

A.1 Technology Name

Equilibration (RCDM)

A.1.1 Source

Imbrigiotta, Thomas & Trotsky, Joseph. (2010). Demonstration and Validation of a Regenerated Cellulose Dialysis Membrane Diffusion Sampler for Monitoring Ground Water Quality and Remediation Progress at DoD Sites for Perchlorate and Explosives Compounds (ER-0313). 88.

A.1.2 Summary

Media:	Groundwater
Study Type:	Side-by-side
Technology:	RCDM
Peer Reviewed:	No
Publication Date:	September 2010

A.1.3 Site Description

- Results are provided for the Department of Defense Aberdeen Proving Grounds (Maryland) and Picatinny Arsenal (New Jersey) field sites from samples collected in 2008 and 2010.
- Regenerated-cellulose dialysis membrane (RCDM) samplers were utilized to collect samples for analysis of perchlorate and explosives compounds (ex. RDX, HMX, Tetryl, PETN, and nitrobenzene/nitrotoluene compounds)
- Groundwater samples collected from RCDM methods were compared to low flow samples collected side-by-side
- Low flow and RCDM side-by-side results were compared graphically and statistically to evaluate significance of differences.

A.1.4 Remedial Phase

The overall objectives of the study were to assess validity of RCDM samplers for perchlorate and explosives parameters, test equilibration period for these compounds, compare sampling efficiency to low-flow sampling, and gain regulatory acceptance and transfer sampler use to end users. Both sites are well-characterized and utilized extensively for ongoing research purposes.

A.1.5 Outcome

Concentrations of perchlorate and most explosive parameters showed 'excellent' agreement between results. Results for 2-amino-4,6-dinitrotulene and 4-amino-2,6-dinitrotoluene showed significantly higher concentrations in RCDM results compared to low flow samples. Sampling costs were estimated to be 71% less for each sample compared with an ECDM sampler compared with low flow sampling methods.

31 **A.1.6 References**

32 Also documented in an October 2011 ESTCP Cost and Performance Report (ER-200313) titled:
33 Demonstration and Validation of a Regenerated Cellulose Dialysis Membrane
34 Diffusion Sampler for Monitoring Ground-Water Quality and Remediation Progress
35 at DoD Site: Perchlorate and Ordnance Compounds
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