



Private Consultant Sites in Indiana

Snap Sampler

Summary

Media:	Groundwater
Study Type:	Implementation for LTM
Technology:	Grab
Peer Reviewed:	No
Publication Date:	2009–present

Study Description

The Snap Samper passive sampling system is in use on two long-term groundwater monitoring sites/projects for confidential manufacturing/private-sector clients in Indiana. Site one is a chemical manufacturing facility with dissolved-phase VOCs and SVOCs present in groundwater at multiple locations on site. With the advent of low-volume analytical capabilities for SVOCs in water, passive sampling using the Snap Sampler system was approved and adopted. Rigorous side-by-side testing and evaluation of the low-flow methods and results versus those for the Snap Sampler system was not conducted, deferring to the abundance of independent test results and agency approvals available in the public record. The hydrogeologic setting at site one is such that some monitoring wells are completed in a well-sorted fine-grained sand deposit, and other wells are completed in silt. During low-flow purging and sampling, maximum flow rates at individual wells ranged from 50 to 200 ml/min and, and often it was necessary to purge for up to one hour or more to achieve geochemical stabilization prior to sample collection. Adoption of the Snap Sampler system eliminated the time and effort required to purge prior to sample collection.

Site two is a former manufacturing facility with a dissolved-phase chlorinated volatile organic compound (CVOC) plume in groundwater extending approximately 2 miles beyond the site boundary, under multiple private properties. Groundwater sampling was conducted using the Snap Sampler system at approximately 100 wells from 2009 through 2022. Groundwater monitoring was conducted as part of a voluntary remediation project, subject to approval by the Indiana Department of Environmental Management (IDEM). Use of traditional low-flow purging and sampling methods at these wells was problematic logistically because of the sheer number of wells and difficulty of accessing them because most of the wells are in heavily wooded and remote areas. Furthermore, purge water needed to be contained, transported, stored, and disposed as listed hazardous waste. Use of the Snap Sampler system eliminated the need to:

- Mobilize equipment and supplies to support the low-flow method to multiple remote locations
- Contain purge water, which was considered hazardous waste by listing
- Perform decontamination of low-flow pumps
- Contain decontamination water, which was considered hazardous waste by listing
- Collect equipment blanks
- Transport listed hazardous waste from multiple rugged, remote locations
- Provide a secure storage location for hazardous waste
- Label, inspect, and document stored hazardous waste
- Transport and dispose of hazardous waste

Remedial Phase

Long-term monitoring

Outcome

Use of the Snap Sampler system on both sites eliminated the need to reuse sample collection equipment from well to well (e.g., submersible sampling pumps, etc.) and to collect and analyze equipment blank samples. This further increased efficiency in sample collection, and reduced opportunities for quality control errors to be introduced into the sampling effort.

By eliminating the need to mobilize low-flow sampling equipment and to handle purge water, the Snap Sampler system reduced or eliminated several safety risks from the sample collection effort.

With the adoption of passive sample collection using the Snap Sampler system at site one, the labor hours required to complete one round of sample collection at site one decreased by 20–30 percent. A comparison of the requirements for groundwater monitoring using low-flow sampling methods versus passive sampling methods at site two per event is summarized in Figure 1. Over the course of the two-year, quarterly monitoring program at site two, use of the Snap Sampler system resulted in a cost reduction of approximately 60% versus the use of low-flow sampling methods.

Figure 1
 Estimated Requirements Per Quarterly Event
 Comparison of Low-Flow Versus Passive Sampling Methods
 (61 Monitoring Wells)

Requirements (per Event)	Low Flow	Passive (Snap Sampling)
Field Personnel	4 icons of people	3 icons of people
Days	12 icons of stars	4 icons of stars
Rental Equipment	3 icons of trucks	1 icon of truck
Samples Analyzed	12 icons of beakers	12 icons of beakers
Hazardous Waste Management	12 icons of drums	1 icon of drum
Cost	\$55	\$5

= 10 samples
 = one 55-gallon drum
 = one week of rental equipment

Use of passive (snap sampling) methods resulted in a cost reduction of approximately 60% per event.

Case Study Reference

Britt, Sandy. Private Consultant's Use of Snap Samplers at Two Sites. 2009-present.