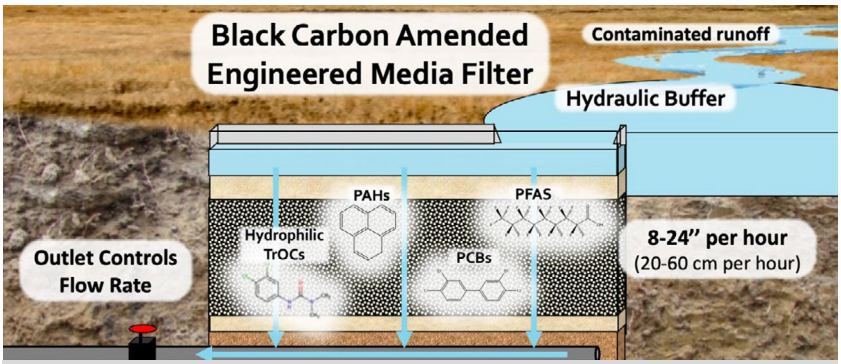
CRITICAL FINDINGS

Improved Stormwater Control Measures to Remove Contaminants from Stormwater Runoff

ER18-1145 | December 2022



Black Carbon-Amended Filters for Removal of Dissolved Metals and Trace Organic Compounds (TrOC) from Stormwater Runoff

OUTCOMES

- Black carbon filters remove dissolved metals and TrOC, including hydrophobic compounds, hydrophilic compounds, and some per- and polyfluoroalkyl substances (PFAS)
- Performance tables and curves describe black carbon filter performance for variety of conditions and filter design parameters
- Contaminant transport modeling predicts TrOC removal performance

Additional Resources

- Project Webpage
- TEMPEST Design Tool
- Guidance Manual

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Black Carbon Materials (d_{50} ~0.85 mm) (regenerated AC or biochar [high temp, pyrolysis, wood feedstock])

APPROACHES

- Assessed media mixtures for contaminant removal performance
- Developed performance curves of kinetic and flow rate design parameters
- Evaluated intermittent wetting/drying and various saturation conditions
- Conducted long-term performance modeling of black carbon filters

TECHNOLOGY TRANSITION

- TEMPEST Design Tool integrates contaminant transport modeling with hydrologic constraints to estimate improved stormwater control measures performance and lifetime
- Guidance Manual disseminates experimental results to DoD site managers

About SERDP

The Strategic Environmental Research and Development Program (SERDP) is the U.S. Department of Defense's environmental and resilience research program, harnessing the latest science and technology to improve the DoD's environmental performance, reduce costs, and sustain mission capabilities.

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This is a Fact Sheet developed under SERDP project, "Prevention of Sediment Recontamination by Improved BMPs to Remove Organic and Metal Contaminants from Stormwater Runoff".

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Biochar, Regenerated Activated Carbon, Sorption, Stormwater Runoff, Trace Organic Contaminants, Per- and Polyfluoroalkyl Substances

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