

A.1 SNAP SAMPLER

A.1.1 Department of Defense Environmental Security Technology Certification Program

ESTCP Demonstration Validation study of the Snap Sampler; ER-0630

A.1.2 Summary

Media:	Groundwater
Study Type:	Side-by-side comparison study
Technology:	Passive Grab Sampler/Snap Sampler
Peer Reviewed:	No
Publication Date:	2007-2011

A.1.3 Site Description

The Department of Defense Environmental Security Technology Certification Program (ESTCP) is a program designed to facilitate emerging technology implementation through demonstration and validation at active remediation sites operated by the US Military. The Snap Sampler demonstration included field demonstrations at the following facilities:

Former Pease Air Force Base, New Hampshire
Former McClellan Air Force Base, California
Silresim Superfund Site, Massachusetts
Former Louisiana Army Ammunition Plant, Louisiana

A.1.4 Remedial Phase

Long Term Monitoring

A.1.5 Outcome

VOCs

“Statistical analyses of these data revealed that there was no significant difference between the concentrations of the VOCs in the samples collected with the Snap Sampler vs. those collected using low-flow purging and sampling for any of the 13 analytes.”

Explosives

“[C]oncentrations in the Snap Sampler were within ~3% of the mean concentrations for the control samples.” “Statistical analyses of the data for each analyte revealed that there was no statistically significant difference between the concentrations of any of the seven explosives in the samples collected with either sampling method.”

Anions, cations, perchlorate

“Laboratory studies demonstrated that the Snap Sampler recovered equivalent concentrations of both anions and cations, including several metals and perchlorate, when compared with known control samples.” “The Snap Sampler generally recovered samples with equivalent

concentrations of inorganic analytes to those found using the EPA's low-flow purging and sampling protocol."

Ease of use

"The Snap Sampler was found to be relatively easy to use in that 1) the technician was able to learn how to use the sampler with relative ease, 2) there were relatively few problems that required a second sampling attempt, and 3) the method was acceptable to the field technician."

Cost

"The Snap Sampler also provided lower costs than low-flow sampling. Sampling time was less than one fourth of that needed to collect low-flow samples at the site. The long-term costs associated with using these methods were calculated based on the costs of this demonstration." "...Snap Sampler can provide a 46% cost savings vs. using low-flow sampling [at McClellan] and at the former Pease AFB...67%"

A.1.6 References

Parker, L. V., and Mulherin, N. D., "Evaluation of the Snap Sampler for Sampling Ground Water Monitoring Wells for VOCs and Explosives," ERDC/CRREL TR-07-14, US Army Corps of Engineers Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, prepared for the Department of Defense's Environmental Security Technology Certification Program (ESTCP), Arlington, VA under ER-0630, 68 pages

Parker, L.V., Mulherin, N.D., and Gooch, G.E., "Evaluation of the Snap Sampler for Sampling Ground Water Monitoring Wells for Inorganic Analytes," ERDC /CRREL Technical Report TR-08-25, US Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, prepared for the Department of Defense's Environmental Security Technology Certification Program (ESTCP), Arlington, VA under ER-0630, 72 pages

Parker, L., Mulherin, N., Gooch, G., Major, W., Willey, R., Imbrigiotta, T., Gibbs, J., and Gronstal, D., "Demonstration/Validation of the Snap Sampler Passive Ground Water Sampling Device for Sampling Inorganic Analytes at the Former Pease Air Force Base," ERDC/CRREL TR-09-12, US Army Corps of Engineers Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, prepared for the Department of Defense's Environmental Security Technology Certification Program (ESTCP), Arlington, VA under ER-0630, 115 pages

Parker, L., Mulherin, N., Hall, T., Scott, C., Gagnon, K., Clausen, J., Major, W., Willey, R., Gibbs, J., Imbrigiotta, T., and Gronstal, D., "Demonstration/Validation of the Snap Sampler Passive Groundwater Sampling Device at the Former McClellan Air Force Base," ERDC/CRREL TR-11-3, US Army Corps of Engineers Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, prepared for the Department of Defense's Environmental Security Technology Certification Program (ESTCP), Arlington, VA under ER-0630, 132 pages

Parker, L., Mulherin, N., Gooch, G., Hall, T., Scott, C., Gagnon, K., Clausen, J., W, Major, Willey, R., Imbrigiotta, T., Gibbs, J. and Gronstal, D., "Project ER-0630 Demonstration/Validation of the Snap Sampler Cost and Performance Final Report," ESTCP Cost and Performance Final Report published as ERDC-CRREL TR 11-11, US Army Engineer Research and Development

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