

Manganese (Mn)

The concentrations of manganese in the leachate for the LKFC-PA shale follow a consistent pattern on Figure 7.16, wherein the highest Mn values are consistently the first week after the initial flush, followed by a steady decline throughout the 14 week weathering period. The duplicate columns exhibited very similar behavior in all 7 labs. The manganese concentrations from the HCS-IN sample (shown in Figure 7.17) exhibit a very different pattern wherein after week 7 the concentrations in all labs except Lab 1 increase, often dramatically, for the remaining 7 weeks of the leaching test. The MDL for manganese is 0.12 µg/L and the ML is 2 µg/L.

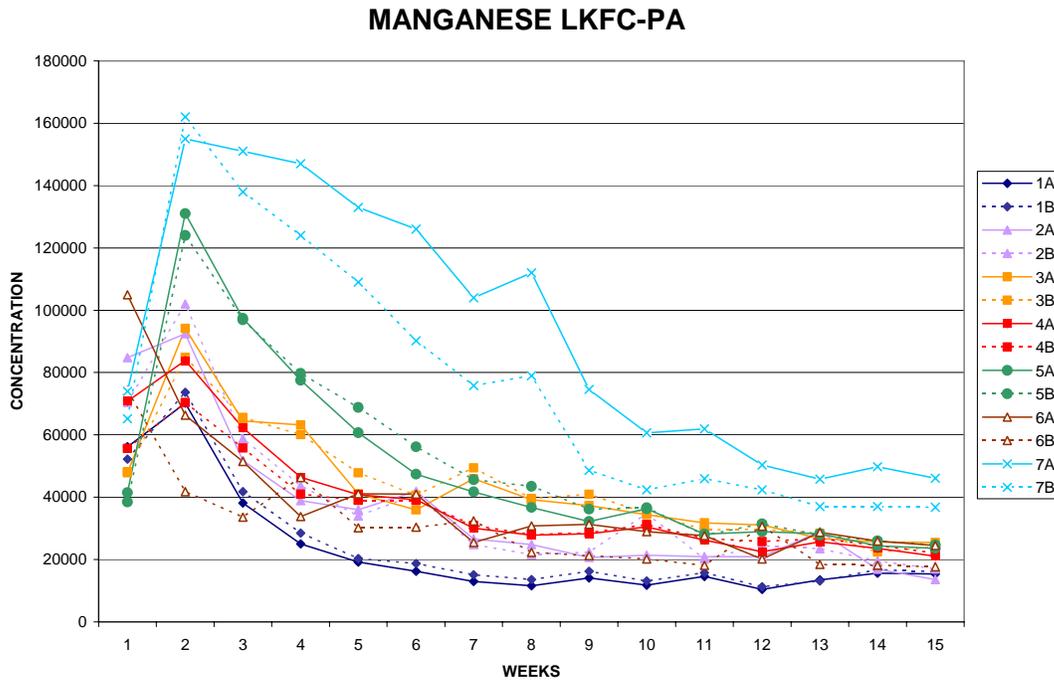


Figure 7.16. Pattern of variation of manganese concentration (ug/l) for Lower Kittanning Shale.

Calcium (Ca)

The plot of the calcium concentrations of the BCS3-PA shale shown in Figure 7.18 exhibits wide variations for Labs 2 and 7; whereas there is close agreement between duplicates and less variation for Labs 1, 4, 5 and 6. When the data are plotted for Labs 4, 5 and 6 only (Figure 7.19), there are some typical peaks in the first weeks of leaching followed by a gradual decline until week 7, after which the data from all three labs are stable at approximately 150 micrograms of calcium for the remaining seven weeks. This trend corresponds with attaining saturation with respect to calcite solubility. The MDL for calcium is 11.8 µg/L and the ML is 50 µg/L.