

Entries for April 16-30, 2026

Market/Commercialization Information

REGION 2 ERRS RECOMPETE (COMBINE)

U.S. Environmental Protection Agency, Region 3 Contracting Office, Philadelphia, PA
Contract Opportunities on SAM.gov 68HE0326R0009, 2026

This is a total small business set-aside under NAICS code 562910. EPA seeks a contractor to support its ERRS contract. The purpose of the ERRS contract is to provide fast, responsive environmental cleanup services to the release, or threatened release, of hazardous substances/waste/pollutants and contaminants/materials and petroleum products/oil for the EPA Region 2, which has a geographic area comprised of New Jersey, New York, Puerto Rico, the US Virgin Islands, and eight Indian Nations. Environmental cleanup in response to natural and manmade disasters, terrorist activities, weapons of mass destruction, and chemical, biological, radiological, and nuclear incidents may also be required under this contract. A regional cross-over may be requested under this contract, under rare circumstances, international responses may be required. The award will be an IDIQ contract with a period of performance from January 27, 2027, through January 26, 2035. Offers are due by 10:00 AM EDT on July 20, 2026. <https://sam.gov/workspace/contract/opp/26d719fc2dr439ba8850ef4863f41f/view>

AK-KODIAK ADMIN SITE-SOIL CLEAN-UP (SOL)

U.S. Department of the Interior, U.S. Fish and Wildlife Service, FWS, Construction A/E Team 1, Falls Church, VA
Contract Opportunities on SAM.gov 140FC126Q0023, 2026

This is a full and open competition under NAICS code 562910. The U.S. Fish and Wildlife Service requires a contractor to delineate and characterize petroleum-contaminated soils and check for groundwater contamination in the land farm area, and remove marine lead battery parts and lead-contaminated soil from the beach at the Sheep Island Boat Maintenance Facility at Kodiak National Wildlife Refuge in Alaska. The Contractor shall provide a Site Characterization Report incorporating previous reports and develop a Corrective Action Completion Report (CACR) that discusses the cost and pros/cons of mitigating the site using active remediation, engineered barriers, institutional controls (Land Use Control Plan), or a combination of these methods if contamination remains on-site after completion of this work. The contractor shall provide a final recommendation based on this evaluation and the current data collected during this contract. Sheep Island is a remote island facility with absolutely no known amenities. All supplies and equipment necessary to perform this site survey/soil sampling must be transported to the site. The award will be based on the lowest price deemed fair and reasonable by the Government. The magnitude of construction is between \$25,000 and \$100,000. Offers are due by 9:00 AM EDT on June 18, 2026. <https://sam.gov/workspace/contract/opp/edc8b48127f845d8b517b99301c3474d/view>

MULTIPLE AWARD MILITARY MUNITIONS SERVICES (MAMMS IV) INDEFINITE DELIVERY/INDEFINITE QUANTITY (IDIQ) MULTIPLE AWARD TASK ORDER CONTRACT (MATOC) (SRCSGT)

U.S. Army Corps of Engineers, Sub Command 1, 2, 3, Engineer Division North Atlantic, Baltimore District, Baltimore, MD
Contract Opportunities on SAM.gov W912DR27RA001, 2026

This is a sources sought notice for marketing research purposes only. The U.S. Army Corps of Engineers, Baltimore District, requests letters of interest from qualified contractors interested in performing work on the potential Multiple Award Military Munitions Services Multiple Award Task Order Contract in support of the Environmental Munitions Design Center under NAICS code 562910. The scope involves a wide range of military munitions and environmental services at various sites known or suspected to have been affected by military munitions, Munitions and Explosives of Concern, and Munitions Constituents, with emphasis on addressing CERCLA and RCRA process timelines and requirements. Specific efforts will include all phases of the CERCLA/RCRA process, including, but not limited to, site inspections, remedial investigations, feasibility studies, remedial designs, remedial actions, remedial operations, and long-term management. Additional desired capabilities include investigative and intrusive aspects of MEC and MC remediation, address characterization and/or remediation of co-mingled MEC, MC, and HTRW hazards during all phases of CERCLA and RCRA processes, and the ability to simultaneously manage multiple teams performing work at multiple locations under firm-fixed-price task orders. The Government is exploring the possibility of utilizing a firm-fixed price with economic price adjustment and would like industry feedback on experiences and any benefits seen from it. Although not limited to be "Munitions and Explosives of Concern," Small Arms Ammunition (SAA) may be encountered during any phase of the CERCLA and/or RCRA process. Capabilities must include Dynamic Advanced Geophysical Classification and SLAM-based positioning for investigation and cleanup. Letters of interest are due by 12:00 PM EDT on June 29, 2026. <https://sam.gov/workspace/contract/opp/bab77271d1c141f0837f3542d9de0b6c/view>

AK ARCTIC NWR BIG RAM LAKE SOIL & HAZARDOUS MATERIALS (SOL)

U.S. Department of the Interior, Fish and Wildlife Service, SAT Team 1, Falls Church, VA
Contract Opportunities on SAM.gov 140F5126Q0104, 2026

This is a total small business set-aside under NAICS code 562910. The Fish and Wildlife Service seeks a contractor to assess and characterize a potential petroleum spill at Big Ram Lake in Alaska to determine whether contaminated soil and groundwater are present and whether remediation is necessary. Environmental sampling and analysis will include petroleum hydrocarbons, volatile organic compounds, PAHs, and total lead in accordance with Appendix F of the 2024 ADEC Field Sampling Guidance for AVGAS. The contractor will prepare a site characterization and remediation plan/report for the spill and, if corrective action is required, develop a cost proposal as part of a Corrective Action Plan. In addition, asbestos, lead-based paint, and PCB-containing paint evaluations will be conducted for buildings slated for demolition, with a separate hazardous materials report documenting identified materials, estimated quantities, and associated remediation or removal cost estimates. Big Ram Lake is located in the Arctic National Wildlife Refuge in Alaska and can only be accessed by float plane. It is a remote location with limited facilities. There are several buildings (i.e., Cook Shack, Sleeping Cabin, and Outhouse) but absolutely no other amenities. The award will be a firm-fixed-price contract with a period of performance from June 22 to December 31, 2026. Offers are due by 11:59 PM CDT on June 7. <https://sam.gov/workspace/contract/opp/d71a9bc31b0949059d0f7bb9b65f96c/view>

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Cleanup News

IN SITU MONITORING CONSOLIDATION AND HARDENING BEHAVIORS OF AN HDPE GEOMEMBRANE-CEMENT-BENTONITE COMPOSITE CUTOFF WALL

Jin, W., Z.-K. Wang, X.-X. Dou, Q.-L. Wang, and Y.-C. Li.
Groundwater Monitoring & Remediation 46(2):33-43(2026)

An in situ multi-parameter monitoring system that includes soil pressure, pore water pressure, and bulk electrical conductivity was installed in a 23.5-m deep HDPE-cement-bentonite (HCB) cutoff wall. The data collected from the first 20 d are presented. The shallow zone (±2.5 m) became unsaturated after 2 d, triggering surface settlement, CB mixture-geomembrane or CB mixture-trench sidewall detachment, and shrinkage cracks; the intermediate zone (5-7.5 m) developed 80-kPa suction on Day 4, while deeper responses lagged. Lateral pressure showed a V-shaped trend, an initial hydration-induced drop followed by a pressure increase due to bentonite swelling. Bulk electrical conductivity (3000-4000 mS/m) decreased overall but varied with the permeability of surrounding soil. The temperature evolution comprised three distinct stages: hydration heating, cooling, and stabilization.

FRACTURING METHODS TO DELIVER LIQUID AMENDMENTS TO LOW PERMEABILITY AND HETEROGENEOUS SETTINGS – METHODS AND CASE STUDIES

Ross, C. | DCHWS East, 4-6 March, Philadelphia, PA, 19 slides, 2026

This presentation highlights two case studies where fracturing technologies, hydraulic injections, and enhanced delivery systems were used to improve contaminant treatment efficiency and overcome limitations associated with conventional injection methods. The first case study involved a PCE-contaminated site in California, where ZVI was combined with electron donor injections to stimulate enhanced bioremediation and in situ chemical reduction. Specialized fracturing technologies were implemented to improve amendment distribution in low-permeability formations. Sand-filled fracture-enhanced wells were used for SVE, combined with high-velocity water jetting and hydraulic fracturing techniques to create preferential flow pathways for amendment delivery. Fracture-enhanced wells enabled the successful operation of a full-scale SVE system and removal of ~46 lbs of PCE before asymptotic conditions were reached. Groundwater monitoring data showed substantial reductions in PCE and daughter products over time following the injection events, demonstrating effective contaminant degradation and treatment progress. The second case study focused on the Lake City Army Ammunition Plant Area 17B Oil and Solvent Waste Pits, where silty clay and weathered shale limited groundwater flow and amendment distribution. Conventional gravity injection wells achieved relatively low flow rates ranging from 1.0-7.7 gal/d/well. To improve remedial performance, fracture-enhanced injection wells were installed using sand-filled hydraulic fractures connected to the injection wells. Following fracturing, injection performance improved dramatically, with flow rates increasing to 7.8-109 gal/d/well. The enhanced amendment delivery system improved radius of influence and significantly increased contaminant treatment efficiency. Groundwater monitoring results demonstrated treatment reductions ranging from 92% to >99% for total chloroethenes, although some areas associated with NAPL contamination showed lower treatment efficiency. <https://mediacdn.guidepoint.com/upload/213717/c/NymBhW2PuiIBrYhbRma2Fexp25kEWk3XG.pdf>

COMPLETE DECHLORINATION VIA BIOAUGMENTATION IN PARTIALLY WEATHERED AND FRACTURED BEDROCK

Shores, C. | DCHWS East, 4-6 March, Philadelphia, PA, 17 slides, 2026

Remedial response was implemented to achieve complete TCE dechlorination in partially weathered and fractured bedrock using bioaugmentation techniques. The site contained extensive TCE contamination, affecting ~1.5 acres and extending >200 feet deep within saturated partially weathered rock (PWR), saprolite, and fractured bedrock zones. Initially, the PWR was thought to be relatively unsaturated and less significant. However, additional well installations identified substantial TCE contamination within these zones, leading to a revised conceptual site model and the implementation of a focused feasibility study evaluating enhanced bioremediation approaches. Bioremediation evaluations showed favorable pH, temperature, and oxidation-reduction conditions for biological treatment, although naturally occurring Dehalococcoides bacteria were not detected, and daughter product formation was minimal. The remedial strategy centered on bioaugmentation using specialized microbial cultures and electron donor amendments to stimulate reductive TCE dechlorination. A pilot study demonstrated significant TCE reductions and achieved a radius of influence of up to 25 ft; however, complete dechlorination to ethene was not achieved because microbial populations remained below target concentrations and pH conditions likely inhibited bacterial activity. Lessons learned were incorporated into the full-scale remedial response. The final design included permanent injection wells isolated within the partially weathered rock interval, increased buffering capacity to address pH challenges, use of the more robust KB-1 Plus® microbial culture, and significantly higher bacterial dosing. Modifications greatly improved microbial activity and dechlorination performance throughout the source areas. Monitoring results after one year showed Dehalococcoides bacterial concentrations averaging 1.3 x 10⁶ copies/L, well above the project target of 10³ gene copies/L. Significant reductions in TCE and total CVOCs were observed throughout both shallow and deep source areas, including intervals between 45 and 111 ft bgs. The core of the dissolved contaminant plume was effectively eliminated, and the overall plume began to contract as source area concentrations decreased. <https://mediacdn.guidepoint.com/upload/213717/DEICrVtVvCPT5hB7KpNkNm2KnkGWTQIDYlB.pdf>

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Demonstrations / Feasibility Studies

PHYTOREMEDIATION OF AN ACID TAR PIT AT CINDERHILL, DERBYSHIRE, UK: LESSONS LEARNED AND FUTURE CHALLENGES

Johnson, M.F., H. Wood, S. Bryan, S. Craig, W. Meredith, C. Snape, and C.N. Uguna.
Journal of Environmental Management 405:129690(2026)

Monitoring results are presented from a large-scale field trial (30 m x 16 m area) of willow (*Salix*) phytoremediation at an acid tar pit at Cinderhill, UK. Before the trial, tars had not degraded since deposition in the 1970s; however, after planting with willow spilling, evidence of degradation was clear, showing a reduction in n-alkane and PAH concentrations. After 2 years, tar breakdown was only recorded in close association with willow root systems, but after 3 years it was documented in tars not targeted by root growth. Willow also stabilized the tar pit surface, altered its topography, and enabled the establishment of a diverse terrestrial flora and, along with initial liming of the area, contributed to reduce surface pH from highly acidic to neutral. eDNA of microbial communities in tars near willow roots was highly distinct from tars away from roots and surrounding soil. The community around willow roots included species known to process PAHs and hydrocarbons, and also species that aid vegetation growing in stressful environments. Challenges and unforeseen issues during the trial, future work, and knowledge gaps are discussed. <https://www.sciencedirect.com/science/article/pii/S0301479726011503?pdfdirect=1922d0d50b64049799ea08efde31b18dr&pid=1-s2.0-S0301479726011503-main.pdf>

FIELD TEST OF A SCALED-UP BIOELECTROCHEMICAL SEQUENTIAL REDUCTIVE/OXIDATIVE PROCESS FOR CHLORINATED ALIPHATIC HYDROCARBONS (CAHS) REMEDIATION FROM CONTAMINATED GROUNDWATER

Dell'Armi, E., P. Ciampi, A. Marchetti, E. Bartsch, M. Alesi, E.J. Alesi, G. Rehner, B. Matturro, V. Feigl, M. Molnar, S. Rossetti, M.P. Papini, and M. Zeppilli.

This study presents the performance of a scaled-up sequential anaerobic/aerobic bioelectrochemical system (BES) integrated with a groundwater circulation well system that was applied to a CAH-contaminated site in Northern Italy. The pilot system, consisting of four 105 L modules, operated under three different hydraulic retention times and potentiostatic conditions. Maximum tetrachloroethane removal was 1.23 mg/L/d, with a coulombic efficiency of 0.83%. The study includes aquifer geological characterization, essential for assessing the long-term behavior of the DNAPL source, and microbial analysis of the inoculum used to prime the system. Ecotoxicity tests were conducted on both influent and effluent to evaluate environmental risks. Results showed slight initial toxicity for *Aliivibrio fischeri* but no adverse effects on protozoa, plants, or Daphnids. This study represents the largest effort to scale up a bioelectrochemical process to remediate CAHs, and one of the largest bioelectrochemical pilot installations overall in terms of the electrode active area. Findings highlight both the potential and the challenges of scaling up BES for CAH remediation. <https://www.sciencedirect.com/science/article/pii/S1385894725106682/pdf?md5=3fb2260c148e963413ed5af011790cf78&pid=1-s2.0-S1385894725106682-main.pdf>

NONTARGET GC-ECNI-ORBITRAP-HRMS SCREENING AND EVALUATION METHOD USED TO IDENTIFY POLYHALOGENATED COMPOUNDS EXTRACTED FROM TWO PASSIVE AIR SAMPLERS DEPLOYED AT MARINE ISLANDS IN AUSTRALIA

Schweizer, S., G. Korkmaz, J. Hauns, A.R Schachtele, X. Wang, C. Paxman, J. Mueller, and W. Vetter. | Science of the Total Environment 1020:181579(2026)

Gas chromatography with electron capture negative ion high-resolution mass spectrometry (GC-ECNI-OrbitrapHRMS) was applied for the comprehensive analysis of halogenated natural products (HNPs) and anthropogenic organohalogen compounds in two passive air samples from Australian marine islands. This enabled the detection of ~250 halogenated compounds in the two air samples, of which reference standards were available for only ten. For the evaluation, the compounds were listed according to the exact mass of the nonhalogenated backbone (halogens in the molecular formula were replaced with hydrogens; primary list) calculated in the next step. Compounds with the same backbone were listed together, which was crucial for data interpretation. Specifically, the ~250 compounds could be traced back to ~100 different backbones. Four additional secondary lists were calculated to indicate structurally related homologues if their exact masses were also found in the primary list. Key findings include the detection of several sponge-derived HNPs and >20 halogenated nitrobenzenes and nitrophenols, including iodine-containing ones. The primary and secondary list-based evaluation may be a promising approach for other complex datasets with polyhalogenated compounds. <https://www.sciencedirect.com/science/article/pii/S0048969726002391/pdf?md5=4ab3daa765fb27c1aab390d88505234d&pid=1-s2.0-S0048969726002391-main.pdf>

TIME DOMAIN INDUCED POLARIZATION MONITORING FOR ENHANCED REMEDIATION OF DNAPLS DURING IN-SITU MICROEMULSION FLUSHING

Zhao, R., X. Guan, A. Gu, J. Meng, X. Huang, S. Liu, and D. Mao. Environmental Earth Sciences 85:165(2026)

Alternating time domain induced polarization (TDIP) measurements and injection/pumping operations were conducted at a CHCl₃-contaminated weathered andesite site. Full-decay TDIP data were inverted and correlated with groundwater sampling to reflect contaminant solubilization and reagent distribution. Interpretation results demonstrated that TDIP provided spatially continuous electrical imaging in the entire remediation volume, capturing the footprints of CHCl₃-contaminated groundwater and the remediation reagent. The injected reagent exhibited strong conductivity and polarization contrasts with contaminated groundwater, confirming its spread across most of the weathered andesite layer. Thresholds of $m=50$ mV/V delineated CHCl₃ contamination zones exceeding the regulatory limit of 300 µg/L. Reagent spreading along profiles revealed preferential flow paths within highly permeable fracture zones. Chargeability reduction correlated with DNAPL desorption showed >90% removal efficiency in groundwater samples, although residual contamination persisted in heavily contaminated zones. Microemulsion flushing effectively enhanced DNAPL solubilization, while weathered andesite medium and excessively high injection velocity limited remediation effectiveness. This article is **Open Access** at <https://link.springer.com/article/10.1007/s12665-026-12901-9>.

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Research

COMPLEMENTARITY OF PASSIVE SAMPLING AND COMPOSITE AQUEOUS SAMPLING TO ASSESS PFAS EMISSIONS IN INDUSTRIAL WASTEWATER

Hensel, T., J.-H. Hein, P. Krystek, A. Togola, T. Reemtsma, and F. Zietzschmann. ACS EST Water 6(3):2008-2017(2026)

This study evaluates the capability of a polar organic chemical integrative sampler, a Speedisk sampler, and flow-through tube passive samplers (PS) to enhance PFAS monitoring in industrial wastewater. Effluent from a textile manufacturer, an industrial laundry, and a semiconductor facility (all >10,000 m³ discharge) was sampled over two work weeks. Passive sampling using the three samplers was conducted, while an automated aqueous sampler obtained continuous composite wastewater samples. Composite samples revealed fluctuating concentrations of up to 18 different PFAS (varying by site) with total loads from 0.12 mg/day (semiconductor manufacturer) to 8.8 mg/day (industrial laundry). The PS detected up to 19 additional PFAS compared to aqueous samples, revealing multiple representatives of legacy PFAS as well as precursor compounds (6.2 FTAB, 6.2 FTS), differing by site. Quantitative assessments from PS in the complex industrial matrices remained inconclusive and need further examination. This study highlights the in situ enrichment potential of PS as sensitive and low-maintenance qualitative tools.

IN SITU XANES STUDY OF PFAS IMPACTED SOILS FILLED WITH AQUEOUS AND NON-AQUEOUS PHASES

Kumar, A., M.K. Alam, B. Qian, M.J. Donn, D.A. Navarro, J.L. Rayner, G.B. Davis, B. Cowie, B. Pejčić, and S. Fisher. Journal of Contaminant Hydrology 277:104820(2026)

The partitioning of PFAS in a spiked agricultural soil and an AFFF-impacted "aged" soil was investigated under various soil moisture conditions and when the soil pores were filled with NAPL. Sulfur (S) K-edge X-ray absorption near edge structure (XANES) spectroscopy was used to probe S speciation in situ, and spectra were analyzed using a Gaussian Curve Fitting approach. Six major S species were identified in both soil and PFAS partitioning behavior was interpreted based on changes in sulfonate fractions, representing sulfonic acid-based PFAS. In the spiked soil, sulfonate fractions increased the most when soil pores had a water saturation ratio of 0.25, whereas in the "aged" soil the most significant increase occurred for completely saturated soil pores. These differences were attributed to differing micellar formation behaviors in freshly spiked versus AFFF-impacted "aged" soil. A linear correlation was also observed between the ratio of total reduced S and sulfonate fractions against the degree of saturation of "aged" soil. In spiked soil, a lower percentage of NAPL content at SW = 0.25 led to higher partitioning of sulfonic acid-based PFAS. <https://www.sciencedirect.com/science/article/pii/S0169772225003250/pdf?md5=f03c5a606d04116587d83e8f52bdd118&pid=1-s2.0-S0169772225003250-main.pdf>

CHARACTERIZATION OF THE POTENTIAL LONG-TERM IMPACT FROM SEDIMENTARY PFAS AT A HISTORICALLY CONTAMINATED TEXTILE WASTE SITE

Snook, J., J. Becanova, S. Vojta, and R. Lohmann. | ACS ES&T Water 6:521-528(2026)

Two sites in Rhode Island have textile-mill-associated waste retention ponds known to introduce PFAS contamination to the adjacent river, estuary, and eventually the Atlantic Ocean. The retention ponds were investigated as a long-term source of PFAS via water passive sampling, sediment coring, and laboratory-derived partitioning coefficients, K_d with field sediment and water. Additional studies were performed to assess mobility and estimate the mass fluxes of PFAS from sediment to water. Retention pond 1 was more contaminated (up to 26 ng/L PFOA in water and 74 ng/g PFTDA in sediment). Derived log K_d values ranged from 1 to 5 for most PFAS, indicating a shift from relative mobility to high storage potential in sediment. Estimated loss fluxes from the sediment varied between 5 and 228 µg/m²/year, resulting in desorption times from three years for PFSa to >100 years for FOSA. The combined evidence suggests that if left untreated, the textile mill retention pond constitutes a source of long-term contamination to the river. <https://pmc.ncbi.nlm.nih.gov/articles/PMC12797218/pdf/ew5c01210.pdf>

DNAPL-RESPONSIVE HYDROGEL NANOREACTOR ENCAPSULATING NZVI FOR ENHANCED DEGRADATION OF CHLORINATED CONTAMINANTS IN GROUNDWATER

Sang, K., Z. Li, X. Tao, C. Chen, M. Chen, H. Gao, J. Xu, J. Hou, K. Yang, and D. Lin. Environmental Science & Technology 60(11):8734-8748(2026)

Nanoscale zerovalent iron (nZVI) reactors (nZVI@PNIPAM) via in situ reduction of incorporated Fe³⁺ ions were fabricated by engineering DNAPL-responsive poly(N-isopropylacrylamide) (PNIPAM) hydrogels with precisely controlled hydrophobic domains. Hydrogel encapsulation enabled nZVI to remain well-dispersed, spontaneously penetrated porous media, and significantly suppressed side reactions with water. The nanoreactors leveraged the selective interaction between DNAPLs and PNIPAM's hydrophobic functional groups as a trigger, exposing encapsulated reactive nZVI exclusively at contamination interfaces through a rapid conformational transition and dehydration of PNIPAM. This interfacial interaction yields unprecedented efficiency, achieving 4.4-12.3-fold higher electron utilization for degradation of seven typical chlorinated solvents than conventional nZVI, while suppressing water corrosion over 600-fold. Field-relevant evaluations demonstrated consistent performance across broad hydrochemical conditions (pH 6-9, 0-1,000 mg/L KCl, 0-200 mg/L natural organic matter), with >90% DNAPL removal in real contaminated groundwater. The mechanistic discovery of pollutant-responsive activation represents a significant advance over current diffusion-limited approaches, potentially revolutionizing targeted in situ groundwater remediation strategies.

LEAD TRANSFORMATION TO PLUMBOJAROSITE REMAINS STABLE FOLLOWING LIME ADDITION FOR LEAD AND ARSENIC CONTAMINATED SOILS

Blackmon, M.D., T.D. Sowers, A.R. Betts, C. Jiang, and K.D. Bradham. Journal of Hazardous Materials 506:141540(2026)

Stability experiments were performed at simulated field conditions for six weeks to assess jarosite-based remediation efficacy at environmentally nominal pH conditions. Smelter-impacted and legacy pesticide (lead arsenate) contaminated soils (SM and LP, respectively) were evaluated. Soils were adjusted to a range of pH conditions using either CaCO₃ or Ca(OH)₂ to facilitate growth of centipede and perennial ryegrass. Grass growth occurred in limed samples from pH 4.3-8.6 with XAS-confirmed PLJ stability over six weeks. Lead in vitro bioaccessibility (IVBA)% results for all treated soils were consistent with PLJ formation, showing averaged reductions of 77.3-8.0% and 81.6-11.0% post treatment in LP and SM soils, respectively, with a reduction in As IVBA% across all soils.

PHYTOREMEDIATION OF LOW-CONCENTRATION CR(VI)-CONTAMINATED SOIL FROM A SUPERFUND SITE USING SUNFLOWER (HELIANTHUS ANNUUS L.) WITH CONCURRENT BIO DIESEL PRODUCTION FROM HARVESTED SEEDS

Hadiuzzaman, M., S.T. Sabuj, and J. Liu. | Bioresource Technology Reports 32:102308(2025)

A study evaluated the feasibility of using sunflower (*Helianthus annuus* L.) for simultaneous phytoremediation of low-level Cr(VI)-contaminated soil and biodiesel production. Soil was collected from a remediated Superfund site with low residual Cr(VI) concentrations (0.16 ± 0.04 mg/kg), and controlled pot experiments were conducted under two amendment conditions (low-nitrogen chemical fertilizer and biosolids) to assess plant growth, Cr(VI) uptake, biodiesel quality, and microbial responses. In addition, bioaccumulation factors and translocation factors were assessed to evaluate the efficiency of chromium uptake and movement within the plant. Cr(VI) was absorbed by the roots and translocated to shoots, leaves, and seeds, with both amendments achieving comparable phytoextraction efficiencies. Biosolids amendment significantly enhanced plant biomass compared to chemical fertilizer, while no visible phytotoxicity symptoms were observed, indicating that sunflower tolerated the low-level Cr(VI) contamination. Biodiesel extracted from the seeds met ASTM standards for acid value and density, confirming its potential as a renewable fuel. Microbial biomass carbon and nitrogen in the rhizosphere increased after phytoremediation, suggesting a beneficial role of soil microbes in supporting plant growth and remediation. The study demonstrates that integrating sunflower-based phytoremediation of low-level Cr(VI) with biodiesel production provides a sustainable and cost-effective strategy for addressing residual contamination while contributing to renewable energy generation.

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General News

RECENT ULTRATRACE PER- AND POLYFLUOROALKYL SUBSTANCE (PFAS) DETECTORS

Park, J. and S. Park. Nanoscale 11(2026)

This review discusses advances in PFAS detection made over the last five years in organic molecules and assemblies, polymers, nanoparticles, carbon nanotubes, and metal-organic frameworks, highlighting how tailored recognition motifs and controlled assembly convert PFAS binding into optical, electrochemical, or resistive signals. Representative strategies discussed include interrupted energy transfer and amplifying fluorescent polymers for ratiometric and turn-off fluorescence sensing; molecularly imprinted and nanostructured electrodes for impedimetric and voltammetric quantification; single-particle collision electrochemistry and MXene-metal hybrids for ultraslow electrochemical detection; printed surface-enhanced Raman spectroscopy substrates for molecular fingerprinting; and 2D conductive MOFs for chemiresistive ppt-level responses. Analytical performance, selectivity trends across chain length and headgroup chemistry, matrix effects in real waters, and practical considerations for onsite deployment are evaluated. The review concludes by identifying key challenges (stability, standardization, and multiplexed detection)

and outlines promising directions toward translating ultratrace PFAS sensors into robust environmental monitoring tools.

TWENTY-FIVE YEARS OF RESEARCH AND MONITORING USING PUF DISK PASSIVE AIR SAMPLERS

Eng, A., Y.-M. Hsu, T. Harner, J. Mastin, and S. Wheadon.
Environmental Science & Technology 60(16):11833-11870(2026)

Polyurethane foam (PUF) disk-based passive air samplers (PASs) have become a pivotal tool in research and monitoring of persistent organic pollutants and emerging chemicals in ambient air in the gas phase and on ambient particulate matter. Their low cost and ease of use have facilitated deployment at the regional and global scales. Modifications to the polyurethane foam (PUF)-PAS have expanded its use for more specific purposes, such as the sorbent-impregnated PUF-PAS (SIP-PAS), which improves sorptive capacity for more volatile chemicals, and the passive dry deposition (PAS-DD) sampler, which captures larger particles and enables estimation of gas and particle deposition. The review summarizes studies characterizing uptake rates and partition coefficients of PUF disks for a wide range of compounds and evaluations of sampler design and performance. It synthesizes applications of PUF-PAS, SIP-PAS, and PASDD from 2000 through 2024 across ambient air measurements, indoor air quality, source emissions, health, and, most recently, biodiversity. Approximately 650 publications employing PUF disk-based PASs are summarized, demonstrating their increasing use and diversification. On the horizon, the PUF-PAS will likely continue to transform and integrate fields of science and inform policy.
https://pubs.acs.org/doi/pdf/10.1021/acs.est.5c17602?ref=article_openPDF

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