

Entries for May 1-15, 2026

Market/Commercialization Information

F – INDEFINITE-DELIVERY/INDEFINITE-QUANTITY (ID/IQ) SMALL BUSINESS ENVIRONMENTAL REMEDIAL ACTION CONTRACT FOR SITES IN HAWAII, GUAM, AND OTHER AREAS WITHIN THE NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND PACIFIC AREA OF RESPONSIBILITY VI (SBRAC VI) (PRESOL)

U.S. Department of the Navy, NAVFAC Pacific Command, Joint Base Pearl Harbor Hickam, HI
Contract Opportunities on SAM.gov N62742-26-R-1801, 2-026

When this solicitation is released on or about June 23, 2026, it will be competed as a total small business set-aside under NAICS code 562910. The Department of the Navy has a requirement for environmental remediation services at environmentally contaminated sites, primarily located at Navy and Marine Corps installations and other Government facilities within the Naval Facilities Engineering Systems Command (NAVFAC) Pacific area of responsibility, with work potentially performed at other locations as required by the Government. The contractor shall provide a broad range of environmental restoration and remedial activities, including removal and remedial actions, emergency response, munitions response and range cleanup, site characterization, groundwater and sediment remediation, storage tank closures and replacements, hazardous material response, operation and maintenance of remediation systems, and related technical support. Work may involve contaminants including petroleum products, metals, PCBs, PAHs, PFAS, munitions and explosives of concern, pesticides, and other hazardous materials in soil, groundwater, sediment, surface water, air, and structures. The Government anticipates awarding a single Cost-Plus-Fixed-Fee, Indefinite-Delivery/Indefinite-Quantity contract with a one-year base period and four one-year option periods, a minimum guarantee of \$5,000, and a maximum contract value of \$245,000,000. The award will be made on a best-value basis, with technical factors and past performance significantly more important than cost. There is no solicitation available at this time.
<https://sam.gov/workspace/contract/opp/F33399e8c794b05a986c8d1e653849/iew>

LIMITED COMPETITION: SUPERFUND HAZARDOUS SUBSTANCE RESEARCH AND TRAINING PROGRAM (P42 CLINICAL TRIAL OPTIONAL)

National Institutes of Health, Funding Opportunity RFA-ES-27-004, 2026

The National Institute of Environmental Health Sciences (NIEHS) is announcing the continuation of the Superfund Hazardous Substance Research and Training Program, referred to as Superfund Research Program (SRP) Centers. SRP Center grants will support problem-based, solution-oriented research Centers that consist of multiple, integrated projects representing both the biomedical and environmental science and engineering disciplines, as well as cores tasked with administrative (which include Center leadership, data management, and training); translational research and engagement; and research support functions. The scope of the SRP Centers is taken directly from the Superfund Amendments and Reauthorization Act of 1986, which limits competition for this program to accredited institutions of higher education. Eligibility for additional information. In accordance with NIH standard peer-review processes, the application(s) will be peer-reviewed, and only meritorious application(s) will be considered for funding. To support innovative research and training through multi-project, interdisciplinary grants. Areas of research may include: (1) advanced techniques for the detection, assessment, and evaluation of the effects of hazardous substances on human health; (2) methods to assess the risks to human health presented by hazardous substances; (3) methods and technologies to detect hazardous substances in the environment; and (4) basic biological, chemical, and physical methods to reduce the amount and toxicity of hazardous substances. Applications are due by 5:00 pm local time of applicant organization on September 25, 2026.
<https://simpler.grants.gov/opportunity/dafb0f45f1-423b-8b6d-e994d4b43ca8>

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Cleanup News

NORTHROP GRUMMAN BETHPAGE FACILITY AND NAVAL WEAPONS INDUSTRIAL RESERVE PLANT SITES: GROUNDWATER PLUME CLEANUP UPDATE

NY State Department of Environmental Conservation, 4 pp, 2026

Historic operations at the Northrop Grumman Bethpage Facility and Naval Weapons Industrial Reserve Plant Sites created a TCE groundwater plume, extending ~4 miles south, 2 miles wide, and between 200 and 900 ft bgs. While 20 extraction wells that withdraw ~10 million gals of contaminated water daily from the plume currently operate, additional cleanup efforts are underway to meet the objectives of DEC's comprehensive plan. Phase 1 of the groundwater extraction and treatment system was enhanced by adding two extraction wells. During Phase 2, the Navy installed six extraction wells and ~18,000 ft of underground piping and constructed a state-of-the-art water treatment plant to expedite cleanup of the plume interior. To hydraulically contain the groundwater plume and prevent contamination from migrating, the Navy has continued with the design and construction of extraction wells and a water treatment plant along the leading edge of the plume. To date the Navy has installed three extraction wells and ~2,000 ft of underground conveyance piping, with installation of an additional 2,600 ft of piping for the RW-10 extraction well planned. Construction of the treatment plant is scheduled to start in 2027 and is expected to begin operating in late 2028. To intercept the plume while this construction is underway, interim systems began operating in June 2025 and early 2026. In 2023, Northrop Grumman began operation of a groundwater extraction and treatment system that treats ~2 million gals of water/day from three extraction wells within the interior of the plume that historically originated from historic disposal that occurred at the Former Grumman Settling Ponds. To date, more than 1.6 billion gals of groundwater have been extracted and treated, and ~19,000 lbs of contamination have been removed. Northrop Grumman is completing a predesign investigation to support the possible siting of additional extraction wells to contain the southeastern portion of the plume. This work has included drilling deep soil borings and collecting groundwater samples to determine if the plume has migrated into this area. Initial results indicate the deep plume has not migrated as far as previously anticipated.
<https://dec.ny.gov/sites/default/files/2026-01/grummanupdate0126.pdf>

All site documents: <https://administrative-records.navy.mil/?NL6VNT706G4XM3TM>

OPTIMIZING AN IN SITU THERMAL REMEDY VIA PRE-REMEDIAL INVESTIGATION AT A FORMERLY USED DEFENSE SITE IN RHODE ISLAND

Grant, S. | DCHWS East, 4-6 March, Philadelphia, PA, 15 slides, 2026

Successful implementation of in situ thermal remediation (ISTR) at complex fractured-bedrock sites requires a thorough understanding of contaminant distribution, hydrogeologic conditions, and preferential transport pathways. At the PR-58 Nike Missile Battery and Disaster Village Training Area in North Kingstown, Rhode Island, a comprehensive pre-remedial investigation (PRI) and supplemental PRI (SPRI) were conducted to optimize the design of a proposed thermal remedy for CVOCs. The investigation employed an Adaptive Management Decision Model that integrated real-time field data collection and interpretation to guide characterization activities. Multiple lines of evidence, including Color-Tec® screening, groundwater and soil sampling, packer testing, geophysical logging, and three-dimensional conceptual site modeling, were used to delineate contaminant extent and identify critical fracture networks controlling groundwater flow and contaminant migration. Geophysical logging revealed interconnected fracture sets that represent preferential pathways for contaminant transport, providing key insights into the site's hydrogeologic framework. Results from the SPRI refined the conceptual site model and fully delineated the horizontal and vertical extent of CVOC impacts, identifying groundwater concentrations up to 70 ppm and soil concentrations up to 10 ppm. These findings enabled optimization of the ISTR design by improving treatment area definition, establishing realistic treatment goals, reducing uncertainty, and supporting more accurate cost estimates. The project demonstrates the value of adaptive investigation strategies, collaborative decision-making, and targeted data collection in reducing remedial design uncertainty and improving the effectiveness of thermal remediation systems at fractured-bedrock sites.
<https://mediacdn.guidesbook.com/upload/2137175A1mrc1MrlJde5Kp4nrl7vd8XxKNmeSTRMDF.pdf>

POST-REMEDIAL DESIGN REMEDY OPTIMIZATION TO REDUCE LIFE CYCLE COSTS AND REMEDIATION TIMEFRAMES AT A SUPERFUND SITE

Perlmutter, M. | DCHWS East, 4-6 March, Philadelphia, PA, 25 slides, 2026

This presentation describes a multi-phase optimization process conducted at the Walker Machine Products Superfund site in Tennessee, where CVOCs impacted soil, groundwater, and soil vapor within loess and underlying fluvial sand deposits. The original remedial design included soil excavation, SVE, hot air injection, passive air entry, and air sparging systems to address contaminant mass and achieve remedial action objectives. Following remedial design completion, a series of data-driven optimization evaluations were performed to improve remedy effectiveness and reduce long-term costs. Initial recommendations included replacing hot air injection with electrical resistance heating and incorporating horizontal directional drilling for air sparging wells to increase treatment efficiency and reduce remediation duration. Subsequent investigations refined the treatment area through targeted soil sampling, equipment optimization, and conceptual site model updates. New data demonstrated that contaminant mass was primarily associated with the fluvial sands rather than the overlying loess, allowing the remedy to be further simplified by eliminating large portions of the planned thermal treatment infrastructure. The final optimized remedy focused SVE and air sparging operations on the zones containing the highest contaminant mass, reducing capital expenditures, lowering life-cycle costs, decreasing energy consumption, and shortening the anticipated remediation timeframe while maintaining compliance with remedial action objectives. Startup performance testing further optimized system operation and confirmed effective contaminant recovery. This case study demonstrates how iterative optimization, supplemental characterization, and continual refinement of the conceptual site model can improve remedial outcomes, avoid unnecessary remedial technologies, and deliver substantial cost and schedule benefits at complex Superfund sites. <https://mediacdn.guidesbook.com/upload/21371748Euv8c8V1SNrL2MfrvT1W7PbwmNt5Mpsj.pdf>

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Demonstrations / Feasibility Studies

PERFORMANCE OF CERAMIC PASSIVE SAMPLERS FOR THE MONITORING OF PFAS IN SURFACE WATER AND GROUNDWATERS

Moro, G., S. Santana-Viera, S. Perez, and S. Lacorte.
Analytical and Bioanalytical Chemistry(2026)

Ceramic passive sampler (CPS) devices combined with liquid-chromatography/tandem mass spectrometry were used to determine PFAS in groundwater and river water within the Besos River catchment area in Barcelona, Spain. CPS were first calibrated for seven target PFAS under controlled lab conditions. All compounds exhibited linear uptake behavior over a 20-day calibration period and helped determine compound-specific sampling rates. Lab blank experiments were also performed to evaluate background contamination and ensure reliable quantitative interpretation of field data. The calibrated CPSs were subsequently deployed in both groundwater and river water for 14 days. Total PFAS concentrations ranged from 19.7 to 250 ng/L, revealing widespread contamination across the study area. The concentrations obtained were consistent with those reported previously for the Besos system and for other impacted European aquatic environments using conventional grab sampling methods. Results demonstrate the strong potential of CPS as an innovative and robust tool for quantitative PFAS monitoring in surface water and groundwater, providing reliable time-integrated concentration data and supporting their application in long-term environmental surveillance programs. <https://link.springer.com/content/pdf/10.1007/s00216-026-06533-y.pdf>

ELECTROSTATIC CONCENTRATION OF PFAS IN COMPLEX WATERS: EVALUATION OF THE AQUEOUS ELECTROSTATIC CONCENTRATOR (AEC) TECHNOLOGY

Chandler, T. | PFAS Forum VI, 13-15 May, Orlando, FL, 25 minutes, 2026

The Aqueous Electrostatic Concentrator (AEC) applies an electric field to selectively attract and immobilize charged PFAS molecules onto engineered membranes, followed by a thermal electro-oxidative destruction step. Studies evaluated AEC performance across bench- and pilot-scale trials, with an emphasis on treatment kinetics, operational parameters, and the regulatory implications. Surface water, groundwater, and landfill leachate with varying ionic strength and organic load were tested. Pretreatment included electrocoagulation and advanced oxidation applied to landfill leachate to reduce COD and hardness (>95%), mitigating fouling and scaling. The AEC operated as a low hydraulic pressure system with closed-loop electrolyte circulation and no sacrificial anode. Independent lab analyses quantified PFAS removal efficiencies across multiple compound classes (PFOA, PFOS, PFHxS, 5:3-FTCA). Operational parameters including power demand, concentrate volume, and membrane life were monitored at pilot-scale to inform full-scale design. Bench- and pilot-scale evaluations confirm that the AEC achieves high PFAS removal efficiencies (94-99.99%) across diverse matrices, including extreme landfill leachate conditions. Initial PFAS concentrations exceeding 7,500,000 ppt were reduced to below EPA limits following AEC treatment. When pretreating landfill leachate, COD and hardness reductions (>95%) improved AEC performance in high-strength leachate. Operational advantages included low energy consumption, minimal secondary waste generation, and reduced replacement part demand. Findings support AEC as a sustainable, scalable solution for PFAS removal and destruction, enabling compliance with stringent EPA standards while reducing lifecycle costs and environmental impacts. <https://www.youtube.com/watch?v=iNwYFClnk4d>

SOIL REMEDIATION OF PFAS USING RAPID LEACHING TECHNOLOGY

Massa, B. | PFAS Forum VI, 13-15 May, Orlando, FL, 25 minutes, 2026

This session presents results of a field pilot study conducted at a military installation using the Rapid Leaching Technology (RLT) proprietary technology to remediate PFAS in soil. The technology uses a unique and patented filtration system to fully saturate the soil with water, removing the micro-NAPL layer, then rapidly dewater it in a watertight containment cell constructed from geomembrane and geosynthetic clay liners. The generated leachate is collected in a similarly constructed secondary watertight cell and then pumped through a wastewater treatment system to remove PFAS for future destruction or disposal. The treated water is then reused and the process repeated. The soil is re-saturated with the treated water within the containment cell as necessary until the desired PFAS removal limits have been obtained. Three separate benchtop studies documented average total PFAS removal ranging from 89 to 93% per rinse cycle. The

technology removed 94-100% of the five PFAS analytes regulated by EPA. Additional rinse cycles can be incorporated into the technology to achieve additional PFAS removal. The benchtop studies used three and four rinse cycles to determine the effectiveness. See *times* 1:14:50-1:34:13 <https://www.youtube.com/watch?v=WbXRF7y1Z7M>

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Research

RESEARCH BRIEF 374: DUAL-FUNCTION BIOAUGMENTED SORBENTS OPTIMIZE GROUNDWATER CLEANUP

National Institute of Environmental Health Sciences, Superfund Research Program (SRP), June 2026

A new study may help improve cleanup strategies for groundwater and sediment contaminated with persistent chlorinated organic pollutants. Researchers used modeling tools to better understand and optimize their cleanup technology that combines pollutant-degrading bacteria with an activated carbon sorbent, called bioaugmented sorbents. To understand how sorbent surfaces influence bacterial activity, the team combined a liquid mixture of *Dehalobium chlorocoerda* strain DF-1 and two commercial activated carbons in airtight glass bottles. The researchers then developed BIO-FO-IAST, a mass transfer model that includes Biokinetics, First-Order Sorption Kinetics, and Ideal Adsorbed Solution Theory, to measure the complex interaction between sorption and biodegradation. Results demonstrated that bacteria attached to activated carbon maintained strong degradation activity. The model proved that bacteria and carbon work in synergy to continue degrading PCE as the sorbent released it, that the overall dechlorination per bacterial cell was higher when using the bioaugmented sorbents compared to standard water treatment systems, and that activated carbon inadvertently absorbed essential B vitamins from the water. Without enough B vitamins, DF-1 bacteria slowed or stopped degrading PCE. However, when the researchers added sufficient B vitamins, the bacteria resumed activity and rapidly broke down the trapped PCE into harmless end products. Once properly supplemented with vitamins, their combined technology was 50% more efficient at degrading PCE compared to bacteria alone. Findings have direct implications for field management. At nutrient-poor groundwater sites, adding activated carbon and bacteria may not be enough. Site managers may need to monitor nutrient conditions and add B vitamins or related amendments to keep the bacterial cleanup process active. https://tools.niehs.nih.gov/srp/researchbriefs/view.cfm?Brief_ID=374

PFAS QUANTIFICATION WITH DIFFUSIVE GRADIENTS IN THIN-FILM PASSIVE SAMPLERS: CAPTURING TIME-WEIGHTED AVERAGE CONCENTRATIONS AROUND MAXIMUM CONTAMINANT LEVELS TO FACILITATE COMPLIANCE

Harris, B.J., S.D. Hodges, D.G. Wahman, L.M. Hauptert, J.R. Chimka, and J.L. Fairley. *Water Research* 300:125918(2026)

Diffusive gradients in thin-films (DGT) passive sampler gel layer diffusion coefficients (D_{Gel}) ± 95% confidence intervals (CIs) were determined using two-compartment diffusion cell tests analyzed with a non-steady-state finite difference model (FDM) for 32 PFAS. For each PFAS, the FDM also determined the normalized weighted sum of squared errors (WSSE × n⁻¹). Eleven PFAS had adequate FDM fits (WSSE × n⁻¹ < 0.03), and D_{Gel} ± 95% CIs decreased with increasing molecular weight from 7.1 to 5.1 (± 0.1-0.6) × 10⁻⁶ cm²/s. For the other 21 PFAS, linear regression models (D_{Gel} vs. MW, R² = 0.967) were used to estimate D_{Gel} ± 95% CIs from 3.4 to 7.6 (± 0.2-1.0) × 10⁻⁶ cm²/s. Compared to their free water diffusivities, D_{Gel} values differed by a median of 6.5% and first and third quartiles of 4.5 and 8.7%, respectively. Error in D_{Gel} was propagated into time-weighted average concentrations (CDGT) for 5-36-day lab-scale DGT deployments, in which CDGT ± 95% CIs for 20-31 of the 32 PFAS were indistinguishable from grab samples (sign test: α = 0.05). DGTs accurately captured time-weighted average PFAS aqueous phase concentrations at ~1, 10, 100, and 200 ng/L. This study demonstrates the utility of DGTs to quantify PFAS at low ng/L levels and establishes methods for PFAS D_{Gel} determinations, error propagation into CDGT, and comparisons with grab sampling.

PFAS FROM A DISCRETE-EVENT TERRESTRIAL SOURCE MIGRATES WITH GROUNDWATER TO INTERTIDAL SEEPAGES

Briggs, M.A., E.A. White, P.T. Scordato, H.G. Lind, Z.O. O'Neal, D.M. Rey, T.D. McCobb, C.T. Green, and D.R. LeBlanc. *Groundwater* 64(3):323-334(2026)

PFAS mobility was assessed in groundwater to intertidal seepages from two discrete, adjacent tanker-truck rollover events that occurred in 1997 and 2000, where AFFF was applied to suppress fuel vapors. A combination of groundwater-flow and particle-track modeling, geophysical field characterization, and chemical sampling found substantial concentrations of PFAS (up to 530.5 ng/L), mainly PFOS, in groundwater discharging to a shoreline along an embayment used for swimming and recreational shellfish harvesting. The general groundwater trajectory to the embayment was predicted by numerical particle tracking. The highest concentrations of PFAS were found in discharges near the landward side of the intertidal zone. The discharges had variable salinity at the time of sampling. Even in areas of strong, preferential groundwater discharge at low tide, there was tidal "pumping" of ocean water into the aquifer sediments during higher tides. Therefore, there are likely to be continuously variable salinity conditions at similar seepage interfaces that have not been broadly considered in previous conceptual models of PFAS fate and transport. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/gwat.70063>

MODULATING SURFACE ARCHITECTURE OF SULFIDATED NANOSCALE ZEROVALENT IRON FOR SYNERGISTIC ENHANCEMENT OF DECHLORINATION REACTIVITY, ELECTRON SELECTIVITY, AND COLLOID STABILITY

Shen, M., Z. Liang, Y. Guo, F. He, C. Jiang, T. Zhang, and W. Chen. *Environmental Science & Technology* 60(16):12666-12675(2026)

Sulfidated nanoscale zerovalent iron (S-nZVI) shows promise in the remediation of chlorinated solvents-impacted groundwater, yet its performance is hindered by the trade-off between electron selectivity and colloidal stability. The dilemma was resolved in this study by using cyclodextrin (CD) as a template in S-nZVI synthesis to regulate the surface architecture. The CD-modified S-nZVI (CD-S-nZVI) prepared using sodium sulfide as the sulfur precursor exhibits high electron selectivity toward the dechlorination of TCE, while maintaining high colloidal stability. Mechanistic assays with additional S-nZVI materials prepared by varying CD dosage and using an alternative sulfur precursor (sodium dithionite) show that the binding of Fe²⁺ to CD provides abundant sulfidation sites during S-nZVI formation, thus rendering a higher sulfur content and more uniform FeS coating. This suppresses hydrogen evolution and improves electron selectivity. The incorporation of CD also facilitates TCE accumulation onto S-nZVI, due to partitioning into the hydrophobic cavities of CD molecules. Moreover, steric stabilization endows CD-S-nZVI with a much higher colloidal stability than S-nZVI without CD. The CD-S-nZVI demonstrates adaptability to a broad range of aqueous chemistry conditions and excellent longevity. This new strategy has important implications for the design of highly deployable groundwater remediation nanomaterials.

ANALYTE RECOVERY OF VOLATILE ORGANIC COMPOUNDS: A PASSIVE SAMPLING ANALYSIS VIA PHOTOTHERMAL DESORPTION COMPATIBLE DIFFUSIVE SAMPLERS

Shedd, J.S., E.L. Floyd, J. Oh, B.M. McMahan, and C.T. Lungu. *ACS Omega* 11(3):4232-4238(2026)

A preanalytical technique, known as photothermal desorption (PTD), which uses pulses of high-energy light to desorb analytes from thermally conductive materials, was developed to improve analytical sensitivity and time-to-knowledge of existing VOC exposure assessment methods. The theoretical and conceptual groundwork for PTD has been established, and advances have been made toward a first-generation, PTD-compatible diffusive sampler. However, additional characterizations of the prototype sampler's performance are needed before the method is ready for in-field deployment. The objectives of this study were to: (1) determine the percent mass recovered via PTD of samples collected for various VOC analytes (i.e., toluene, n-hexane, isopropyl alcohol, and TCE); and (2) quantify the analyte adsorption capacities of buckypaper (BP) sorbents for each VOC of interest. The percent mass recovery of toluene, n-hexane, TCE, and isopropyl alcohol were 0.60 ± 0.09, 1.2 ± 0.09, 1.1 ± 0.1, and 14.0 ± 1.0% per PTD pulse, and analyte adsorption capacities for BP sorbents were 152 ± 5 mg/g at 219 ppm toluene, 75 ± 42 mg/g at 292 ppm n-hexane, 104 ± 37 mg/g at 101 ppm TCE, and 105 ± 19 mg/g at 413 ppm isopropyl alcohol. The observed differences in desorption of analytes are likely attributed to varying types of weak intermolecular forces acting on aromatic rings, aliphatic chains, and polar moieties. While the large standard deviations in adsorption capacities may be explained by nonuniformity of nanotube alignment in respective sorbents. The early-stage prototype characterization data demonstrate the promising nature of PTD used with passive air samplers and provide a solid foundation for future development of the preanalytical technique and accompanying sampling devices. <https://pmc.ncbi.nlm.nih.gov/articles/PMC12854607/pdf/aos09208.pdf>

EVALUATING THE RELATIVE IMPORTANCE OF POLYFLUOROALKYL SUBSTANCES IN AFFF-IMPACTED SOILS

Jones, S.L., N. Gonda, J.C. Pritchard, J. Richardson, M.C. Bigler, M.L. Brusseau, B. Guo, J. Hattton, M. Hire, C.E. Schaefer, and C.P. Higgins. *Environmental Science & Technology* 60(18):13610-13621(2026)

A multisite study analyzed depth-discrete soil samples in 12 cores (≤2 m from the ground surface) from 10 AFFF-impacted DoD installations. A broad suite of PFAS was analyzed using extraction protocols designed for source-zone soil and liquid chromatography-high-resolution mass spectrometry (LC-HRMS) with targeted and semi-quantitative workflows. Across all samples, 162 PFAS spanning 50 classes were identified, with both electrochemical fluorination (ECF-) and fluorotelomer (FT)-derived signatures present at nearly all sites. Class-level detection frequency analysis showed that shallow intervals (down to 30 cm bgs) captured most class diversity at the sites. Precursors frequently dominated total PFAS mass within a soil core, though several cores were PFAA-dominated. These data indicate that reliance on the EPA Method 1633 target list alone substantially underestimated precursor mass in all 12 studied cores. Vertical profiles of PFAAs and precursors showed varying trends and correlations in concentration with depth, suggesting site-specific transport and transformation phenomena. Results point toward several polyfluoroalkyl substances that may be considered for prompt investigation while also highlighting a need for detailed characterizations of diverse AFFF-impacted sites.

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General News

TOWARD CLOSED-LOOP REMEDIATION: A DYNAMIC OPTIMIZATION APPROACH FOR HYDRAULIC CONDUCTIVITY ESTIMATION AND PUMP-AND-TREAT DESIGN

Wei, J., S. Jiang, Q. Liu, X. Zhang, N. Zheng, and J. Xing. *Journal of Contaminant Hydrology* 277:104852(2026)

A dynamic iterative optimization framework is proposed that integrates parameter inversion with remediation plan design into a closed-loop system of simulation-observation-update-optimization. The framework iteratively updates the hydraulic conductivity field (K-field) using pilot point parameterization and simulation-optimization techniques while dynamically adjusting the remediation strategy based on real-time monitoring data. Numerical experiments conducted on a virtual contaminated site demonstrated that the proposed framework significantly improves the accuracy of K-field characterization, as evidenced by decreasing logarithmic root mean square error and increasing spatial correlation coefficient over iterations. When compared with a conventional static remediation plan that is designed once and executed without updates, the dynamic framework achieves a substantially higher contaminant removal rate while simultaneously reducing the total pumping volume. Results highlight the framework's potential to enhance remediation effectiveness and reduce operational costs in heterogeneous aquifers, offering a practical and adaptive solution for complex contaminated site management. <https://www.sciencedirect.com/science/article/pii/S0169772226000136?pid=af2df90dca00de1720rdc27d0frc5e&pid=1-s2.0-S0169772226000136-main.pdf>

ADVANCES IN REMEDIATION: LIGHTNING IN A BOTTLE—ELECTROCHEMICAL OXIDATION AND PLASMA FOR PFAS DESTRUCTION

Divine, C. B. Miatke, and S. Kalra. *Groundwater Monitoring & Remediation* 46(2):9-18(2026)

This article explores the background and recent advancements in electrochemical oxidation (EO) and non-thermal plasma (NTP) treatments, specifically for PFAS mineralization, emphasizing their mechanisms, efficiencies, and practical challenges. Understanding these technologies is crucial for developing sustainable solutions to mitigate PFAS contamination in water. EO and NTP-based water treatment processes have emerged as promising approaches for the mineralization of PFAS, with a recent technology readiness level of 7-9 indicating that they are in their final stage of technology maturity. EO leverages anodic reactions to generate highly reactive species capable of breaking the strong carbon-fluorine bonds characteristic of PFAS molecules. Similarly, plasma technologies produce energetic electrons and reactive radicals that facilitate the decomposition of PFAS into benign end products. Both methods offer advantages such as onsite application, minimal chemical additives, and potential for complete mineralization. With recent advancements, EO and non-thermal plasma appear to have advanced considerably in scaling up systems for treating PFAS samples.

CASE STUDIES IN SURFACE RUNOFF AND FATE-AND-TRANSPORT MODELING AT AFFF-IMPACTED SITES

Beauvais, C.A. | PFAS Forum VI, 13-15 May, Orlando, FL, 25 minutes, 2026

This presentation describes how surface runoff modeling can be used to evaluate PFAS fate and transport and guide targeted soil and groundwater sampling during field investigations. Case examples are presented from sites where integrated modeling approaches combining surface runoff with fate-and-transport analyses were used to refine conceptual site models and improve

understanding of PFAS migration pathways. *Time 26:00-52:00* <https://www.youtube.com/watch?v=oHZ691eT-SE>

TOWARDS SUSTAINABLE NAPLS REMEDIATION: REVIEW OF SURFACTANT-ENHANCED INTEGRATED TECHNOLOGIES IN COMPLEX GEOLOGIC MEDIA

Asif, U., R. Hussain, and M. Wang.
International Journal of Environmental Research 20:99(2026)

Surfactant-enhanced remediation (SER) effectively removes NAPLs from contaminated subsurface environments, where conventional techniques face significant challenges. In this review, several SER-integrated technologies were studied based on sustainability criteria, including time, cost, efficiency, and environmental factors such as secondary pollution and effects on the microbial community. Evidence was synthesized from lab experiments, numerical simulations, and field case studies across saturated porous, fractured, and fractured porous media. Comparative analysis indicates that surfactant-enhanced air sparging has high removal efficiency for LNAPLs in fractured porous media. Enhanced multiphase extraction recovers DNAPLs from deep fractures without adverse environmental impacts. Surfactant-enhanced electrokinetic remediation demonstrates high degradation rates and scalability, particularly in low-permeability zones. In porous media, bioremediation with the addition of biosurfactants performs favorably due to its low cost and minimal secondary pollution generation. The comprehensive study recommends focusing on hybrid technology development, utilizing machine learning models, and pilot-scale trials to better assess the economic and regulatory feasibility of SER-integrated strategies for complex saturated environments.

The Technology Innovation News Survey welcomes your comments and suggestions, as well as information about errors for correction. Please contact Michael Adam of the U.S. EPA Office of Superfund and Emergency Management at adam.michael@epa.gov or (703) 399-4268 with any comments, suggestions, or corrections.

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