

REVIEWERS 5 and 6

Specific comments:

1. We have many concerns about this technology as it is adopted by commercial labs, outside of our comfort zone which has generally involved successful analyses by academia. Many lessons learned on the Portland Harbor/11E application of the technology with MIT should be exhibited/discussed here (callout/case study box?). Phil or I can provide the 11E passive sampling report which details commercial lab problems experienced which need to be captured.
2. Uncertainties alleged by the Hawthorne paper (attached) should be noted and addressed in some fashion. Though he is an author on this document, it is not apparent how these concerns were addressed. Frankly, the paper raised anxiety levels when presented at the Battelle 2015 conference on the part of my less inclined to try passive sampling RPM colleagues, so the more these issues can be addressed directly, the better.
3. We would like to reiterate our concern that in Figure 1-5, the likelihood of vandalism of the sampling array is high. We have experienced sample loss that risked the overall study being undertaken when surface buoys have been deployed, and arrays tampered with and/or stolen. As stated in section 3.3 "running to shore" is an option, and in our collective 5 decades of sampler deployment, far preferable when possible to limit vandalism. Subsurface buoys are another technique that should be considered if tag-lines to shore are not feasible.
4. Information should be further explored on adjustments needed to account for temperature and salinity in highly modified systems, e.g. higher than normal groundwater discharge temperatures on the west coast due to abnormally low rainfall/snowpack and groundwater systems contaminated by salt from manufacturing impacting partitioning coefficients beyond what might normally be expected. Appendix C should go into more detail on practical considerations, such as variability within feet of passive sampler placement that warrants measurement of temperature and salinity at the time of sampler placement and retrieval via a real time instrument such as a hydrolab pumping porewater to the surface via tubing/piezometer to ensure these parameters are appropriately bracketed and uncertainties minimized.
5. Case study #2. Please add "EPA scientific divers placed and retrieved PSR samplers to ensure proper placement and quality of the retrieved sample." It would also be appropriate to note here that EPA divers were substantially involved in the sampling and analysis plan at PSR to ensure sample retrieval. In this example, EPA divers were instrumental in having samplers deployed on transects which were not visible from the surface, thereby ensuring sample integrity.
6. Case study #2. Please include a photo of samplers being deployed at PSR. (EPA r10 diver...) "EPA scientific diver Brent Richmond takes a surface grab sample co-located with an SPME passive sampler at the PSR site. Photo by Sean Sheldrake, USEPA."
7. I would suggest adding the attached photo (img 1424) with credits to the final document in case study #3 "EPA scientific diver Brent Richmond places an SPME passive sampler at the Wyckoff Superfund Site to assess cleanup effectiveness. Photo by Sean Sheldrake, USEPA."
8. For case study #4 at United Heckathorne, please credit the 2013 deployment having been designed and conducted by USEPA Environmental Response Team scientific divers.
9. Biofilms are discussed in 4.4 relative to analysis, but not for other impacts. It would be helpful if the guide could address biofilm impact (or not) on equilibrium timeframes, if any. This should cross reference a recommendation to load PRCs at all stations to control for variable uptake of target contaminants.

10. A reference should be included that “Diver health and safety concerns for deployment of samplers in contaminated waters are beyond the scope of this guide. Please contact the Environmental Response Team and/or Region 10 dive unit expertise centers in polluted water diving for more information.” I can provide a web site, papers, or other contact information as needed, but the document as written leaves this issue wide open—it would be helpful to give RPMs some indication that this is a serious health and safety issue and point them in the right direction to get example HASPs, dive plans, and other assistance. Many publications on such considerations are included here:
<http://yosemite.epa.gov/r10/OEA.NSF/investigations/divepubs>
11. 3.3.2 “Retrieval by divers or remotely by pulling on an attached line has been demonstrated at multiple field locations and is easy to implement in all environments.” This is a gross misrepresentation. There are many environments where diver based deployment is anything but easy. Suggested revision, “If surface based retrieval is not feasible, diver based retrieval will be necessary, which involves special considerations including appropriate PPE usage. Consulting with EPA experts on diver based deployment and retrieval is recommended.”
12. Additional deployment QA/QC measures should be appreciated in this guide. For example, for co-located grab samples and core samples, is a particular sequencing of sample design preferred to ensure pore spaces being sampled by the passive media are undisturbed?

Charge questions

- (1) Is the document written in a style that will be accessible for users with a range of educational and technical backgrounds? **Yes.**
- (2) Does the document provide sufficient information for commercial analytical laboratories to begin to develop their own standard operating procedures for deploying, recovering and analyzing passive samplers as well as provide sufficient guidance for contacting experts in the field to ask questions. **No. See item #1, above.**
- (3) Are the calculations described in the document sufficiently clear to be performed by users with a range of educational and technical backgrounds? **Yes.**
- (4) Are there any topics related to passive sampling in the document that should be excluded? **No.** Are there topics that should be included but are not currently discussed? **Yes, see above.**

Are there other resources that the document should list (e.g., additional passive sampling experts, laboratories performing passive sampler analyses, more case studies)? **Yes, see above.**