Entries for February 1-15, 2026

CERCLA REMOVAL ACTION AT MOJAVE NP (PRESOL)

U.S. Department of the Interior, National Park Service, Washington Contracting Office, Lakewood, CO
Contract Opportunities on SAM.gov 140P2126Q0049, 2026

When this solicitation is released on or about March 27, 2026, it will be competed as an indian small business economic enterprise (ISBEE) set-aside under NAICS code 562910. The National Park Service plans to issue a solicitation for a Non-Time Critical Removal Action (NTCRA) under CERCLA at the 5-acre Hidden Hill Mine contaminated site within Mojave National Preserve in Southern California. The work includes removing ~69 yd ^{3} of commingled tailings and potentially affected underlying material, based on an assumed thickness of ~1 ft across an area of ~1,850 ft^2. To account for additional underlying material and soils that may become commingled during excavation activities, a conservative estimate of ~100 yd ^{3} of material will be removed during the Removal Action (RA). Using a conversion factor of 1.5 tons/ yd ^{3}, NPS estimates that ~150 tons of material will be excavated, transported, and disposed of as part of the RA. The work also includes preparation of post-award plans, characterizing the material, transporting it to appropriate disposal facility/ies, collecting and analyzing confirmation samples, and preparing a Response Action Completion Report. The estimated removal quantities are based on previous site investigations. The firm-fixed-price contract will use a combination of lump-sum and unit-priced items, subject to the variation in quantity clause in conjunction with an established ceiling and notification requirements. A payment bond (100%), performance bond (100%), and liability insurance will be required prior to contract performance. A group site visit is scheduled at 10:00 AM on April 9, 2026. Pertinent details will be provided in Section L of the solicitation when it is posted. Attendance at the site visit is strongly encouraged. Requests for individual site visits will not be honored. There is no solicitation at this time.   https://sam.gov/workspace/contract/opp/423d2b5dab3f40f6b4ce36df85e5bdd0/view

SYNOPSIS OF SOLICITATION; FA890326R0019; OPTIMIZED REMEDIATION CONTRACT AT FAIRCHILD AIR FORCE BASE, WASHINGTON (PRESOL)

U.S. Department of the Air Force, Air Force Materiel Command, AF Installation and Missions Support Center, JBSA Lackland, TX
Contract Opportunities on SAM.go FA890326R0019, 2026

When this solicitation is released, it will be competed as an 8(a) set-aside under NAICS code 562910. The U.S. Department of the Air Force plans to issue a solicitation for environmental remediation activities under an Optimized Remediation Contract at Fairchild Air Force Base. The ORC initiative intends to advance site cleanup during the Period of Performance in the most efficient and cost-effective manner, as supported by a cost-benefit analysis and exit strategy that achieves the greatest reduction in life-cycle cost. The Air Force is interested in a substantial reduction of long-term environmental liabilities and total LCC. These sites have complex attributes that have, to date, inhibited progress toward the achievement of RC. Work will include plan development; Preliminary Assessment/Site Inspection; Remedial Investigation or Remedial Investigation/Feasibility Study, including supplemental investigations; preparation of Decision Documents; and Remedial Action-Operation or Long-Term Management. There is no solicitation at this time.   https://sam.gov/workspace/contract/opp/8e17e583381f4a94bd2019faff448f42/view

EV35, NEWPORT, SITE 17, LTM, NORTH RAOMAC (SOL)

U.S. Department of the Navy, Naval Facilities Engineering Systems Command, Mid-Atlantic Command, Norfolk, VA
Contract Opportunities on SAM.go N4008526R0113, 2026

This is a full and open competition under NAICS code 562910. The Naval Facilities Engineering Systems Command, Mid-Atlantic Command, requires a contractor to perform long-term monitoring and monitored natural attenuation of groundwater at Site 17-NAVSTA Newport in Newport, Rhode Island. The LTM groundwater monitoring well network includes 21 monitoring wells; all wells are sampled biannually. Groundwater monitoring wells selected for sampling are intended to provide sufficient geographic coverage for evaluating MNA parameters and confirming COC concentrations in groundwater. All samples are analyzed for the following: select VOCs - Benzene, PCE, 1,2-DCE, TCE, VC; select metals- arsenic, cadmium, lead, and manganese; PAHs, plus pentachlorophenol PCBs; anions (chloride, N-nitrate, sulfate); and alkalinity. The duration of work under this Contract Task Order shall not exceed 12 months from the award date for the base option and 60 months from award, including option years. Offers are due by 2:00 PM EDT on April 7, 2026.   https://sam.gov/workspace/contract/opp/f55fc89f54de47ea9f8e2438c9711e5c/view

EPA WERRC RFP (COMBINE)

U.S. Environmental Protection Agency, Region 9 Contracting Office, San Francisco, CA
Contract Opportunities on SAM.go 68HE0926R0002, 2026

This is a full and open competition under NAICS code 541620. EPA Region 9 seeks a contractor to support its Water Emergency Response Resources Contract (WERRC). The purpose of the WERRC is to provide services to EPA and other officials supporting the implementation of EPA's responsibilities under the Clean Water Act and Safe Drinking Water Act. Response activities will support EPA's obligations under the SDWA, CWA, the Stafford Act, as well as any future laws or regulations that establish or expand EPA's response obligations. Work will include Project Planning; General Water Sector Disaster Mitigation; Drinking Water System Response Activities; Wastewater System Response Activities; Analytical Services; Demolition, Restoration, and Soil Stabilization; Provision of Support Facilities to support Water Response/Recovery; Limited Marine/Water Operations; Training; and Logistical Services. The contractor shall support EPA in fulfilling these responsibilities within the region(s) assigned via contract, as well as outside the region on a backup regional response, cross-regional response, and national response. The awarded contract will include a one-year Base Period with four one-Year Option Periods. Questions are due by 5:00 PM on April 1, 2026. Proposals are due by 8:00 PM EDT on April 30, 2026.   https://sam.gov/workspace/contract/opp/92bbc8994cc9430e8d52f69c18c97d6f/view

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Cleanup News

OPTIMIZATION TOOLS AND STRATEGIES IMPLEMENTED AT SITES WITH LONG-TERM REMEDIATION SYSTEMS

Perlmutter, M. NAVFAC Remediation Innovative Technology Seminar, 116 slides, 2025

This presentation highlights multiple Navy case studies that demonstrate how structured optimization reviews can significantly improve the performance, sustainability, and cost efficiency of long-term remediation systems. Across sites with decades-old remedies, the case studies show that periodic technical evaluation often identifies opportunities to reduce system footprint, modify operating parameters, or transition to alternative remedies while maintaining protectiveness. In several groundwater P&T examples, optimization reviews determined that contaminant mass removal rates had asymptotically declined after years of operation. Through data trend analysis, capture zone evaluation, and influent concentration review, flow rates were reduced, extraction wells were consolidated, and treatment trains were simplified without compromising hydraulic containment. The adjustments reduced energy demand and annual O&M costs while maintaining compliance with cleanup objectives. In some cases, targeted pulsed operation or seasonal pumping strategies were implemented to address rebound concerns more efficiently. Additional case studies involving SVE systems demonstrated diminishing vapor concentrations over time, indicating that systems had reached mass-transfer limitations. Optimization efforts included shutting down low-yield wells, modifying vacuum distribution, and conducting rebound testing to confirm whether active extraction could be terminated. Where appropriate, systems were transitioned to monitored natural attenuation, supported by updated conceptual site models and long-term monitoring plans. The case studies demonstrate that optimization is not a one-time event but an ongoing adaptive management process. By applying data-driven evaluations, refining system operations, and aligning remedies with current site conditions, measurable reductions in operating costs, improved system efficiency, and accelerated progress toward remedial endpoints without sacrificing protectiveness were achieved.   https://exwc.navfac.navy.mil/Portals/88/Documents/EXWC/Restoration/er_pdfs/rits/2025/RITS%202025_Optimization_Final.pdf?ver=e6e3gUtUfa83p1xeQTDZ_A%3d%3d

DESIGN CONSIDERATIONS AND IMPLEMENTATION TECHNIQUES FOR IN SITU PFAS SEQUESTRATION USING MODIFIED CLAY

Mazzarese, M. | SMART Remediation, 20 January, Vancouver, Canada, 11 slides, 2026

Recent pilot programs have demonstrated that FluoroSorb®, an organically modified bentonite clay (MC), can be injected into overburden to effectively sequester PFAS, offering higher sorption capacity and stability within the subsurface. Independent testing showed that MC exhibited strong sorption kinetics and capacity across a wide PFAS concentration range, with compatibility alongside other remedial amendments. Bench-scale evaluations compared performance against ion exchange resin, granular activated carbon, and biochar, and also assessed competitive sorption in the presence of chlorinated VOCs and petroleum hydrocarbons. Relevant kinetics and co-contaminant performance data are presented. Field deployments in the U.S. and Canada verified injectability and distribution of MC for source-area treatment and PFAS plume interception using direct-push injection. Multiple slurry densities were evaluated to match amendment mass to PFAS loading, including co-injection with calcium polysulfide for simultaneous PFAS and hexavalent chromium treatment. A Canadian PRB installation was monitored for more than a year under continued upgradient PFAS loading, with groundwater results and dye-assisted soil coring confirming amendment distribution, sequestration performance, and durability in situ.   https://smartremediation.com/wp-content/uploads/2026/03/SMART-Vancouver_Calgary_Toronto_Ottawa-2026-%E2%80%93-Mike-Mazzarese.pdf

GOING WITH THE FLOW (AND A LITTLE REAGENT): AUGMENTING NATURAL ATTENUATION TO TACKLE A CVOC PLUME

Hachborn, E. and B. Loney. | SMART Remediation, 20 January, Vancouver, Canada, 12 slides, 2026

The challenges and outcomes of a complex, multi-year in situ biochemical remediation program designed to address a cVOC groundwater plume at a site in Eastern Ontario are described. The plume originated from a former landfill and had been managed by a P&T system. Following a remedial options analysis and a successful pilot test, the in situ approach was selected as a more targeted method for cVOC mass reduction in the upgradient source area, in addition to phytoremediation downgradient of the plume. A primary challenge was adapting the program to the site's physical constraints and geological conditions. The complex terrain, combined with a necessary 15-meter buffer from an adjacent pond, required a dynamic injection design with variable point spacing and treatment depths to effectively target the main cVOC mass, which was concentrated 1.5 to 2.5 meters above the clay layer. The initial full-scale injection was conducted in early 2020, followed by a second event in late 2023 to maintain performance. The second program was hampered by weather. Low temperatures caused operational delays, affecting equipment like pumps and drill batteries. Site topography and access concerns necessitated the removal of several planned injection points from the program, requiring the redistribution of the remedial reagent to adjacent locations to maintain the target dosage. Despite these challenges, the program achieved its mass reduction objectives. Post-injection monitoring confirmed that the biochemical treatment stimulated the desired degradation of the parent cVOCs, successfully managing the plume so that no further injections are required at this time. It is planned to transition the site to a combined management strategy of monitored natural attenuation along with a recently implemented phytoremediation program to address the residual plume.   https://smartremediation.com/wp-content/uploads/2026/03/SMART-Ottawa-2026-%E2%80%93-Hachborn_Loney.pdf

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Demonstrations / Feasibility Studies

PFAS VADOSE ZONE MASS DISCHARGE AT AN AFFF-IMPACTED SITE: 1. VALIDATION BASED ON A MULTIPLE LINES-OF-EVIDENCE APPROACH

Carey, G.R., D.T. Adamson, R.K. Krebs, M. Rebeiro-Tunstall, K.G. Mumford, B. Guo, G.T. Carey, K. Rooney, and S. Moga. | Remediation 36(2):e70058(2026)

Multiple lines of evidence were evaluated to determine if porewater samples collected during a data gap investigation in the former fire training area (FFTA) at Ellsworth Air Force Base were reproducible and representative. Lines of evidence included supplemental geologic and hydrogeologic data, which showed the presence of a semi-continuous silt/clay layer directly above the water table throughout much of the FFTA, and gravimetric moisture content results that demonstrated vertical water flow at a depth of 15 ft is substantially limited due to semi-arid climatic conditions. Radial diagrams visually demonstrated

that there was negligible variability in porewater concentrations caused by varying sample yields in the deep zone. Additional lysimeters installed in the FFTA during the investigation did not result in a significant difference in the estimated vertical mass discharge, which showed that the number of lysimeter sampling points in this area is sufficient. Strong attenuation in PFAS soil concentrations with depth validates the order(s) of magnitude reduction between shallow and deep porewater concentrations observed near the former burn pit. Vadose zone PFAS mass discharge was shown to be 4%-19% of groundwater mass discharge below the water table for regulated constituents. Recommendations for field data collection and estimation of PFAS mass discharge in the vadose zone are presented.
https://onlinelibrary.wiley.com/doi/epdf/10.1002/rem.70058

SIMULATOR-TRAINED AI FOR CREATING SUBSURFACE DIGITAL TWINS USING TIME-LAPSE ELECTRICAL RESISTIVITY TOMOGRAPHY DATA
Johnson, T.C. | Pacific Northwest National Laboratory RemPlex seminar, 4-6 November, Richland, WA, 21 minutes, 2025

Presenters describe how the hydrogeologic information content implicit in time-lapse electrical resistivity tomography (ERT) data can be extracted and assessed using generative artificial intelligence (AI). The trained AI model generates ensembles of subsurface models that honor field observations, thereby providing a mechanism for assessing uncertainty. The approach was demonstrated at the Hanford 100K-Area in situ soil flushing test, where ERT was used to monitor vadose zone hexavalent chromium remediation through in situ soil flushing.
See times 1 minute-23 minute: https://www.pnnl.gov/projects/remplex/2025-summit/technical-sessions/artificial-intelligence
Slides: https://www.pnnl.gov/sites/default/files/media/file/2025%20RemPlex%20-%20Technical%20Session%208%20-%20Tim%20C.%20Johnson%20-%20Simulator-Trained%20AI.pdf

PILOT-SCALE PERFORMANCE OF A UV-REGENERABLE IRON-BASED ACTIVATED CARBON SYSTEM FOR PHARMACEUTICAL AND PFAS REMOVAL
Beak, S., E. Kim, T. Jung, J. Lee, and J. Bae.
Journal of Water Process Engineering 82:109468(2026)

A 200 m^3/day pilot was constructed and continuously operated at a municipal wastewater treatment plant (WWTP) in Daegu, South Korea, that coupled iron-impregnated powdered activated carbon (Fe-PAC) with ultraviolet (UV)/ H_2O_2 photo-regeneration to restore adsorption in situ. Bench tests verified Fe-site-enabled photo-Fenton reactions. Robustness was pilot-assessed under actual, variable influent fluctuations. Without regeneration, short-chain PFAS (PFHxA and PFHpA) showed limited, unstable removal; long-chain PFNA and PFOA decreased over time owing to site saturation. Most pharmaceuticals (diclofenac and florfenicol) sustained ≥90% removal; hydrophilic caffeine decreased transiently but recovered after regeneration, whereas atenolol exhibited lower long-term stability. With periodic UV/H_2O_2 treatment, PFAS removal exceeded 95% after three months; aggregate removal reached 97.7 and 99.1% at three and five months, respectively, without deterioration of water-quality indicators. Fe-PAC acted as a dual adsorbent-catalyst: pores captured contaminants, and Fe sites generated radicals that decomposed surface residues and reopened adsorption sites, providing pilot-scale evidence that the UV-regenerable Fe-PAC hybrid can overcome adsorption limitations and deliver robust control of persistent micropollutants. Optimizing the regeneration frequency and intensity and performing techno-economic evaluations to support full-scale deployment are recommended.
https://www.sciencedirect.com/science/article/pii/S2214714426000267/pdfft?md5=4af1b93cb0f7b21df11014da5b0f8b5a&pid=1-s2.0-S2214714426000267-main.pdf

FIELD APPLICATION OF BIOELECTROCHEMICAL REDUCTION TECHNOLOGY FOR TREATING HEXAVALENT CHROMIUM IN GROUNDWATER
Li, Y., D. Kong, K. Jin, X. Dong, Q. Zhang, and L. Chen.
Journal of Contaminant Hydrology 276:104744(2026)

A commercialized bioelectrochemical reduction (BECR) technology (E-Redox®-R) was applied at a Cr(VI)-contaminated site in Henan Province, China, to remediate chromium-contaminated groundwater in a pilot study. The BECR pilot system consisted of four units, comprising 12 electrodes installed across a 38.5-m transect. For each unit, one anode well and two cathode wells were arranged in an isosceles triangle configuration, with an inter-electrode spacing of 5.5 m. Within 10 months of system operation, groundwater Cr(VI) concentrations in the cathode wells, ranging from 0.3 mg/L to 46.5 mg/L, decreased by 24% to 99% despite potential masking effects by the desorption of chromium mass from the soil matrix into the aqueous phase. Within the treatment zone, Cr(VI) concentrations in the two upgradient monitoring wells located near the anode electrodes decreased by 21% and 42%, respectively, while concentrations in the three downgradient monitoring-compliance wells near the cathode electrodes decreased by 65% to 96%. Results indicate that the BECR technology can effectively reduce Cr(VI) in the subsurface and holds promise as a sustainable in situ technology for remediating chromium and other contaminants in impacted groundwater.

Research

RESEARCH BRIEF 370: IMPROVING CHEMICAL CLEANUP OF CONTAMINATED GROUNDWATER
National Institute of Environmental Health Sciences, Superfund Research Program (SRP), February 2026

Researchers from the University of California, Berkeley Superfund Research Program (SRP) Center uncovered how underground conditions influence the success of chemical oxidation-based groundwater cleanup. By considering how contaminants interact with underground particles, the study provides guidance that could help tailor cleanup approaches to site-specific conditions, improving remediation outcomes. https://tools.niehs.nih.gov/srp/researchbriefs/view.cfm?Brief_ID=370

BENCH MORE, SWEAT LESS: CASE STUDIES USING BENCH-SCALE TESTING TO EXPOSE HIDDEN ISSUES, REFINE REMEDIAL OPTIONS, AND IMPROVE BUDGETING.
Reichheld, S. | SMART Remediation, 20 January, Vancouver, Canada, 16 slides, 2026

Practical case studies are highlighted where targeted bench-scale testing using site soil and groundwater samples strengthened remedial decisions and improved field outcomes. The case studies show how bench results clarified viable treatment options, narrowed design ranges, and supported more defensible remedial timelines and cost estimates.
https://smartremediation.com/wp-content/uploads/2026/03/SMART-Vancouver-2026-%E2%80%93-Steve-Reichheld.pdf

PFAS FATE USING LYSIMETERS DURING DEGRADED SOIL RECLAMATION USING BIOSOLIDS
Peter, L., M. Modiri-Gharehveran, O. Alvarez-Campos, G.K. Evanylo, and L.S. Lee.
Journal of Environmental Quality 54(1):41-53(2025)

A study investigated PFAS persistence and leaching from biosolids applied to an artificially constructed site to mimic degraded soils. Biosolids and biosolids blended with mulch were applied at different rates to attain either one and five times the agronomic N rate for vegetable crops, and a control treatment with synthetic urea and triple superphosphate fertilizer. Leachates were collected for 2 years from 15-cm depth zero-tension drainage lysimeters. Soils were analyzed post-biosolids application. PFAS were quantified using isotope-dilution, solid-phase extraction, and liquid chromatography tandem mass spectrometry. Leachate profiles exemplified an initial high total PFAS concentration, followed by a sharp decline and subsequent small fluctuations attributed to pre-existing soil conditions and rainfall patterns. Quantifiable PFAS in leachate were proportional to biosolids application rates. Short-chain PFAAs (CF$_2$ < 6) were dominant in leachate, while the percentage of longer-chain homologues was higher in soils. A 43% biosolids blend with mulch resulted in 21% lower PFAS leachate concentrations, even with the blend application rate being 1.5 times higher than biosolids due to the blend's lower N-content. The blending effect was more pronounced for long-chain perfluoroalkyl sulfonic acids that have a greater retention by soils and the air-water interface.
https://acsess.onlinelibrary.wiley.com/doi/epdf/10.1002/jeq2.20576

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 study proposed a dynamic iterative optimization framework that integrates parameter inversion with remediation plan design into a closed-loop system of simulation-observation-update-optimization. The framework iteratively updates the 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.

NOVEL REMEDIATION STRATEGIES FOR CR(VI)-CONTAMINATED GROUNDWATER AT LOW TEMPERATURE: STUDY ON THE EFFECTS OF COMBINING ASCORBIC ACID REDUCTION WITH BIOSTIMULATION
Yang, X., L. Hou, X. Yuan, H. Guo, and F. Ma.
Journal of Environmental Management 403:129156(2026)

Ascorbic acid (AA) combined with molasses was used to remediate Cr(VI) in experiments at 8°C to accelerate the initiation of bioreduction and broaden the applicable range of biostimulation. Results demonstrated that the Cr(VI) reduction efficiency was significantly inhibited by both dissolved oxygen and aquifer media when treated with AA. However, excess addition of AA (n[AA]): n(Cr[VI]) = 2:1) could eliminate the inhibitory effect of non-target reactions. Compared to the molasses-only control, the average removal rates of Cr(VI) in the systems with the additional 38, 86, and 170 mg/L of AA were increased by 0.87, 1.07, and 2.24 mg/(L·d). AA rapidly reduced Cr(VI) within 6 h, and the subsequent bioavailable molasses had the greatest Cr(VI) removal rate [2.47 mg/(L·d)] when the Cr(VI) concentration was decreased to near 40 mg/L. Higher AA additions under combined treatment increased the relative abundance of *Bacillus* from 26% to 46% and 50%, respectively. In addition, the expression of genes related to Cr(VI) detoxification was upregulated by AA combined with molasses remediation. The expression of *ChrA* in AA-molasses-amended systems was 1.52 times (38 mg/L AA) and 1.68 times (86 mg/L AA) that of molasses-amended system, respectively. The relative expression of *SOD1* in AA-molasses-amended groups was 1.56 (38 mg/L AA) and 1.84 times (86 mg/L AA) that of the molasses-amended system.

EVALUATION OF 1,4-DIOXANE NATURAL ATTENUATION AFTER IN SITU PROPANE BIOSPARGING: BENCH-SCALE MICROCOSM TESTS AND FIELD METADATA ANALYSIS
Antunes, J.M.D., D.K.D. Gaudel, C.H. Bell, Z. Wahl, M. Schnobrich, and M. Li.
Remediation 36(2):e70060(2026)

Bench-scale microcosms were conducted with groundwater collected from seven monitoring wells located along the 1,4-dioxane plumes at two sites where propane biosparging (and bioaugmentation) were previously employed. Over four weeks of incubation, significant 1,4-dioxane removal was observed in microcosms prepared with groundwater samples from four locations within the proximity of historical treatment zones. First-order attenuation rates ranged from 0.02 to 1.11/day, corresponding to half-lives between 0.6 and 32.0 days. Concurrently, a meta study was conducted by compiling groundwater data

from > 900 monitoring wells across the U.S. Estimated bulk 1,4-dioxane degradation/attenuation half-lives ranged from 109 to 6,405 days ($R^2 > 0.5$). The majority (96%) of the estimated half-lives were < 3,000 days, with the shorter half-lives (i.e., faster rates) generally observed at higher 1,4-dioxane concentrations (i.e., > 20 µg/L). Propane biosparging exhibited significantly shorter half-lives (i.e., a median half-life of 445 days) than MNA and P&T technologies. In addition, 1,4-dioxane half-lives after the start of propane biosparging treatment were an order-of-magnitude shorter than those before treatment, which may also explain the additional orders-of-magnitude decreases in half-lives in MNA-mimicking microcosms. Together, these findings indicate that propane biosparging not only accelerates immediate 1,4 dioxane removal but also "primes" microbial communities for enhanced long term attenuation.

MODELING PER- AND POLYFLUOROALKYL SUBSTANCE PRECURSOR TRANSFORMATION IN GROUNDWATER AT A WELL-CHARACTERIZED SITE
Stockwell, E.B., D.T. Adamson, J.D. Gamlin, P.R. Kulkarni, A. Singh, R.W. Falta, and C.J. Newell. Journal of Contaminant Hydrology 276:104766(2026)

A semi-analytical groundwater model that considers matrix diffusion was calibrated to field PFAS data at a site that contained PFAAs and their respective precursor compounds. The modeling effort considered PFOS, PFOA, PFHxS, and PFBS. Individual precursor compounds were grouped according to their ability to transform into one of four key PFAAs. Model calibration that varied source characteristics, fate and transport parameters, and precursor transformation indicated that precursor transformation could be a critical process for three of the four PFAAs: 40 years after the initial source release ~59%, 84%, and 87% of the PFOA, PFHxS, and PFBS plume maximum concentrations, respectively, originated from precursor transformation. In addition, precursor transformation led to PFOA, PFHxS, and PFBS plumes that were up to 17% longer than if precursor transformation did not occur. In contrast, PFOS was not substantially affected by precursor transformation due to high PFOS concentrations in the source zone compared to its precursors. Additional modeling of complete PFAS source removal indicated that the effects of matrix diffusion, coupled with no natural degradation of certain PFAAs, may result in PFAS plumes at this site that persist and are sustained by precursor transformation.
https://www.sciencedirect.com/science/article/pii/S0169772225002712/pdfft?md5=5c4d7ae57b8e251e75e9386e5528d7f2&pid=1-s2.0-S0169772225002712-main.pdf

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General News

GROUNDWATER CONTAMINATION PLUME STABILITY REVIEW OF ASSESSMENT METHODS
Contaminated Sites Approved Professional Society (CSAP) Report CA0038290.6960-001-R-Rev1, 55 p, 2024

This review document provides practitioners with a summary of various plume stability assessment techniques, considerations for conducting a plume stability assessment, and examples of plume stability applications. The intended audience for this document is the CSAP Society and contaminated sites practitioners.
https://csapsociety.bc.ca/wp-content/uploads/2024-12-03-Groundwater-Plume-Stability-Assessment-Methods-Final.pdf
Presentation on document: https://smartremediation.com/wp-content/uploads/2026/03/SMART-Vancouver_Calgary-2026-%E2%80%93-Joe-Ricker.pdf

THE HIDDEN COSTS OF PFAS REMEDIATION: ENERGY, WASTE, AND LONG-TERM VIABILITY
Laija, E., Bamer, J., and Molzahn, P. RemPlex Seminar, 2025

This seminar explores the environmental footprint of treating PFAS contamination. Presenters discuss the energy demands, waste generation, and broader environmental impacts of PFAS treatment technologies, offering insights into how these factors, alongside the regulatory context, should shape decision-making around remediation. Attendees gained insights into:

- The energy demands and waste generation associated with current PFAS cleanup technologies.
- Methodologies for calculating the environmental footprint of remediation strategies.
- How treatment technology selection is influenced by both environmental impact and regulatory context.
- Emerging perspectives on remedy sustainability and life cycle implications for PFAS remediation.

https://www.pnnl.gov/projects/remplex/seminars/hidden-costs-pfas-remediation?utm_source=chatgpt.com
Slides: https://www.pnnl.gov/sites/default/files/media/file/PDF%20-%20RemPlex-SURF_PFAS_Seminar_8-19-25.pdf

MAPPING RESEARCH ON MICROBIAL REMEDIATION OF METALS IN SOIL (2020-2025)
Usmonkulova, A., M. Pugliese, M. Julie, I. Khalilov, N. Kurbonova, N. Tillyaxodjayeva, R. Karimova, W. Liu, F. Khalilova, and O. Jabborova. Microbiology Research 17(1):10(2026)

A systematic literature review using bibliometric analysis was conducted to examine the evolution and current trends of biological remediation studies. The bibliometric analysis was used for descriptive, intellectual, social, and conceptual network analyses, while systematic reviews were used to identify the application of biological remediation. A total of 4,835 papers were selected and extracted from Scopus between 2020 and 2025. The publication trends, most influential countries and articles, leading journals, collaboration networks, coupling networks, and application of biological remediation in various disciplines were described. This article highlights new research directions in current bioremediation trends: (1) understanding the interactions between petroleum hydrocarbons and heavy metals in composite pollution systems; (2) exploring microbial community succession during bioremediation; (3) utilizing biosurfactants to enhance contaminant solubilization and biodegradation; and (4) developing integrative, multi-mechanistic remediation approaches.   *This article is **Open Access** at* https://www.mdpi.com/2036-7481/17/1/10.

ADVANCES IN REMEDIATION: PFAS PRECURSORS—DARK MATTER MENACE OR NEGLIGIBLE NOTHINGBURGER?
Divine, C., T.L. Torralba-Sanchez, T. Blount, T. Guillette, B. Miatke, and J. Lang. Groundwater Monitoring & Remediation 46(1):10-20(2026)

PFAS precursors can act as a substantial long-term hidden source of regulated PFAAs, yet in many settings, strong sorption, limited mobility, analytical uncertainty, and slow transformation limit their practical impact on site management decisions. While dozens of terminal PFAAs can be measured, they represent only a fraction of the total PFAS mass potentially present. Many can act as precursors capable of converting into PFAAs. Whether hidden " dark matter" precursors are an important long-term driver of plume persistence, or mostly a chemically inert and immobile "nothingburger" locked up in soil pores, is an active debate. Scientific rationale and empirical laboratory and field observations for both perspectives are presented, followed by suggestions for practical considerations for investigation, data analysis, and visualization, conceptual site models, and site management strategies.

A STATISTICAL SUMMARY AND VISUALIZATION TOOL FOR 30 YEARS OF BACKGROUND SOIL AND SEDIMENT METALS DATA FROM NORTH CAROLINA SUPERFUND SITES
Ogwu, M.C., F.M. Nilsen, W.F. Hunneke, L. Norris, R.J. Kelley, P.P. Goodwin, M.A. Nichols, A.R. Van Venrooy, and J.T. Bateson. Integrated Environmental Assessment and Management 22(1):260-268(2026)

Remediating CERCLA sites is limited to cleanup to levels no lower than background concentrations. However, anthropogenically induced and naturally occurring metal concentrations in soil and sediments often complicate this cleanup process. A statewide dataset of background heavy metal data from Superfund site investigations was compiled to support informed decisions on heavy metal cleanup and the development of soil heavy metal-related policies in North Carolina. The dataset represents background concentrations at 326 Superfund sites found in North Carolina from 1985 to 2015. This 30-year dataset comprises site location data and analytical measurement results for 18 heavy metals in 624 soil and 228 sediment samples, obtained using standard methods. The data are presented in an interactive dashboard, offering summary statistics and graphical representations that can be customized to support specific decision-making needs. The data and dashboard: (1) inform and support cleanup decisions and policy development regarding soil heavy metals, and (2) increase public awareness of the levels of naturally occurring and anthropogenic background heavy metals in soil and sediments across the state. The publicly accessible and interactive dashboard offers a deeper understanding of background environmental conditions in relation to evolving anthropogenic contamination within a broader context.

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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