

To: RMP Technical Review Committee

From: Donald Yee, Meg Sedlak, Jay Davis

Re: Options for 2004-2006 Organics Reanalysis & Censoring

A reanalysis of 2005 samples from 3 sites and a review of results for organic compound analysis of 2004-2006 RMP sediment samples suggests that the sediment drying and extraction methods used prior to 2007 resulted in recoveries of organic compounds that were biased low by approximately two- to five-fold for halogenated compounds (PBDEs, PCBs, and organochlorine pesticides), and by 20-70% for PAHs. Although the laboratory analysis QC results were largely compliant with EPA method requirements, results should not be directly compared between this period and later results in the RMP due to the resultant bias. Results for 2002 and 2003 samples were previously reanalyzed in 2008 so should show no bias relative to 2007 and later samples. Bias compared to samples prior to 2002 has not been explored, due to very different analytical methods used (e.g., low resolution mass spectrometry with many non-detects, and electron capture detection with low specificity) as well as changes in sampling program (from only fixed stations to a mix of random and historical fixed stations). In the March 2014 TRC meeting, SFEI staff suggested and the RMP TRC agreed that the current 2004-2006 PCB results would not be presented on the RMP CD3 (Contaminant Data Download and Display) webpage, so these data are no longer accessible except by special request.

During the discussions on the censoring of the PCB data, possible options for reanalysis of some or all of the censored data were considered, but tabled until more complete information on other analytes was available. Given a low bias was eventually found in all the other organic groups (PAHs least severe, underestimated ~20-70%),

- 1) A first decision to be made is whether some (e.g., all but PAHs) or all of the groups should be censored for the 2004-2006 period.

For data that are censored, in addition to removal from interactive downloads and displays such as the CD3 website, future graphs and tables in reports (such as the Pulse and Annual Monitoring Report) that would normally include/aggregate these samples can include a note indicating the difference from past presentations which had included the data. At the least, it could note the absence of the data, e.g., 2004-2006 are censored and not reported. More elaborate notes could indicate the reason, and note that past versions of the same graph/table/product had included the data.

- 2) Given the planned censoring of PCB and possibly other analyte data, options for reanalysis were considered. The primary options considered included the following:
 - a) Reanalysis of all the censored data (all analytes, all years)
 - b) Reanalysis of only 2005 samples (for some or all of the analytes)
 - c) No further reanalysis of samples

At the March 2014 meeting much of the discussion on reanalysis options centered around possibly reanalyzing remaining 2005 samples for some or all organic analytes (pending results for compounds not yet reported at that time). However, in light of discussions for further

reductions of RMP S&T components, the third option, no reanalysis of samples, is likely most in accord with current information needs and the planned ongoing intensity of S&T characterization.

The absence of 2004-2006 data would represent a 4-year interval between sampling events, equivalent to the planned recommended interval for future sediment S&T sampling. Although this would represent a much larger interval than in the periods immediately before and after in the historical record of S&T, there are no critical information needs for those particular years that have been identified, so limited resources are likely better spent on ongoing priorities rather than in reanalysis of these older samples. Archive sediment samples from this period that would have been used in the reanalysis will be available at least in the shorter term future if reevaluation of data needs and priorities suggests that reanalyses are warranted. We therefore recommend that no additional samples from this period be reanalyzed at this time.

- 3) If all analytes are censored, another decision is whether data on the 3 samples already reanalyzed from 2005 should be available via the RMP CD3 website tool.

The three stations are all historical sites, with at most 1 site in each segment (and not all segments represented). To those familiar with the stratified random sampling design and even in casual comparison of sample numbers to other years, it should be apparent that the 2005 results would not be representative nor comparable to other years except for those specific stations. However, there is a small risk that users simply downloading and aggregating the data would not notice these differences and arrive at erroneous conclusions. The stations reanalyzed were chosen from among those with sufficient material remaining for reanalysis, and do not have any particular management significance. We therefore recommend that this data not be included for presentation or download via the CD3 website and only provided by special request.

Decisions for TRC:

1. Should only the halogenated organics (PBDEs, PCBs, OC pesticides) that were 2-5x higher be censored, or PAHs (20-70% higher) as well?
2. Should additional 2004-2006 samples be reanalyzed or not (e.g., 2005 samples for remaining stations), given other current RMP needs and priorities?
3. Should 2005 reanalyzed data from the 3 historical stations be routinely reported via the RMP CD3 site or not, given the (lack of specific) management needs for those data?