minerals

SUPPLEMENTARY MATERIALS

Input data for running PHREEQCI, mixing of Leviathan AMD with Mountaineer Creek with the precipitation of schwertmannite and basaluminite.

```
SOLUTION 1 Leviathan Ck
    temp      19.5
    pH        3.25
    pe        12
    redox     Fe(2)/Fe(3)
    units     mg/l
    density   1
    Al        19.8
    Ba        0.048
    Cd        0.0079
    Ca        82.2
    Cu        0.231
    F         0.52
    Fe(2)     9.01
    Fe(3)     9.39
    Mg        23.6
    Mn        3.04
    K         4.57
    Si        46.4
    Na        11.8
    Sr        0.708
    S(6)      483
    Zn
    -water    1 # kg
SOLUTION 2 Mountaineer Ck
    temp      12.5
    pH        8.85
    pe        6.7
    redox     Fe(2)/Fe(3)
    units     mg/l
    density   1
    Alkalinity 94.3
    Al        0.045
    Ba        0.039
    Cd        0.0002
    Ca        13.7
    Cu        0.001
    F         0.04
    Fe(2)     0.0086
    Fe(3)     0.0013
    Mg        5.78
    Mn        0.022
    K         2.29
    Si        42.6
    Na        6.83
    Sr        0.237
    S(6)      1.89
    -water    1 # kg
```

```
MIX 1
   1    0.44
   2    0.56

PHASES
          Schwertmannite
      Fe8O8(SO4)1.26(OH)5.48 + 21.48H+ = 8Fe+3 + 1.26SO4-2 + 13.48H2O
      log_k          18.5
    Basaluminite
      Al4(OH)10SO4 + 10H+ = 4Al+3 + SO4-2 + 10H2O
      log_k          24.0
EQUILIBRIUM_PHASES 1
    CO2(g)     -3.5
    O2(g)      -0.679
    Basaluminite 0 0
    Schwertmannite 0 0
END
```