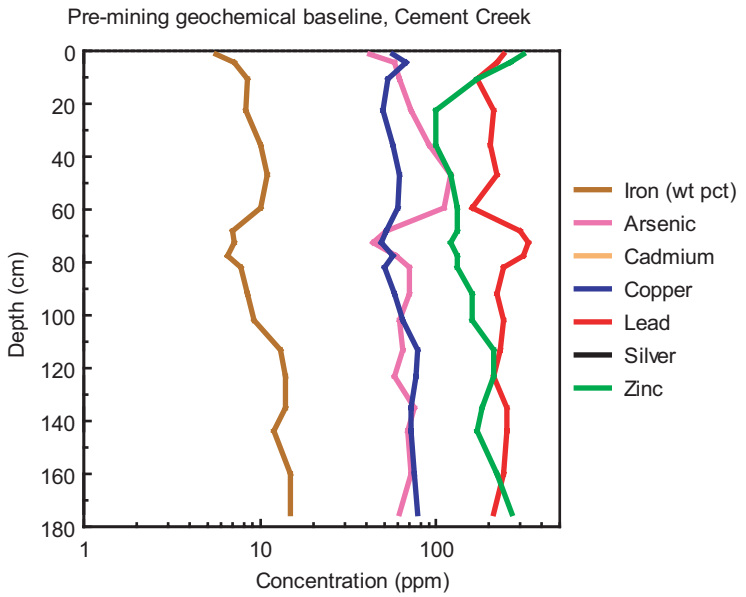

Figure 3. Determination of the pre-mining geochemical baseline, Cement Creek terrace. We sampled the entire section of silt, sand, and gravel exposed in the photograph. The tree growing on the top of the terrace has a dendrochronology age of 142 yr, which indicates it has grown since 1858 (Fey and others, 2000). Carbon-14 dates acquired from wood fragments collected immediately above fine-grained overbank deposits (see arrow pointing to white lens) give an age of 725±120 yr B.P., which would intersect the calibration curve at 1283 A.D. (Geochron Laboratories, written commun., 1998; K.R. Vincent, U.S. Geological Survey, written commun., 2001). The geochronological data indicate that the terrace deposits pre-date onset of mining. Concentrations of iron generally are above 10 weight percent and deposit-related trace-element concentrations remain constant throughout the section. We interpret the data to be a good determination of the average value for the pre-mining geochemical baseline in the Cement Creek basin (Church and others, 2000). The high iron concentrations indicate that acidic waters were present in Cement Creek prior to mining. The elevated iron and deposit-related trace-element concentrations indicate that weathering of altered rock prior to mining resulted in elevated trace-element concentrations in these streambed sediments.