## *Entries for June 16-30, 2026*

### Market/Commercialization Information

**MUNITIONS RESPONSE ACTIONS AT VIEQUES, PUERTO RICO AND OTHER SITES (SRCSGT)**
U.S. Department of the Navy, NAVFAC Atlantic Command, Norfolk, VA
Opportunities on SAM.gov N6247026R0040, 2026

This is a sources sought notice for marketing research purposes. The U.S. Department of the Navy seeks to identify qualified firms capable of performing munitions response actions that enable lands and waters potentially impacted by military munitions to be safely used for their intended purposes. Work will primarily be performed at former Navy facilities on Vieques, Puerto Rico, but may also occur at other locations within the NAVFAC area of responsibility, including the continental United States, the Caribbean, Europe, Africa, Southwest Asia, Hawaii, the Far East, the Pacific, and other worldwide locations. Contractors may be required to perform multiple task orders for various U.S. Government agencies. Services may include munitions investigations, removal actions, and remedial actions in both terrestrial and aquatic environments. Contractors will safely locate, identify, recover, evaluate, manage, and dispose of munitions and related debris in accordance with individual task orders. All work shall comply with Department of Defense Explosives Safety Board requirements, the Defense Environmental Restoration Program, CERCLA, the NCP, and other applicable federal laws and regulations. Individual projects are typically valued at $10 million or more. Completed sources sought capabilities questionnaires are due by 5:00 PM EDT on August 14, 2026
https://sam.gov/workspace/contract/opp/ab65bf4bfbe7497a8335679d4024198a/view

**PHASE 2 REMEDIATION SERVICES AT THE PR-58 SITE IN NORTH KINGSTOWN, RHODE ISLAND (SRCSGT)**
U.S. Army Corps of Engineers, Engineer Division North Atlantic, New England District, Concord, MA
Opportunities on SAM.gov W912WJ26X1C6A

This is a sources sought notice for marketing research purposes under NAICS code 562910. The U.S. Army Corps of Engineers, New England District, seeks to identify qualified firms capable of performing Phase 2 remedial action services at the Former Nike Battery PR-58 and Disaster Village Training Area on Quonset Point Naval Air Station in North Kingstown, RI. The requirement will address remediation of a dissolved-phase CVOC groundwater plume resulting from historical military and industrial operations at the site. Phase 2 remediation will focus on an approximately 44-acre groundwater plume containing CVOCs, including TCE, tetrachloroethane, perchloroethene, and associated degradation products. The selected remedy will include in-situ chemical reduction (ISCR), enhanced in-situ bioremediation (EISB), biostimulation, bioaugmentation, and monitored natural attenuation to achieve long-term site conditions suitable for unlimited use and unrestricted exposure. The Government is seeking firms with demonstrated experience in groundwater remediation and bioremediation technologies, including ISCR, EISB, and related treatment approaches. The anticipated acquisition is a Single Award Task Order Contract with an estimated capacity of $20 million and a five-year ordering period, with solicitation anticipated in January 2027 and contract award planned for January 2028. Capability packages are due by 1:00 PM EDT on August 14, 2026.https://sam.gov/workspace/contract/opp/e055b2abfefe4d3988bff332031eec63/view

**NAVAJO AREA - ABANDONED MINES RESPONSE AND CONSTRUCTION SERVICES (SRCSGT)**
U.S. Environmental Protection Agency, Region 9 Contracting Office, San Francisco, CA
Opportunities on SAM.gov 68HE0926R0006, 2026

This is an industry day and site walk event notice. EPA is hosting an Industry Day and site visit for contractors interested in supporting the upcoming Five-Year Abandoned Mine Response and Construction Services II (AMRCS II) requirement under NAICS code 562910. The contract will involve cleanup, emergency response, and construction services primarily at former uranium mining sites located within or near the Navajo Nation. Because radiological mine and mine-related waste is the primary contaminant at these sites, contractors should have demonstrated expertise in radiological material handling, environmental data collection, and environmental data interpretation. The in-person Industry Day will be held at the Cover Chapter House, approximately 42 miles from U.S. Highway 491 and 10 miles west of Red Valley, Arizona, on Navajo Route 33. Following the presentation, attendees will have time for a bring-your-own lunch before participating in a site visit to selected LMMD mine sites. The event is anticipated to take place in August or September, with the exact date to be announced. Participants will have the opportunity to discuss technical aspects of the upcoming AMRCS II procurement and learn more about anticipated contracting opportunities. There is no solicitation at this time. https://sam.gov/workspace/contract/opp/0722985b7e7949698a484b7379f610b6/view

**PRE-SOLICITATION SYNOPSIS FOR REMEDIAL ACTION AT THE ONONDAGA LAKE SUPERFUND SITE, OPERABLE UNIT 2? LEY CREEK DEFERRED MEDIA PORTION OF THE GENERAL MOTORS-INLAND FISHER GUIDE SUBSITE, ONONDAGA COUNTY, NY (PRESOL)**
U.S. Army Corps of Engineers, Northwestern Engineer Division, Kansas City District, Kansas City, MO
Opportunities on SAM.gov W912DQ26RA004, 2026

When this solicitation is released on or about JULY 30, 2026, it will be competed as a full and open competition. The U.S. Army Corps of Engineers, Northwestern Engineer Division, seeks a contractor to provide remedial action services at the Ley Creek Deferred Media portion of the General Motors-Inland Fisher Guide Subsite, Onondaga Lake Superfund Site, Operable Unit 2, in Onondaga County, New York. The contractor will perform remedial activities including excavation, dewatering, off-site disposal of PCB-contaminated soil and sediments, and placement of clean fill along Ley Creek. The estimated construction magnitude is $100 million to $250 million, with an anticipated five-year period of performance. There is no solicitation at this time. https://sam.gov/workspace/contract/opp/622c8d4bbb87417c8340c83381a127bc/view

Return to top

## *Cleanup News*

**MONITORING GROUNDWATER THERMAL TREATMENT USING A FIBER-OPTIC DISTRIBUTED TEMPERATURE SENSING NETWORK**
Becker, M.W., F. Cason, M. Ward-Baranyay, C. Divine, J. Munholland, and E. Zardouzian.
Sensors 25(23):7105(2025)

A thermal in situ sustainable remediation (TISR®) system was installed at site SD015 at Vandenberg Space Force Base to treat a chlorinated solvent groundwater source zone. Prior to TISR, the source zone and downgradient groundwater plume were managed with enhanced in situ bioremediation and a dynamic groundwater recirculation approach. The effectiveness of a fiber-optic distributed temperature sensing (DTS) system was demonstrated as a high spatial and temporal resolution monitoring strategy. The DTS sensing system required installation of fiber optic cable in the subsurface. Boreholes were drilled with hollow casings, a fiber optic cable was inserted into the casings, and then the casings were withdrawn to allow the formation to collapse around the fiber. The fiber was then fusion-spliced into a single continuous fiber that could be interrogated by a Raman-based DTS unit. Temperature measurements were collected at 30 min intervals over a 575 m span with 0.25 m spatial sampling, resulting in over 110,000 temperature data points per day. Development of thermal plumes emanating from solar-heated borehole heat exchangers could be closely monitored with the high-resolution monitoring. The pseudo-3D monitoring network showed the lateral and upward migration of the induced thermal plumes over time. This information was valuable for assuring the heated groundwater was contacting the intended treatment zone. https://pmc.ncbi.nlm.nih.gov/articles/PMC12694422/pdf/sensors-25-07105.pdf

**TWO-PHASED APPROACH FOR DESIGNING AN EFFECTIVE, COST-EFFICIENT AND AREA-SPECIFIC REMEDY**
Wood, T. | DCHWS West 2025 Winter Symposium, 26-28 January, Denver, CO, 15 slides, 2026

A two-phased approach was implemented to address complexities for a contaminated sediments remedial design while resolving design challenges. The two-phased remedial design included an initial assessment, followed by final design optimization and selection. The design approach was employed for a complex 117-acre contaminated sediment site on the West Coast, where COCs included PCBs, PAHs, dioxins, and polychlorinated dibenzofurans. Remedial technologies combined dredging and capping using multiple cap designs. Phase 1 established a comprehensive framework that considered all factors driving design optimization. Multiple potential cap design options were developed to enable more detailed evaluation and comparison in Phase 2. Phase 2 focused on selecting the most effective design options by systematically evaluating remedy effectiveness, cost-efficiency, constructability, and dredging needs, in addition to assessing the need to dredge instead of capping at selected management units. During the design process, three major challenges were encountered and addressed, including 1) non-focused COCs (mainly arsenic) driving remedial design assignment; 2) site use compatibility to accommodate both heavy and light industrial activities; and 3) constructability considerations. The final design targeted successful containment of the site-wide 95th percentile arsenic concentration, and specific cap selections were made for each site unit based on local conditions. A sophisticated design matrix was used to determine the optimal cap design options for over 100 individual site units based on area-specific conditions. Assignments were evaluated for constructability to ensure continuity in cap placement and realistic construction sequencing within limited work windows. This challenge required balancing constructability constraints with protective remedy requirements while optimizing overall project costs. The two-phased approach allowed the critical design challenges to be identified and addressed while maintaining focus on remedy effectiveness, cost-efficiency, and constructability, providing a framework for managing complex remedial designs that must balance multiple competing priorities. https://mediacdn.guidebook.com/upload/213718/SwzrBFUnQ3Q9Cg98giN50n6NrK5CfWYThA.pdf

**POST-REMEDY EVALUATION USING 3-D MODELING TO REFINE REMEDIAL STRATEGY AT A LEGACY TCE SITE**
Temple, J. | DCHWS West 2025 Winter Symposium, 26-28 January, Denver, CO, 27 slides, 2026

Historical releases of TCE from degreasing operations at the F.E. Warren Air Force Base led to significant groundwater contamination. Multiple remedial actions were implemented, including grease traps and surrounding contaminated soil removal, a P&T system, a ZVI PRB, and subsurface bioremediation injections. While the remedies initially reduced TCE concentrations, long-term monitoring revealed persistent contamination, with TCE remaining above cleanup levels in many areas, including deeper zones of the aquifer and areas downgradient of treatment locations, indicating the need to adjust the remedial approach. To better understand limitations and inform potential future corrective actions, a comprehensive evaluation was conducted using modern tools to reassess remedy performance. This included targeted high-resolution data collection and the development of an updated 3-D conceptual site model (CSM) using Earth Volumetric Studio™. The 3-D CSM integrated lithology, hydrogeology, and vertical profiling data collected, providing a detailed and spatially resolved visualization of both site conditions and contaminant distribution. The evaluation demonstrated that the remedies were not designed or implemented to fully address deeper zones of contamination. The updated 3-D CSM revealed that residual TCE mass at depth continues to act as an ongoing source, contributing to sustained concentrations in downgradient wells. Lessons learned highlight the importance of modern post-construction evaluation tools in understanding remedy limitations and optimizing long-term performance. 3-D modeling was critical in identifying untreated contaminant mass and clarifying how site heterogeneity influenced remedy effectiveness. The work is informing the development of additional corrective actions that will target previously untreated zones and ensure future remedial efforts address the full extent of contamination. https://mediacdn.guidebook.com/upload/213718/tYdZWzWfdeKEveCWsX2pN15o29uVBd5S8gnT.pdf

Return to top

## *Demonstrations / Feasibility Studies*

**TIME-LAPSE ERT MONITORING OF THE MPE-INDUCED CONE OF DEPRESSION AT A LOW-PERMEABILITY NAPL SITE: A FIELD-BASED QUANTITATIVE ASSESSMENT OF ARRAY-DEPENDENT GEOMETRIC FIDELITY**
Guo, Y., D. Zhang, Z. Zhang, and B. Zeng.
Journal of Contaminant Hydrology 280:104949(2026)

A study compared the feasibility and geometric accuracy of Wenner and array Dipole-Dipole for reconstructing drawdown cones using time-lapse electrical resistivity tomography (ERT) and examined the mechanisms controlling array performance. A pilot-scale multiphase extraction (MPE) test was conducted at a typical low-permeability NAPL site. High-density water-level data from monitoring wells were used as a reference in a multi-dimensional geometric error analysis. The analysis defined confidence thresholds for drawdown cone boundaries in the ERT images, then compared reconstructed cones with observations in terms of depth (h), radius ®, and the corresponding coefficients of determination ($R^2$). The Dipole-Dipole array showed high geometric consistency with the hydraulic data (depth $R^2$ = 0.89-0.91; radius $R^2$ = 0.84-0.92), with radius errors <0.7 m, and provided continuous geometrical information between wells. In contrast, the Wenner array produced strong systematic distortion, with radius overestimation up to 4.77 m and negative R2 values. Mechanistic analysis indicates that these distortions arise from coupling between volumetric averaging linked to the array sensitivity distribution and smoothing constraints in the inversion. For hydraulic control monitoring of MPE at low-permeability NAPL-contaminated sites, ERT shows strong potential as a spatial complement to monitoring wells, and the Dipole-Dipole array improves delineation of the pumping influence zone.

**APPLICATION OF TIME-LAPSE ERT TO ASSESS HETEROGENEITY IN SOIL MOISTURE DYNAMICS AND CONTAMINANT PLUME AND ASSOCIATED GEOTECHNICAL AND ENVIRONMENTAL RISKS**
Eze, S.U., E.S. Chinemelu, J.O. Alao, O.M. Orji, O.O. Omotola, F.A. Abija, S.A. Saleh, and T.J. Oladipupo. | Discover Geoscience 4:17(2026)

Time-lapse electrical resistivity tomography (TL-ERT) data sets from two locations in southern Nigeria were employed to monitor seasonal variations in soil moisture content (SMC) at an engineering site and the effect of biodegradation of contaminant plumes on the environment in an automobile workshop. Six 2D ERT (engineering site) and four 2D ERT (auto workshop) profiles acquired during two time seasons were used to perform simultaneous inversion. The data acquired at the engineering site in the rainy and dry seasons characterized the hydrogeological behavior of the subsurface, with high and low water content observed in both seasons. The geology is predominantly sand with low water-retaining capacity. The fine/clayey sand layers with fine particles that retain more water can initiate geotechnical instabilities, making the overlying materials susceptible to failure. The percentage differences in electrical conductivity (EC) between the monitoring periods showed little or no significant change in the EC of subsurface water. The 2D ERT data sets from the auto workshop showed increasing evidence of biodegradation of high-ER contaminants indiscriminately spilled on the surface into low-resistivity/conductive plumes with an ER range of 10-31.6 Ωm and % conductivity differences of 50-100%. The percentage differences in ER show that the low ER/conductive zones had spread within the subsurface to a depth of about 17.1 m, implying that overtime the auto workshop generates a toxic blend of contaminants that seeps into the ground from the surface. This complex dynamic process can linger for longer periods, compromising the integrity of the environment, posing a danger to water resources and environmental and human health. https://link.springer.com/content/pdf/10.1007/s44288-026-00393-w.pdf

**ARSENIC MOBILIZATION AND RECIRCULATION DYNAMICS: GROUNDWATER CIRCULATION WELLS FOR ENHANCED DECONTAMINATION IN COMPLEX COASTAL AQUIFER ENVIRONMENTS**
Ciampi, P., D. Feriaud, D. D'Emilio, F. Tatangelo, L. Lanzafame, M. Pasini, and M.P. Papini.
Groundwater for Sustainable Development 31:101538(2025)

A pilot study evaluated groundwater circulation wells (GCWs) as a technology to mobilize and remove As, focusing on developing a GCW-induced recirculation cell. The study was conducted at a coastal industrial site with longstanding As contamination, representative of complex hydrogeology. A relational geodatabase integrated data from 76 boreholes, 41 piezometers, two multi-level sampling wells (MLSWs), and one GCW. A 3D stratigraphic model supported the design of a 23 m GCW with screened sections at 6÷8, 12÷15, and 19÷22 m. Groundwater was extracted, treated above ground, and reinjected to establish a recirculation cell. Hydrochemical and electrical conductivity (EC) monitoring over 550 days captured the spatial and temporal dynamics of As mobilization, removal, and salinity mixing. The GCW-induced recirculation cell mobilized As concentrations up to ~9,000 µg/L before stabilizing at ~8,500 µg/L. The system achieved a 66% removal efficiency, extracting ~80 kg of As while promoting groundwater mixing. EC data from MLSWs provided unprecedented insights into the spatiotemporal evolution of the recirculation process. Findings demonstrate that GCWs provide a viable and sustainable alternative to conventional remediation strategies for addressing persistent As contamination in complex coastal aquifers.
https://www.sciencedirect.com/science/article/pii/S2352801X25001353/pdfft?md5=ad54bc0c8e5b2324bd0e17c399f57d75&pid=1-s2.0-S2352801X25001353-main.pdf

Return to top

## *Research*

**FORMATION OF PERFLUOROCARBOXYLIC ACIDS (PFCAS) FROM THE INCOMPLETE THERMAL DECOMPOSITION OF PERFLUOROOCTANESULFONIC ACID (PFOS) AND PERFLUOROOCTANOIC ACID (PFOA)**
Weber, N.H., J.D. Krug, W.R. Roberson, E.P. Shields, M.A.G. Wallace, G.V. West, J.M. Mattila, R.P. Burnette, M.R. Allen, K.M. Barnett, L. Virtaranta, G.C. Whitfield, W.T. Preston, and W.P. Linak. | ACS ES&T Air 3(1):197-207(2026)

Two solutions containing ~500 mg/L of PFOS and PFOA were atomized at two post-flame locations within a natural gas-fired pilot-scale combustor with peak temperatures of ~860°C and ~750°C. The thermal destruction of PFOS and PFOA and the formation of fluorocarbon products of incomplete combustion (PICs) were analyzed using EPA Other Test Method (OTM)-45, an activated carbon-based thermal desorption (TD) tube GC/MS method, and two real-time methods including iodine-adduct chemical ionization mass spectrometry (CIMS) and Fourier transform infrared spectrometry. Destruction efficiencies determined for PFOS by OTM-45 and for PFOA by both OTM-45 and CIMS were >99.99% for both peak injection temperatures. OTM-45 and CIMS confirmed the presence of several PFCAs as PICs. These PFCAs included trifluoroacetic acid and PFPrA for both solutions and also included the formation of PFOA from PFOS and similarly PFHpA from PFOA. PFCA concentrations and the relative amounts of PFOA and PFHpA increased at the lower temperature. OTM-50 and the TD tube analysis identified numerous fluorocarbon PICs, including 1H-perfluoroalkanes, and perfluoroalkanes such as trifluoromethane (CHF3) and hexafluoroethane (C2F6). https://pubs.acs.org/doi/pdf/10.1021/acsestair.5c00317?ref=article_openPDF

**TRACKING PFAS IN MIAMI-DADE, FLORIDA GROUNDWATER: TRENDS, HOTSPOTS, AND REGULATORY IMPLICATIONS FROM A MULTI-YEAR MONITORING STUDY**
Guerra de Navarro, M., R. Zurbaran, C.C. Lugo, and N. Quinete.
Environmental Monitoring and Assessment 198:570(2026)

PFAS occurrence, spatial distribution, and associated health risks were investigated in Miami-Dade County, Florida, using 1,600 samples collected from monitoring wells, raw water, and point-of-exit locations between 2019 and 2023. PFOA and PFOS were detected in >90% of samples, while 6:2 fluorotelomer sulfonate, perfluorohexanoic acid, and perfluoropentanoic acid exhibited the highest concentrations. Spatial mapping identified contamination hotspots near airports and firefighting training facilities, with elevated 6:2 FTS levels suggesting AFFF as a primary source. PFAS profiles also indicated contributions from wastewater treatment, landfills, and industrial activities. Rainfall events were positively correlated with increased ΣPFAS concentrations, supporting infiltration-driven mobilization. All POE samples exceeded the newly established U.S. National Primary Drinking Water Regulations, frequently due to PFOA and PFOS concentrations, and some samples occasionally surpassed a hazard index of 1. Miami-Dade Water and Sewer Department has initiated treatment pilot studies to address these exceedances. Cumulative risk assessments revealed elevated exposure levels across all service areas, underscoring the need for improved treatment technologies and regulatory oversight. Findings offer critical insights into contamination patterns, exposure risks, and the urgent need for mitigation strategies to protect public health and ensure regulatory compliance. https://link.springer.com/content/pdf/10.1007/s10661-026-15419-6.pdf

**MACHINE LEARNING–ENHANCED PFAS CONTAMINANT FATE AND TRANSPORT MODELING FOR OPTIMIZED GROUNDWATER REMEDIATION STRATEGIES AT INDUSTRIAL SITES**
Anokye, A. | Journal of Sustainable Development and Policy 5(1):34-72(2026)

A study investigated the persistent challenge of accurately modeling PFAS fate and transport in groundwater at industrial sites, where heterogeneous geology, variable groundwater flow, mixed PFAS chemistries, and uncertain source zones often weaken remediation planning and delay effective intervention. The research examined whether machine learning enhanced PFAS fate and transport modeling can improve the optimization of groundwater remediation strategies in complex industrial settings. The study adopted a quantitative, cross-sectional, case-based design and drew on a purposive sample of 120 professionals from cloud and enterprise-style environmental decision contexts. The key variables were PFAS transport complexity, machine learning modeling capability, machine learning predictive trust, PFAS predictive modeling quality, and optimized groundwater remediation strategies. Data were collected through a structured 5-point Likert scale questionnaire and analyzed using descriptive statistics, Cronbach's alpha, Pearson correlation, and multiple regression in SPSS. Reliability was strong across all constructs, with Cronbach's alpha values ranging from 0.82 to 0.89 and an overall instrument reliability of 0.86. Descriptive findings showed high mean scores for PFAS transport complexity, machine learning modeling capability, predictive trust, predictive modeling quality, and remediation optimization. Correlation analysis revealed that predictive modeling quality had the strongest association with optimized remediation strategies. Regression results showed that the model explained 68.4% of the variance in remediation optimization, with predictive modeling quality emerging as the strongest predictor, followed by machine learning capability, PFAS transport complexity, and predictive trust. Https://jsdp-journal.org/index.php/jsdp/article/view/58/54

**LONG-TERM VOC TRANSPORT IN A THICK HETEROGENEOUS VADOSE ZONE AND PERCHED AQUIFERS: JERUSALEM MOUNTAINS INDUSTRIAL SITE**
Shalom, O., O. Lev, M.J. Caspi, and H. Gvirtzman. | Water 18:702(2026)

A study reconstructed long-term PCE migration from a former industrial site in the Jerusalem Mountains, where leakage likely began ten years after plant commissioning and systematic monitoring started decades later. The study applied a 3D numerical model of flow and transport, incorporating calibrated hydraulic parameters, karstic conduits, and multiphase VOC processes including advection, dispersion, phase partitioning, volatilization, and first-order degradation kinetics. Multiple model runs explored plausible leakage scenarios under sparse historical data. Simulated PCE concentrations reproduce measurements in the vadose zone ($R^2$=0.89) and deep regional aquifer (~20% normalized relative error). Results reveal pronounced preferential flows horizontally through perched aquifers and vertically along discrete faults, amplified by karstic networks. The upper vadose zone remains a persistent source, sustaining gas-phase emissions toward nearby residential areas unless targeted remediation is applied. Integrated modeling, even with limited monitoring, quantitatively reconstructs complex contaminant dynamics across saturated and unsaturated compartments, providing critical guidance for remediation. *This article is* ***Open Access*** *at* https://www.mdpi.com/2073-4441/18/6/702

**CHARACTERIZATION OF MULTIPLE TRICHLOROETHENE, CIS-DICHLOROETHENE AND 1,1-DICHLOROETHENE DEGRADING PROPANOTROPHIC COMMUNITIES**
Faghihinezhad, M., Z. Eshghdoostkhatami, and A.M. Cupples.
Journal of Environmental Management 408:129957(2026)

Propane-enriched mixed cultures (derived from agricultural soils and an impacted site sediment) that previously degraded 1,4-dioxane were evaluated for their capacity to also degrade TCE, cDCE, and 1,1-DCE over successive transfers. Sustained biodegradation of TCE and cDCE was observed across multiple enrichments, and cultures enriched on one compound generally degraded the other. In contrast, 1,1-DCE biodegradation was restricted to a subset of cultures and removal times increased over transfers. Further, 1,1-DCE removal was absent at elevated concentrations, both trends consistent with inhibitory or toxic effects. Whole genome sequencing analyses revealed pronounced substrate-dependent selection of microbial communities, with cDCE-degrading cultures being dominated by *Mycobacterium* and *Mycolicibacterium*, whereas TCE-degrading cultures were dominated by *Rhodococcus*. *Rhodococcus* metagenome-assembled genomes (MAGs) in the TCE-degrading cultures were classified as *R. opacus* or *R. wratislaviensis*. 1,1-DCE-degrading cultures were dominated by Pseudonocardia, although the associated MAGs contained a truncated propane monooxygenase alpha subunit, suggesting other enzymes were responsible for 1,1-DCE transformation. Functional gene analysis identified both group 5 (*prmABCD*) and putative group 6 propane monooxygenases (although their expression was not examined). Results demonstrate that substrate-specific pressures govern propanotrophic community structure and function and highlight distinct roles of key actinobacterial genera in chlorinated ethene cometabolism. Findings support the development of propane-based bioaugmentation strategies for the treatment of mixed chlorinated solvent contamination under aerobic conditions.

**SLOW-RELEASE PHOSPHORUS NUTRIENTS AS BIO-STIMULATING AGENTS FOR GROUNDWATER ORGANIC CONTAMINATION REMEDIATION**
Zhao, S., Z. Liu, F. Zhang, Z. Li, M. Sun, Y. Xie, J. Liu, and S. Zhang.
Groundwater for Sustainable Development 34:101639(2026)

A study addressed the challenges of low bio-stimulated remediation efficiency in groundwater organic contamination, which is frequently limited by rapid leaching and short residence time of traditional water-soluble phosphorus nutrients. A novel coated slow-release phosphorus nutrient material with a tunable release profile was developed based on surface hydrophobic modification. Using highly water-soluble calcium dihydrogen phosphate and low-solubility calcium phosphate as cores, a silica inorganic coating was first applied via a tetraethyl orthosilicate sol-gel method, followed by chemical grafting with octyltriethoxysilane (OTES) to create a hydrophobic outer layer. Characterization confirmed a transition from a hydrophilic (contact angle ≈10°) to a hydrophobic surface (contact angle >95°). A differentiated phosphorus release system was established based on the intrinsic solubility of the cores: OTES-SI@CDP exhibited a release period of ~21 days, whereas OTES-SI@TCP displayed an estimated ultra-slow release of up to 255 days. In bio-stimulated degradation tests targeting benzene and toluene, the slow-release phosphorus nutrients markedly enhanced contaminant removal, increasing degradation ratios from 17.2% to 20.6% (phosphorus-free control) to 44.8% and 54.7% over 35 days. Microbial community analysis revealed selective enrichment of BTEX-degrading consortia, particularly the *Pseudomonas* genus, demonstrating that sustained, diffusion-controlled phosphorus delivery actively reshapes the microbial community toward enhanced biodegradation capacity.

Return to top

## *General News*

**THE DIFFUSIVE GRADIENTS IN THIN-FILMS CALCULATOR**
Fairey, J. ESTCP Project ER20-1363, 2026

This calculator is intended to be used to estimate the threshold time-weighted average PFAS concentration that is quantifiable using diffusive gradients in thin films (DGT) passive samplers. This DGT calculator may be used to estimate the required deployment time to allow for sufficient PFAS adsorption in field deployments by adjusting deployment time, number of DGT devices or exposed gel area, and the final methanol extract volume. Calculations are based on the DGT equation and are estimates only.
Https://sepub-prod-0001-124733793621-us-gov-west-1-s3-us-gov-west-1.amazonaws.com/s3fs-public/2026-02/The%20Diffusive%20Gradients%20in%20Thin-Films%20Calculator.xlsx?VersionId=T138lD51yeDHGprZWQAA2Sgr_xBzzX26.

**WATERSHED CONTAMINATED SOURCE DOCUMENT (WCSD) UPDATE WITH PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) CONSIDERATIONS**
Hovel, W. and J. Arblaster. Technical Memorandum TM-NAVFAC EXWC-SH-2601, 22 pp, 2026

A Watershed Contaminated Source Document (WCSD) documents Navy and non-Navy sources that could have an impact on sediments at a Navy site. This memorandum serves as supplemental guidance on how to prepare WCSDs in accordance with the Chief of Naval Operations Policy on Sediment Site Investigation and Response Action. It incorporates lessons learned and recommendations based on a review of twelve WCSDs completed since 2003 and includes considerations for sites with potential PFAS sources. Https://exwc.navfac.navy.mil/Portals/88/Documents/EXWC/Restoration/er_pdfs/s/Final_WCSD_Report_Apr26.pdf?ver=StJqsW01NzZTYCJd_z79Qw%3d%3d.

**PHYTOREMEDIATION FOR SOIL POLLUTION: A COMPREHENSIVE REVIEW OF MECHANISMS, APPLICATIONS, AND CHALLENGES**
Mamgain, S., B. Ghale, H.S. Sodhi, and M. Thapa. | Remediation 36(3):e70073(2026)

This review systematically evaluates key phytoremediation strategies, including phytoextraction, phytostabilization, phytovolatilization, phytofiltration, and phytodegradation. It emphasizes strategy-wise synthesis, where comparative tables provide data on plant species, contaminant type, bioaccumulation and translocation factors, and total recovery efficiency, providing practical recommendations for context-based application. Though plant-based mechanisms such as root uptake, translocation, chelation, and antioxidant responses contribute to detoxification, the operational success of phytoremediation hinges on selecting the right strategy for the right condition. Despite certain limitations such as long remediation durations and disposal challenges of biomass, advances in microbial synergy, genetic manipulation, and field-based studies are enhancing the efficacy and scalability of these technologies. The review concludes by advocating evidence-based selection frameworks and interdisciplinary research, making phytoremediation part of sustainable soil management and pollution control measures.

**THE EVOLUTION OF PFAS REMEDIATION: THE SEARCH FOR A FOREVER SOLUTION**
Appleman ,T.D. | Remediation 36(4):e70081(2026)

This paper evaluates the 10-year gap between the technical efficacy of PFAS treatment technologies and their practical implementation at full-scale. Despite over a decade of research and development of advanced technologies for PFAS removal and historical data demonstrating that high-pressure membrane systems offer superior removal of both long- and short-chain PFAS, granular activated carbon remains the predominant industry default. This retrospective analysis examines how early regulatory precedents, specifically EPA's 2016 health advisories, anchored the market in adsorptive media and created a path dependency that prioritized operational simplicity and capital expenditure over comprehensive PFAS removal. The paper also describes the escalating technical challenges associated with moving goalposts as target concentrations drop and the regulated analyte list expands. Key barriers discussed include the significant management burden of waste streams, the limitations of current targeted analytical methods in capturing the full breadth of PFAS mass, and the complexities of source-zone forensic characterization. Findings suggest that although separation technologies can effectively achieve current drinking water regulatory limits, a true "forever solution" remains a research goal.

**CRISPR BIOSENSING FOR ENVIRONMENTAL MONITORING: WORKFLOW DESIGN AND PERFORMANCE BENCHMARKING**
Wang. S. and R. Hasan. Environmental Science& Technology 60(29):20150-20173(2026)

This review comprehensively analyzes CRISPR-based sensing technologies tailored for environmental contaminant detection, spanning both biological and chemical targets. Published studies were systematically evaluated across target classes, Cas effectors, recognition mediators, sample matrices, pretreatment strategies, preamplification or signal-gain approaches, readout modalities, and reported performance metrics. To support practical implementation, a five-step experimental framework was summarized for environmental CRISPR sensing. The review proposes a decision-guided design flowchart that links monitoring goals and matrix constraints to the selection of effectors, mediator-enabled transduction routes, pretreatment modules, amplification strategies, readouts, and validation controls and benchmarks reported detection limits by normalizing units and comparing trends across preamplification-aided versus preamplification-free designs and by contextualizing performance against relevant regulatory or guideline thresholds when available. Across the literature, most studies rely on spiked-matrix validation, highlighting the need for broader non-spiked real environmental sample testing and more transparent reporting of sampling, pretreatment, and performance evaluation. It advocates standardized data reporting, including consistent units, workflow metadata, and matrix-matched validation, to enable cross-study comparison and accelerate the deployment of CRISPR-based sensors for real-world environmental monitoring.

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.

Mention of non-EPA documents, presentations, or papers does not constitute a U.S. EPA endorsement of their contents, only an acknowledgment that they exist and may be relevant to the Technology Innovation News Survey audience.