Dear Paula and Jason,
Two items. First, a recent dataset from the Yellow Pine/Stibnite area is attached. The reference and sampling particulars are available from the citation below. I modified their data file by creating a new tab consisting only of BLM-relevant parameters, and calculated hardness-based and BLM-based Cu criteria for comparison with other datasets. The calculated BLM-based Cu CCC values ranged from 0.65 to 6.7 µg/L and the hardness-based values ranged from 3.5 to 13.5 µg/L. While the overall range was higher with the hardness based samples, it was a mixed bag for any given site which criteria would be higher. In the dataset DOC ranged from 0.4 to 3.5 mg/L, pH ranged from 6.7 to 8.9 units, and hardness ranged from 8 to 122 mg/L. In my Idaho hardness-based Cu criteria calculations, I assumed a hardness-floor of 25 mg/L, which artificially raises the Cu criteria concentrations for the low hardness samples. Copper not detected in any samples, although their reporting limit was higher than recommended, at 1 µg/L .

> Holloway, J.M., Pribil, M.J., McCleskey, R.B., Rutherford, D., Repert, D.A., DeWild, J., Breitmeyer, S., Berry, C., and Adams, M., 2016, Water and sediment geochemistry data from the vicinity of Yellow Pine, Idaho, 2014-2015: U.S. Geological Survey data release, http://dx.doi.org/10.5066/F7TB150Z.

Second, are some brief comments on the draft monitoring plan. Sampling upstream and downstream of every minor discharge in Idaho (~140 facilities) in August and September is highly ambitious, but may be well past the point of diminishing returns with so many samples of minor dischargers. The rationale for collecting many samples from minor dischargers and none from major dischargers wasn't clear to me. Some sample areas are quite remote and could involve considerable travel time or crew hazards. These might include some of the USFS Ranger Stations such as Red River or Big Deer Creek. If going all the way into Big Deer Creek, for example (a 6 mile RT hike, or else requiring travel through a restricted mine area requiring special safety considerations), they might as well collect samples from adjacent mining-affected tributaries such as SF Big Deer Creek or Bucktail Creek.

The idea of greatly simplifying field collection methods by rapid chilling, shipping, and filtering within 48 hrs is innovative. However, those used to regulatory requirements for NPDES monitoring described in 40 CFR 136, might look askance at these data, particularly because of the 40 CFR 136 requirements to preserve samples by filtration and acidification within 15 minutes of collected. Taking a number of split samples, and treating half according to the conventional 40 CFR 136 etc. and half according to the innovative chill-only approach proposed here could be a valuable prove out of the latter. The conventional sample processing does involve extra costs (filters, especially) and time, which could be offset by reducing the number of sites sampled to make the splits cost neutral. I also gather that the 40 CFR 136 requirements are being incorporated in part into the IPDES monitoring.)

The monitoring plan didn't mention reporting limits. To avoid the risk of disappointment, I suggest getting a clear mutual understanding of expected reporting limits. I would suggest that a 0.1 mg/L reporting limit for DOC or less should be sought to avoid "less-than" values. With Cu, assuming ICP-MS analyses, the lab should be able to commit to a reporting limit of <0.5 µg/L and should be able manage close to <0.1 µg/L. Note that Cu criteria levels in the attached Yellow Pine dataset were often <1 µg/L Cu.

Best regards,
Chris

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