

2023 ITRC Project Team Final Proposal

Proposed Project Title

Passive Sampling Technology Update

Proposal Contacts

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Abstract

The ITRC Passive sampling page indicated “If we provide the information, then acceptance will come, facilitating the nationwide use of these devices under appropriate conditions, because it is a cost-effective means of collecting a formation quality groundwater sample, which can improve states’ ability to protect human health and the environment.” Almost 20 Years after the original publications, many policies are still biased toward purge sampling and regulators still require side-by-side comparison studies. Even getting approval for the side-by side comparison can often take years. For a proven technology in the industry that offers a more sustainable approach to obtaining data this seems an undue burden.

The available technical guidance is insufficient, outdated, or represented across a collection of varied literature that are collectively incomplete in covering key aspects. The goal of this guidance will be to reflect advancements on this topic and develop a guidance engaging a working group including state environmental personnel, stakeholders and tribal representatives, federal agencies, academia personnel, consultants, and industry representatives to provide a road map to use passive sampling for groundwater sampling more efficiently and confidently for all stakeholders,

Opportunity to do an industry update on passive sampling. Provide information on state regulatory acceptance of passive sampling technologies distinguishing compounds, media differences, sampling devices, and circumstances (for monitoring but not for closure for example). The update could also provide case studies of sites where samplers have been used effectively to reduce barriers to obtaining data (active air fields and other access restricted areas), reduce waste generation at sites (purge water) and reduce Scope 2 emissions associated with prolonged field events; as well as demonstrating that they reduce field sampling variability resulting in highly reproducible data, allow for rapid field collection and can sample discrete intervals in a well. An updated guidance can empower project teams to propose transition to passive sampling appropriately; empower regulators to feel confident in the science and evaluating approvals and enable more sustainable management and monitoring of sites.

Problem Statement and Highlight the Importance to the States and to the Broader Environmental Community

After 20 years passive sampling continues to meet with uncertainty when proposed for use at a site, even on sites with few analytes and long monitoring horizons.

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By providing information on approvals for COCs, circumstances and particular devices across states it would help regulators gain familiarity and enable evaluation of appropriate use when proposed (state map, COC by media table and or device table to highlight applicability, limitations and even perhaps numbers of sites to validate it is not a new concept)

By providing case studies and success stories of how the technology has led to a more sustainable approach while still providing highly reproducible data and even creating the ability for interval specific sampling it will empower project teams to propose transition to passive sampling appropriately; empower regulators to feel confident in the science and evaluating approvals and enable more sustainable management and monitoring of sites.

Project Deliverables

Document Products:

- ❖ Updates to Existing ITRC Documents (User's Guide for Polyethylene-Based Passive Diffusion Bag Samplers to Obtain Volatile Organic Compound Concentrations in Wells (DSP-1), Technical and Regulatory Guidance for Using Polyethylene Diffusion Bag Samplers to Monitor Volatile Organic Compounds in Groundwater (DSP-3), Technology Overview of Passive Sampler Technologies (DSP-4), and Protocol for Use of Five Passive Samplers to Sample for a Variety of Contaminants in Groundwater (DSP-5))
- ❖ Web-tools (interactive page like other recent documents)

Training Products:

- ❖ Online Training Class (1 hours)
- ❖ Training Videos or Modules (short tutorials on the devices)
- ❖ Presentation Slides (for workshops, meetings, and conferences)

State Team Leader

1. New Jersey, Crystal Pirozek

Additional Information

Can reach back to the previous team to determine continued interest.

Brad Varhol at EON Products has offered to provide anonymized information on COCs, media, numbers of sites and trends in data.

Passive sampling is identified in GSR and SRR guidance from ITRC, SuRF, ASTM, EPA, and others as a sustainable best management practice.

The ITRC group can incorporate guidance from EPA and USGS on passive sampling.

Can build on the recent USGS publication Passive Sampling of Groundwater Wells for Determination of Water Chemistry; Chapter 8 of Section D. Water Quality Book 1. Collection of Water Data by Direct Measurement; Techniques and Methods 1–D8; U.S. Department of the Interior and U.S. Geological Survey; Thomas E. Imbrigiotta and Philip T. Harte; U.S. Geological Survey, Reston, Virginia: 2020

Additionally, Crystal is the co-lead in the NJDEP field manual Field Sampling Procedures Manual Technical Guidance Committee. This committee undertook the effort to update the field sampling manual which includes guidance on passive sampling.