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| Supplementary Table 1: Detection limits and Reference Material analyses |
| Water samples analyses in μg/L |
| Element | Al | As | B | Ca\* | Cd | Co | Cu | Fe | K\* | Mg\* | Mn | Na | Pb | Sr | Zn |  |  |  |
| Detection Limit | 1.0 | 0.5 | 5.0 | 0.1 | 0.1 | 0.02 | 0.1 | 10.0 | 0.1 | 0.1 | 0.1 | 50.0 | 0.1 | 0.01 | 0.5 |  |  |  |
| Duplicate sample | 90025 | <3000 | 4468 | 597 | <700 | 378 | 4097 | 56119 | 3 | 297 | 15336 | 1018522 | <4000 | 1213 | 35469 |  |  |  |
| 77877 | <3000 | 3967 | 516 | <700 | 347 | 3548 | 48351 | 2 | 258 | 13162 | 879063 | <4000 | 1047 | 30252 |  |  |  |
| Reference Material |
| Measured value TMDA-70 | 465 | 45 | 19 | 25 | 160 | 294 | 418 | 393 | 1 | 6 | 295 | 9751 | 479 | 457 | 494 |  |  |  |
| Ore samples analyses in wt % |
| Element | Ag\* | Au\*\* | As | Co | Cu | Fe | S | Zn |  |  |  |  |  |  |  |  |  |  |
| Detection Limit | 5 | 6 | 0.005 | 0.001 | 0.005 | 0.02 | 0.05 | 0.01 |  |  |  |  |  |  |  |  |  |  |
| Reference Materials |
| In-house Standard ICP-4 | 27 | na | 0.130 | 0.003 | 0.186 | 4.70 | 5.15 | 0.62 |  |  |  |  |  |  |  |  |  |  |
| Assigned Value In-house Standard ICP-4 | 28 | na | 0.126 | 0.003 | 0.190 | 4.85 | 5.45 | 0.60 |  |  |  |  |  |  |  |  |  |  |
| MP-1b | 50 | na | 2.269 | na | 3.130 | 8.14 | 13.76 | 16.70 |  |  |  |  |  |  |  |  |  |  |
| Certified Value MP-1b | 47 | na | 2.300 | na | 3.069 | 8.19 | 13.79 | 16.67 |  |  |  |  |  |  |  |  |  |  |
| SP49  | na | 15.79 | na | na | na | na | na | na |  |  |  |  |  |  |  |  |  |  |
| Certified Value SP49  | na | 18.34 | na | na | na | na | na | na |  |  |  |  |  |  |  |  |  |  |
| Mine waste samples analyses for major elements in wt % |
| Element | Al | Ca | Fe | K | Mg | Na | S |  |  |  |  |  |  |  |  |  |  |  |
| Detection Limit | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |   |   |   |   |   |   |   |   |  |  |  |
| Mine waste samples analyses for trace elements in mg/L |
| Element | Ag | As | B | Ba | Cd | Co | Cr | Cu | Hg | Mn | Mo | Ni | Pb | Sb | Ti | V | W | Zn |
| Detection Limit | 0.2 | 2 | 10 | 10 | 0.5 | 1 | 1 | 1 | 1 | 5 | 1 | 1 | 2 | 2 | 0.01 | 1 | 10 | 2 |
| Treated water analyses in mg/L |
| Element | Cd | Co | Cu | Fe | Mn | Ni | Zn | SO4 |  |  |  |  |  |  |  |  |  |  |
| Detection Limit | 0.02 | 0.03 | 0.02 | 0.08 | 0.03 | 0.05 | 0.03 | 132 |   |   |   |   |   |   |   |   |   |   |
| na: not available; \*:mg/L; \*\*:μg/L |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |