.020 |
| 2 |  | WNA | WNA | WNA | 0.014 | 0.0067 | WNA | 0.001 |
| 3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | 0.000 | 0.015 | 0.008 | 0.009 | 0.017 | 0.013 | 0.009 | 0.009 |
| 5 | 0.000 | 0.032 | 0.022 | 0.031 | 0.041 | 0.028 | 0.017 | 0.021 |
| **MEAN** | **0.000** | **0.014** | **0.007** | **0.020** | **0.018** | **0.018** | **0.011** | **0.010** |
| **SD** | **0.000** | **0.013** | **0.010** | **0.019** | **0.015** | **0.016** | **0.009** | **0.010** |
|  |  |  |  | **Zinc (Zn)** |  |  |  |  |
| **SAMPLE** | **CONTROL** | **WELL 1** | **WELL 2** | **WELL 3** | **WELL 4** | **WELL 5** | **WELL 6** | **WELL 7** |
| 1 |  | 0.000 | 0.000 | 0.119 | 0.234 | 0.001 | 0.062 | 0.009 |
| 2 |  | WNA | WNA | WNA | 0.160 | 0.111 | WNA | 0.096 |
| 3 | 0.000 | 0.000 | 0.085 | 0.219 | 0.287 | 0.000 | 0.098 | 0.023 |
| 4 | 0.000 | 0.031 | 0.095 | 0.240 | 0.308 | 0.038 | 0.129 | 0.046 |
| 5 | 0.000 | 0.123 | 0.098 | 0.288 | 0.342 | 0.292 | 0.125 | 0.167 |
| **MEAN** | **0.000** | **0.038** | **0.070** | **0.216** | **0.266** | **0.088** | **0.103** | **0.068** |
| **SD** | **0.000** | **0.058** | **0.047** | **0.071** | **0.071** | **0.122** | **0.031** | **0.064** |

NA = Not Analyzed; i.e. Fe and Cu were not analyzed in samples on sampling day 1

WNA = Well not accessible i.e. four wells were locked and therefore inaccessible on sampling day 2

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Supplementary Data: Polycyclic Aromatic Hydrocarbons (PAHs)** | |  | |  | | | | | | | **PYRENE** |  | | | | |  | |  | |  |
| **SAMPLE** | **CONTROL** | | **WELL 1** | | **WELL 2** | | | | | | | **WELL 3** | **WELL 4** | | | | | **WELL 5** | | **WELL 6** | | **WELL 7** |
| 1 | NA | | NA | | NA | | | | | | | NA | NA | | | | | NA | | NA | | NA |
| 2 | NA | | WNA | | WNA | | | | | | | WNA | 0.011 | | | | | 0.009 | | WNA | | 0.005 |
| 3 | 0.000 | | 0.350 | | 0.240 | | | | | | | 0.415 | 0.215 | | | | | 0.120 | | 0.140 | | 0.535 |
| 4 | 0.000 | | 0.425 | | 0.215 | | | | | | | 0.335 | 0.170 | | | | | 0.045 | | 0.120 | | 0.330 |
| 5 | 0.000 | | 0.019 | | 0.150 | | | | | | | 0.164 | 0.170 | | | | | 0.080 | | 0.095 | | 0.340 |
| **MEAN** | **0.000** | | **0.265** | | **0.202** | | | | | | | **0.305** | **0.142** | | | | | **0.064** | | **0.118** | | **0.303** |
| **SD** | **0.000** | | **0.216** | | **0.046** | | | | | | | **0.128** | **0.090** | | | | | **0.048** | | **0.023** | | **0.220** |
|  |  | |  | |  | | | | | | |  |  | | | | |  | |  | |  |
|  | |  | |  | |  | | | | | **FLUORANTHENE** | | | | | |  | |  | |  | |
| **SAMPLE** | **CONTROL** | | **WELL 1** | | **WELL 2** | | | | | | | **WELL 3** | **WELL 4** | | | | | **WELL 5** | | **WELL 6** | | **WELL 7** |
| 1 | NA | | NA | | NA | | | | | | | NA | NA | | | | | NA | | NA | | NA |
| 2 | NA | | WNA | | WNA | | | | | | | WNA | 0.000 | | | | | 0.000 | | WNA | | 0.000 |
| 3 | 0.000 | | 0.023 | | 0.012 | | | | | | | 0.014 | 0.008 | | | | | 0.006 | | 0.012 | | 0.031 |
| 4 | 0.000 | | 0.015 | | 0.012 | | | | | | | 0.012 | 0.004 | | | | | 0.003 | | 0.006 | | 0.025 |
| 5 | 0.000 | | 0.013 | | 0.009 | | | | | | | 0.01 | 0.002 | | | | | 0.003 | | 0.004 | | 0.025 |
| **MEAN** | **0.000** | | **0.017** | | **0.011** | | | | | | | **0.012** | **0.004** | | | | | **0.003** | | **0.007** | | **0.020** |
| **SD** | **0.000** | | **0.006** | | **0.002** | | | | | | | **0.002** | **0.003** | | | | | **0.002** | | **0.004** | | **0.014** |
|  |  | |  | |  | | | | | | |  |  | | | | |  | |  | |  |
|  |  | |  | |  | | | **BENZO (b) FLUORANTHENE** | | | | | | |  | | |  | |  | |  |
| **SAMPLE** | **CONTROL** | | **WELL 1** | | **WELL 2** | | | | | | | **WELL 3** | **WELL 4** | | | | | **WELL 5** | | **WELL 6** | | **WELL 7** |
| 1 | NA | | NA | | NA | | | | | | | NA | NA | | | | | NA | | NA | | NA |
| 2 | NA | | WNA | | WNA | | | | | | | WNA | 0.000 | | | | | 0.000 | | WNA | | 0.000 |
| 3 | 0.002 | | 0.046 | | 0.012 | | | | | | | 0.025 | 0.017 | | | | | 0.003 | | 0.009 | | 0.082 |
| 4 | 0.001 | | 0.025 | | 0.057 | | | | | | | 0.010 | 0.014 | | | | | 0.004 | | 0.002 | | 0.061 |
| 5 | 0.001 | | 0.022 | | 0.054 | | | | | | | 0.010 | 0.012 | | | | | 0.004 | | 0.002 | | 0.052 |
| **MEAN** | **0.001** | | **0.031** | | **0.041** | | | | | | | **0.015** | **0.010** | | | | | **0.003** | | **0.004** | | **0.049** |
| **SD** | **0.000** | | **0.013** | | **0.025** | | | | | | | **0.009** | **0.007** | | | | | **0.002** | | **0.004** | | **0.035** |
|  |  | |  | |  | | | | | | |  |  | | | | |  | |  | |  |
|  |  | |  | |  | | | | | | |  |  | | | | |  | |  | |  |
|  |  | |  | |  | | **BENZO (a) PYRENE** | | | | | | | | |  | |  | |  | |  |
| **SAMPLE** | **CONTROL** | | **WELL 1** | | **WELL 2** | | | | | | | **WELL 3** | **WELL 4** | | | | | **WELL 5** | | **WELL 6** | | **WELL 7** |
| 1 | NA | | NA | | NA | | | | | | | NA | NA | | | | | NA | | NA | | NA |
| 2 | NA | | WNA | | WNA | | | | | | | WNA | 0.000 | | | | | 0.000 | | WNA | | 0.000 |
| 3 | 0.000 | | 0.093 | | 0.043 | | | | | | | 0.073 | 0.055 | | | | | 0.016 | | 0.023 | | 0.093 |
| 4 | 0.000 | | 0.046 | | 0.034 | | | | | | | 0.038 | 0.032 | | | | | 0.015 | | 0.020 | | 0.062 |
| 5 | 0.000 | | 0.044 | | 0.031 | | | | | | | 0.034 | 0.026 | | | | | 0.013 | | 0.016 | | 0.054 |
| **MEAN** | **0.000** | | **0.061** | | **0.036** | | | | | | | **0.048** | **0.028** | | | | | **0.011** | | **0.020** | | **0.052** |
| **SD** | **0.000** | | **0.028** | | **0.006** | | | | | | | **0.021** | **0.022** | | | | | **0.007** | | **0.004** | | **0.038** |
|  |  | |  | |  | | | | | | |  |  | | | | |  | |  | |  |
|  |  | |  | |  | | | | **ANTHRACENE** | | | |  | | | | |  | |  | |  |
| **SAMPLE** | **CONTROL** | | **WELL 1** | | **WELL 2** | | | | | | | **WELL 3** | **WELL 4** | | | | | **WELL 5** | | **WELL 6** | | **WELL 7** |
| 1 | NA | | NA | | NA | | | | | | | NA | NA | | | | | NA | | NA | | NA |
| 2 | NA | | WNA | | WNA | | | | | | | WNA | 0.002 | | | | | 0.001 | | WNA | | 0.000 |
| 3 | 0.001 | | 0.062 | | 0.026 | | | | | | | 0.045 | 0.039 | | | | | 0.013 | | 0.025 | | 0.091 |
| 4 | 0.001 | | 0.044 | | 0.026 | | | | | | | 0.028 | 0.029 | | | | | 0.014 | | 0.009 | | 0.051 |
| 5 | 0.002 | | 0.046 | | 0.026 | | | | | | | 0.029 | 0.025 | | | | | 0.021 | | 0.009 | | 0.051 |
| **MEAN** | **0.0013** | | **0.051** | | **0.026** | | | | | | | **0.034** | **0.024** | | | | | **0.012** | | **0.014** | | **0.048** |
| **SD** | **0.0006** | | **0.010** | | **0.000** | | | | | | | **0.010** | **0.016** | | | | | **0.008** | | **0.009** | | **0.037** |
|  |  | |  | |  | | | | | | |  |  | | | | |  | |  | |  |
|  |  | |  | |  | | | | | | |  |  | | | | |  | |  | |  |
|  |  | |  | |  | | | | | | | **CHRYSENE** |  | | | | |  | |  | |  |
| **SAMPLE** | **CONTROL** | | **WELL 1** | | **WELL 2** | | | | | | | **WELL 3** | **WELL 4** | | | | | **WELL 5** | | **WELL 6** | | **WELL 7** |
| 1 | NA | | NA | | NA | | | | | | | NA | NA | | | | | NA | | NA | | NA |
| 2 | NA | | WNA | | WNA | | | | | | | WNA | 0.004 | | | | | 0.002 | | WNA | | 0.001 |
| 3 | 0.000 | | 0.019 | | 0.009 | | | | | | | 0.017 | 0.01 | | | | | 0.004 | | 0.004 | | 0.026 |
| 4 | 0.000 | | 0.007 | | 0.005 | | | | | | | 0.008 | 0.006 | | | | | 0.006 | | 0.003 | | 0.019 |
| 5 | 0.000 | | 0.004 | | 0.003 | | | | | | | 0.006 | 0.006 | | | | | 0.005 | | 0.004 | | 0.010 |
| **MEAN** | **0.000** | | **0.010** | | **0.006** | | | | | | | **0.010** | **0.006** | | | | | **0.004** | | **0.004** | | **0.014** |
| **SD** | **0.000** | | **0.008** | | **0.003** | | | | | | | **0.006** | **0.003** | | | | | **0.002** | | **0.001** | | **0.011** |
|  |  | |  | |  | | | | | **BENZO-1,2-ANTHRACENE** | | | |  | | | |  | |  | |  |
| **SAMPLE** | **CONTROL** | | **WELL 1** | | **WELL 2** | | | | | | | **WELL 3** | **WELL 4** | | | | | **WELL 5** | | **WELL 6** | | **WELL 7** |
| 1 | NA | | NA | | NA | | | | | | | NA | NA | | | | | NA | | NA | | NA |
| 2 | NA | | WNA | | WNA | | | | | | | WNA | 0.016 | | | | | 0.001 | | WNA | | 0.002 |
| 3 | 0.002 | | 0.465 | | 0.233 | | | | | | | 0.394 | 0.317 | | | | | 0.110 | | 0.126 | | 0.638 |
| 4 | 0.005 | | 0.335 | | 0.310 | | | | | | | 0.290 | 0.200 | | | | | 0.094 | | 0.155 | | 0.580 |
| 5 | 0.003 | | 0.330 | | 0.305 | | | | | | | 0.260 | 0.142 | | | | | 0.100 | | 0.170 | | 0.474 |
| **MEAN** | **0.003** | | **0.377** | | **0.283** | | | | | | | **0.315** | **0.169** | | | | | **0.076** | | **0.150** | | **0.423** |
| **SD** | **0.002** | | **0.077** | | **0.043** | | | | | | | **0.070** | **0.125** | | | | | **0.051** | | **0.022** | | **0.289** |
|  |  | |  | |  | | | | | | |  |  | | | | |  | |  | |  |
|  |  | |  | |  | | | | | | |  |  | | | | |  | |  | |  |
|  |  | |  | |  | | | | | **BENZO (a) ANTHRACENE** | | |  | | | | |  | |  | |  |
| **SAMPLE** | **CONTROL** | | **WELL 1** | | **WELL 2** | | | | | | | **WELL 3** | **WELL 4** | | | | | **WELL 5** | | **WELL 6** | | **WELL 7** |
| 1 | NA | | NA | | NA | | | | | | | NA | NA | | | | | NA | | NA | | NA |
| 2 | NA | | WNA | | WNA | | | | | | | WNA | 0.022 | | | | | 0.007 | | WNA | | 0.003 |
| 3 | 0.011 | | 0.541 | | 0.466 | | | | | | | 0.567 | 0.552 | | | | | 0.334 | | 0.357 | | 0.863 |
| 4 | 0.014 | | 0.698 | | 0.521 | | | | | | | 0.59 | 0.565 | | | | | 0.461 | | 0.466 | | 0.881 |
| 5 | 0.011 | | 0.673 | | 0.488 | | | | | | | 0.511 | 0.529 | | | | | 0.440 | | 0.540 | | 0.725 |
| **MEAN** | **0.012** | | **0.637** | | **0.491** | | | | | | | **0.556** | **0.417** | | | | | **0.311** | | **0.454** | | **0.618** |
| **SD** | **0.002** | | **0.084** | | **0.027** | | | | | | | **0.041** | **0.264** | | | | | **0.210** | | **0.092** | | **0.416** |

NA = Not Analyzed; PAHs were not analyzed on sample day 1

WNA = Well not accessible i.e. four wells were locked and therefore inaccessible on sample day 2