Technology Innovation News Survey

Entries for April 16-30, 2023

Market/Commercialization Information

FUSRAP REMEDIATION SERVICES (SRCSGT)
U.S. Army Corps of Engineers, Philadelphia District, Philadelphia, PA
Contract Opportunities on SAM.gov, Solicitation W912BU23R0016, 2023

This is a sources sought notice for marketing research purposes only under NAICS code 562910. The U.S. Army Corps of Engineers, Philadelphia District, will use information obtained under this sources sought to develop an acquisition strategy to meet the requirements for the Formerly Utilized Sites Remedial Action Program (FUSRAP) Remediation Services in Deepwater, New Jersey. Market research is being conducted to determine contractor capabilities for remediation services required to remove radioactively contaminated soil and ancillary groundwater from a FUSRAP site. The radiologically contaminated soil may be co-mingled with elevated levels of chemical contamination. Responsibilities would include all remediation work including sampling, analyses, demolition, excavation, backfilling, handling, packaging, control of fugitive vapor and odor emissions, transportation, and disposal of all radiologically and chemically contaminated material. Contractor responsibilities would also require operation and maintenance of the on-site groundwater water treatment plant and ensuring that plant effluent meets requirements of the state's Permit Equivalent. Demonstrated experience with development and management of a site Health and Safety program including chemical/radiation safety and air monitoring is required. Previous experience with FUSRAP sites and sites with high levels of chemical contamination is also needed. A proven track record with excavation contractors, A/E contractors and transportation and disposal contractors is also necessary. Last, a demonstrated understanding of the CERCLA process is a requisite. Capability statements are due by 5:00 PM EDT on June 8, 2023.https://sam.gov/opp/80fdbad9b87346abb321d393ab4c561a/view

PRE-PLACED REMEDIAL ACTION CONTRACT (SRCSGT)
U.S. Army Corps of Engineers, Seattle District, Seattle, WA
Contract Opportunities on SAM.gov, Solicitation W912DW23RMWAJ, 2023

This is a sources sought notice for marketing research purposes only under NAICS code 562910. The U.S. Army Corps of Engineers is seeking interested business sources for a construction project titled: "Pre-placed Remedial Action Contract (PRAC) at Environmental Protection Agency (EPA) Region 10 (Alaska, Idaho, Oregon, Washington), Region 8 (Montana, North Dakota, South Dakota, Wyoming, Utah, Colorado), and Region 2 (New York, New Jersey)." The contractors selected for this work shall have the capability and experience to provide a wide range of remedial action services at hazardous waste sites. These efforts may include environmental removal actions, remedial actions, and other remediation activities as well as related activities necessary to ensure complete and successful remediation. Remedial activities may include but are not limited to the following: excavation, transportation, and disposal of hazardous, toxic, or low-level radiological waste; construction and operation of groundwater treatment plants and extraction systems; dredging of contaminated sediments; installation and operation of in situ treatment technologies including but not limited to air sparging, chemical oxidation, bioremediation, groundwater circulating wells, permeable reactive barriers, soil vapor extraction, and thermal treatment; water and wastewater line installations/service connection hookups; utility line replacement and/or remediation along utility lines; erosion, sewer, and stormwater controls for compliance and/or pollution prevention; testing, treatment, remediation, and disposal of wastes associated with mining activities. Supporting activities include, but are not limited to, sampling and laboratory analysis of soil, groundwater, surface water, air, and sediments; monitoring well, extraction well, and injection well installation, monitoring, and maintenance; supporting facilities for construction; work plan preparation; construction completion reports, as-built drawings, periodic monitoring reports, operation and monitoring reports, and other documents as needed; demolition; and public relations activities. This proposed project will be conducted under a firm-fixed-price Multiple Award Task Order Contract (MATOC) under the PRAC with a capacity of $95M. Capability statements are due by 1:00 PM AKDT on June 20, 2023.
https://sam.gov/opp/30631f6de64a43b98290ce6dc639a949/view

ARIMD HEAVY METALS MITIGATION (SRCSGT)
U.S. Army Corps of Engineers, Louisville District, Louisville, KY
Contract Opportunities on SAM.gov, Solicitation W912QR-ARIMD-FY23-24, 2023

This is a sources sought notice for marketing research purposes only under NAICS code 562910. The U.S. Army Corps of Engineers seeks to determine the capabilities of small business firms for a small business set-aside. The U.S. Army Reserve owns and leases hundreds of properties throughout the U.S. and its territories. At various points in their lifetimes, these properties have been used for indoor firing ranges, equipment maintenance, and other uses that have caused heavy metals contamination. The magnitude of the contamination in each facility is not known. Investigation is required to determine the nature and extent of the heavy metals contamination, and abatement or cleaning is needed in the portions of the buildings where contamination is detected above regulatory limits. Abatement is needed where current and future activities do not presently generate heavy metals and therefore recontamination is not expected. Cleaning is needed where current and future activities are expected to continue to generate heavy metals, and therefore recontamination is likely. Responses to this sources sought notice are due by 11:59 PM EDT on June 21, 2023.
https://sam.gov/opp/92ead855ceed415db6f775b43fa1dacd/view

Cleanup News

CLIMATE ADAPTATION PROFILE: ROCKY MOUNTAIN ARSENAL
EPA website, updated March 31, 2023

EPA recently released a climate adaptation profile describing measures taken at the Rocky Mountain Arsenal in Commerce City, Colorado. Ongoing remediation work at this National Priorities List site includes maintaining two landfill caps and six evapotranspiration covers and operating five groundwater extraction and treatment systems. The site is vulnerable to drought conditions, erosion and sheet flow associated with intense or prolonged precipitation, and potential wildfires. Design and construction of the cover and capping systems included multiple measures to address the vulnerabilities, such as armoring associated drainage channels with concrete blocks, using drought-tolerant species to vegetate top surfaces and periodically conducting prescribed vegetation burns to reduce fuel for wildfires. Other measures to enhance climate resilience of the site's infrastructure include storing site-wide stormwater in three onsite lakes and beneficial reuse of the site's treated groundwater to recharge the local aquifer. Approximately 15,000 of the site's 17,000 acres have been incorporated into the Rocky Mountain Arsenal National Wildlife Refuge.
https://www.epa.gov/superfund/climate-adaptation-profile-rocky-mountain-arsenal

THE OMAHA LEAD SUPERFUND SITE OMAHA, NEBRASKA INNOVATIVE PARTNERSHIPS AND HOLISTIC REMEDIAL APPROACHES PRIORITIZE COMMUNITY HEALTH
EPA Region 7, 22 pages, 2023

Based on various studies and investigations into the impact of historic smelter emissions on residential properties, EPA delineated a 27-square-mile area as the Omaha Lead Superfund (OLS) site, making it the largest residential Superfund site in the country. This case study explores the tools and partnerships between local, county, state, and federal entities that led to the successful cleanup and transformation at the site. It traces the evolution of cleanup and reuse efforts, highlighting the community's leadership, engagement of local stakeholders, and coordination of remedy and reuse considerations to attract businesses to the site. The case study also provides information for parties interested in the large-scale study of contaminated sites, unique intergovernmental cooperative agreements, comprehensive cleanup approaches to address cumulative risks, and local partnerships to facilitate outreach and education of community members. Sampling and cleanup of residential properties are ongoing. The Douglas County Health Department, the City of Omaha, the State of Nebraska, and EPA credits the commitment of all involved with the success achieved at the OLS in reducing the blood lead levels in children. Since 2015, less than 2% of children 7 years and younger within the OLS have had blood lead levels greater than 5 ug/dL. https://semspub.epa.gov/work/HQ/100003197.pdf

DIMINISHING RETURNS FOR THERMAL REMEDIATION ENDPOINT DETERMINATION AT THE VELSICOL SUPERFUND SITE
Cole. J. I DCHWS Spring 2023 Design and Construction at Hazardous Waste Sites Symposium, 29-31 March, Philadelphia, PA, 19 slides, 2023

The Velsicol Superfund site is a 52-acre former chemical manufacturing area along the Pine River that produced various chemical compounds and products from 1936 to 1978, including polybrominated biphenyl (PBB) and DDT. Between 2017 and 2022, in situ thermal treatment (ISTT) was applied to remediate NAPL in eight discrete source areas. Three successive applications of thermal conductive heating treated 66,200 yd ^{3} of soil and >380,000 lbs of subsurface contaminants. Diminishing returns was chosen as the ISTT performance standard for treatment and is based on multiple lines of evidence premised on direct measurements of contaminant recovery, subsurface temperature, and energy input to demonstrate: 1) that the practical and technical capacity of ISTT to remove contaminants from soil or groundwater has been reached; and 2) when additional thermal energy input or extended system operation will not yield a significant reduction in soil and groundwater contaminants. It provides the greatest cost efficiency in ISTT system operation. ISTT endpoint determination was successfully demonstrated for three source area treatment systems. The data necessary for endpoint determination was obtained by simple tools common to ISTT system performance monitoring practices.
https://drive.google.com/file/d/1hw-hlCD7qT1ce3ZQbEGu5aSj5zBE7TF/view *All site documents related to thermal treatment of the three sources:*
https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.docdata&id=0502194

CHALLENGES ENCOUNTERED DURING THE REMEDIATION OF THE WORLD'S LARGEST JET FUEL STEAM REMEDIATION
Griepke, S., D. Phelan, and S. Pearson. I DCHWS Spring 2023 Design and Construction at Hazardous Waste Sites Symposium, 29-31 March, Philadelphia, PA, 16 slides, 2023

Historic releases of jet propellant grade four and aviation gasoline have occurred at the former Williams AFB ST012 site, a former liquid fuels storage facility. EPA estimates indicate that several million gallons of contaminants may be in the soil and groundwater. Reductions in regional groundwater pumping resulted in more than 80 ft of groundwater rise since the 1970s forming a large submerged LNAPL zone to depths of 245 feet bgs. Following a thermal-enhanced extraction pilot test, steam-enhanced extraction (SEE) was chosen as the remediation technique. SEE operational wells included 31 steam injection, 55 multi-phase extraction, and 2 dual-purpose injection/extraction wells, in addition to 17 temperature monitoring points. The presentation outlines challenges encountered while performing remedial activities, including boiling/steam temperature extraction from 240 ft bgs, process system size, high uptime requirements, and avoiding emulsions and biofouling. The system operated for 578 days, maintaining net liquid extraction and inward gradient and removing >2.6 million lbs of hydrocarbons.
https://drive.google.com/file/d/1b5QH4GPWTPRy4IKIatFIGxFQfOQn56g1/view

Demonstrations / Feasibility Studies

IN-SITU CHEMICAL TREATMENT FOR REDUCTION OF DISSOLVED ARSENIC CONCENTRATIONS NEAR AN ACTIVE SPUR LINE IN BURNABY, BC
Christensen, J. I REMTECH 2022: The Remediation Technologies Symposium, Banff, AB, Canada, 11-14 October. Environmental Services Association of Alberta, Edmonton, AB (Canada), 38 slides, 2022

An in situ chemical injection program was completed near an active spur line where dissolved arsenic concentrations exceeded the regulatory standard and the site-specific toxicity reference value in monitoring wells. A pilot study investigated the ability of an injected slurry to remove arsenic from groundwater, including the rate of arsenic immobilization; the injection radius of influence; the effects, benefits, and limitations of different injection methods; and the optimum injected chemical composition on the site geochemistry. A proprietary reducing agent for in situ metal fixation was identified as a suitable chemical amendment to precipitate arsenic in situ. Between 2015-2018, the chemical injection program consisted of four rounds of chemical injection downgradient of the source location, with follow-up amendment applications of sulfate and/or lactate solution to address limiting reagents in the reaction zone. The first round was injected via direct push injection, and the second round was injected via jet grouting. Using jet grouting here allowed for increased delivery of remediation product to the subsurface and created treated soil columns that will continue to react with the dissolved arsenic. Each round also includes injecting varying compositions of chemicals to promote the precipitation of arsenic in sulfide mineral form. Preliminary results of the pilot chemical injection program indicate that concentrations of arsenic have decreased in the target injection area four years after the first round of injection. https://esaa.org/wp-content/uploads/2022/11/RT22Christensen.pdf.

INTRODUCING A NOVEL AMENDMENT TECHNOLOGY IN THE REMEDIATION OF MERCURY CONTAMINATED SOILS AT A LEGACY MUNITIONS PRODUCTION SITE
Griffin, D. and D. Gray. I 16th meeting of the International Conference on Mercury as a Global Pollutant (ICMGP). 24-29 July, virtual, 24 slides, 2022

Rapid mercury sequestration and long-term stability were validated in bench and field studies in a wide range of soils and subsurface conditions using the novel remediation amendment technology platform MercLok™. Ionic, elemental, mineral-bound and organic species such as methylmercury were included in the studies. Additional tests conducted exhibited high efficacy for other heavy metals and organic co-contaminants. The resulting data was used to design and implement a multi-faceted pilot study at a mercury-contaminated site in Germany. Objectives were to further demonstrate field-scale efficacy and determine different methods for applying the amendment into the subsurface. Mercury speciation, leachability, and sequential extraction tests were conducted on soil and groundwater samples to optimize amendment loading rates and the selected area of the pilot. The pilot was designed to evaluate field-scale performance, amendment contact, and delivery treatments using shallow soil mixing and direct-push injection. Field implementation was designed using conventional methods and equipment. Loading rates on the order of 5-10 wt.% were appropriate to address mercury concentrations up to 500,000 mg/kg. To date, results indicate MercLok was effective in stabilizing and sequestering high levels of multiple species of mercury in the soil and effluent. https://cdn-api.swagcard.com/public/files/5652e3ab98cf4faa8006f6f692b8d191.pdf
See YouTube video of how MercLok works: https://www.youtube.com/watch?v=GSXqkeY8UI8

AN INTEGRATED APPROACH TO ASSESS SMART PASSIVE BIOVENTING AS A SUSTAINABLE STRATEGY FOR THE REMEDIATION OF A POLLUTED SITE BY PERSISTENT ORGANIC POLLUTANTS
Triozzi, M., M.S. Binetti, C. Campanale, V.F. Uricchio, and C. Massarelli.
Sustainability 15:3764(2023)

A pilot test using in situ investigations coupled with smart passive bioventing (S-PBv) was conducted to assess the application as a remediation strategy to biodegrade organic pollutants. The work consisted of direct and indirect investigations to acquire specific Site parameters to be reclaimed. In the preliminary phase, the execution of perforations, sampling, and field tests assessed the technology for the specific site and the type of contamination. In the second phase, based on previous results, the environmental remediation strategy aimed to reduce organic soil contaminant concentrations below the contamination threshold concentration. Onsite investigations were used to design the passive ventilation system. Using smart sensors represents an optimized system to improve data management and allows the development of ad hoc programming code. Implementing S-PBv as a remediation strategy at an actual site to assess the applicability of S-PBv enhanced new aspects related to bioventing. *This article is* ***Open Access*** *at*https://www.mdpi.com/2071-1050/15/4/3764.

THE EFFICACY OF SOIL WASHING FOR THE REMEDIATION OF PER- AND POLY-FLUOROALKYL SUBSTANCES (PFASS) IN THE FIELD
Grimison, C., E.R. Knight, T.M.H. Nguyen, N. Nagle, S. Kabiri, J. Braunig, D.A. Navarro, R.S. Kookana, C.P. Higgins, M.J. McLaughlin, and J.F. Mueller.
Journal of Hazardous Materials 445:130441(2023)

The performance of a soil washing plant (SWP) to remediate PFAS-contaminated soil with a high clay content (61%) was investigated in the field. The SWP used fractionation of the soil particles by size and partitioning of PFAS into the aqueous phase to remove PFAS from the soil. Contaminated water was treated in series with granulated activated carbon (GAC) and ion-exchange resin and reused within the SWP. Roughly 2,200 t (dry weight) of PFAS-contaminated soil was treated in 25 batches of 90 t each, with a throughput of ~11 t soil/hr. Efficiency of the SWP was measured by observed decreases in total and leachable concentrations of PFAS in the soil. Average removal efficiencies (RE) were up to 97.1% for perfluorocarboxylic acids and 94.9% for perfluorosulfonic acids. REs varied among different PFAS depending on their chemistry (functional head group, carbon chain length) and were independent of the total PFAS concentrations in each soil batch. Mass balance analysis found ~90% of the PFAS mass in the soil was transferred to the wash solution and >99.9% of the PFAS mass in the wash solution was transferred onto the GAC without any breakthrough.

Research

RESEARCH BRIEF 341: FIGHTING FLUORINE WITH FLUORINE: NEW MATERIALS REMOVE PFAS FROM GROUNDWATER
National Institute of Environmental Health Sciences, Superfund Research Program (SRP), May 2023

A new study funded by the SRP created a novel class of materials that can attract and remove PFAS from water. The new technology, called Fluor Mop, can be regenerated, reused and is potentially less expensive than current remediation strategies. Researchers created 12 Fluor Mop materials made of fluorine and silica, each denoted by a Fluor Mop Version (FMV) number. Each FMV was designed to have a unique surface chemistry and structural configuration, allowing each one to have an affinity for a different type of PFAS. The materials' PFAS removal efficiencies were tested on PFAS-contaminated groundwater samples. Traditional water treatment technologies, including activated carbon and ion exchange (IX) resins, were also applied to compare their PFAS removal abilities. The team analyzed how well the materials performed in removing eight PFAS species, including PFOS and PFOA, and emerging shorter-chained PFAS, such as PFBS and PFHxA, after multiple cycles of washing and reuse. FMV8, the best performing Fluor Mop material, removed ~97% of all PFAS tested, compared to ***Article:*** https://tools.niehs.nih.gov/srp/1/ResearchBriefs/pdfs/SRP_ResearchBrief_341_508.pdf
YouTube video: https://www.youtube.com/watch?v=KjGeRj0OpoI.

GENERAL FILTRATION BED DESIGN FOR WATER CONTAMINATED WITH RADIOACTIVE CESIUM
Magnuson, M., M. Kaminski, and K. Hepler. EPA Technical Brief, 8 pp, 2023

This technical brief provides decision-makers with practical information to manage and treat decontamination wash water generated during remediation activities following a radioactive cesium (Cs) contamination incident. It is intended for local, state, and federal agents, along with emergency management and environmental response personnel to aid in the cleanup after the detonation of a dirty bomb. It describes how to design a filtration bed to remove radioactive Cs from collected decontamination wash waters. The model described in this brief assumes all incoming radioactive Cs is in the dissolved ionic form (Cs+). Caution must be exercised if small, radioactive particulate (<20-40 micrometers mean diameter) are present. These might pass through the filtration bed and require additional clarification to completely remove the radioactivity from the recycled water.

https://cfpub.epa.gov/si/si_public_file_download.cfm?p_download_id=546321&Lab=CESER

EVALUATION OF THE VOLATILIZATION AND VAPOR INTRUSION POTENTIAL OF SELECT PER- AND POLYFLUOROALKYL SUBSTANCES
Holton, C. and D. Hanigan. I AEHS Foundation 32nd Annual International Conference on Soil, Water, Energy and Air, 20-23 March, San Diego, CA, 23 slides, 2023

Using newly published experimentally derived Henry's Law constants, the vapor intrusion potential of 27 PFAS was evaluated based on their potential volatility and/or prevalence in the subsurface. Henry's Law constants were measured using the static headspace method and manipulations of the gas- to liquid-phase ratio. Then the constants were compared to computationally derived values and input into a screening-level VI model to assess the partitioning of select PFAS above impacted groundwater and migration into an overlying structure. Fifteen PFAS produced mass spectrometry signals suitable for the determination of Henry's Law constants, including select fluorotelomer alcohols, fluorotelomer sulfonates, iodinated PFASs, sulfonamides, fluorotelomer olefins, fluorotelomer carboxylic acids, and fluorotelomer acrylates. Compounds with longer fluoroalkyl chain lengths showed greater Henry's Law constants. Perfluorinated sulfonates and carboxylates were generally not volatile enough to be measured. Preliminary results of screening-level VI modeling with the experimentally derived Henry's Law constants highlight a wide range of site conditions in which the potential for vapor intrusion should be considered and may also change current interpretations of PFAS conceptual site models.
https://s3.amazonaws.com/amz.xcdsystem.com/A51108D5-EA2F-2B6D-01D92AC0F42DCE3B_abstract_File22921/PDFforhandouttoattendeesopt_275_0330121519.pdf

PASSIVE CONVERGENCE-PERMEABLE REACTIVE BARRIER (PC-PRB): AN EFFECTIVE CONFIGURATION TO ENHANCE HYDRAULIC PERFORMANCE
Zheng, K., X. Luo, Y. Tan, Z. Li, H. Wang, T. Chen, L. Zhao, and L. Zhan.
Frontiers of Environmental Science & Engineering 16:156(2022)

A novel permeable reactive barrier (PRB) configuration, the passive convergence (PC)-permeable reactive barrier (PRB) or PC-PRB, was proposed to overcome several shortcomings of traditional PRB configurations, including a high dependency on site hydrogeological characteristics and plume size. The PC-PRB is designed to make the plume converge towards the PRB due to the passive hydraulic decompression-convergent flow effect. The PC system is deployed upstream of the PRB system, which consists of passive wells, water pipes, and a buffer layer. A 2D finite-difference hydrodynamic code, PRB-Flow, was developed to examine the hydraulic performance parameters of PC-PRB. The horizontal 2D capture width (W_h) and vertical 2D capture depth (W_v) of the PC-PRB increased remarkably compared to that of the continuous reactive barrier (C-PRB). The aforementioned relative growth values in order were >50% and 25%. Thus, the PRB geometric dimensions and the material cost required for the same plume treatment decrease. A sensitivity analysis reveals that the dominant factors influencing the hydraulic performance of the PC-PRB are the water pipe length (L_p), PRB length (L_{PRB}), passive well height (H_W), and PRB height (H_{PRB}). The discrepancy between the W_h of PC-PRB and the C-PRB (i.e., ΔW_h) has a low correlation with PRB parameters and mainly depends on L_p, which could dramatically simplify the PC-PRB design procedure.

PRESUMPTIVE CONTAMINATION: A NEW APPROACH TO PFAS CONTAMINATION BASED ON LIKELY SOURCES
Salvatore, D., K. Mok, K.K. Garrett, G. Poudrier, P. Brown, L.S. Birnbaum, G. Goldenman, M.F. Miller, S. Patton, M. Poehlein, J. Varshavsky, and A. Cordner.
Environmental Science & Technology Letters 9(11):983-990(2023)

This paper argues that in the absence of high-quality testing data, PFAS contamination can be presumed around three types of facilities: (1) fluorinated aqueous film-forming foam (AFFF) discharge sites; (2) certain industrial facilities; and (3) sites related to PFAS-containing waste. While data are incomplete on all three types of presumptive PFAS contamination sites, available geocoded, nationwide data sets were integrated into a single map of presumptive contamination sites in the U.S., identifying 57,412 sites with presumptive PFAS contamination: 49,145 industrial facilities, 4,255 wastewater treatment plants, 3,493 current or former military sites, and 519 major airports. This conceptual approach may allow governments, industries, and communities to identify potential exposure sources rapidly and systematically.

INTRINSIC AND BIOAUGMENTED AEROBIC TRICHLOROETHENE DEGRADATION AT SEVEN SITES
Willmann, A., A.-L. Trautmann, A. Kushmaro, and A. Tiehm.
Heliyon 9(2):e13485(2023)

This study investigated the intrinsic degradation and stimulation potential by bioaugmentation in microcosm experiments using groundwater from seven different chloroethene-contaminated sites. The inoculum was an enrichment culture metabolizing TCE aerobically. Groundwater samples were inoculated with liquid culture in a mineral salts medium and immobilized culture on silica sand. Additionally, some samples were inoculated with groundwater from the site where the enrichment culture originated. The microcosms without inoculum proved the occurrence of aerobic TCE-metabolizing bacteria stimulated by the supply of oxygen in 54% of the groundwater samples. In most cases, TCE degradation began after adaptation times of up to 92 d. The doubling time of 24 d indicated comparatively slow growth of the aerobic TCE-degrading microorganisms. Bioaugmentation triggered or accelerated TCE-degradation in all microcosms with chloroethene concentrations below 100 mg/L. All inoculation strategies (liquid and immobilized enrichment culture or addition of groundwater from the active field site) were successful.

General News

ASSESSING ECOLOGICAL PFAS EXPOSURE AND EFFECTS
Moore, D. and C. Custer. SERDP & ESTCP Webinar May 2023

This webinar features DoD-funded research efforts to assess ecological PFAS exposure and its effects. First, Dr. David Moore presents results from a multi-generational study of the effects of low-level PFOS exposure on zebrafish. Then, Dr. Christine Custer discusses her research on the potential effects of PFAS on a model avian species.
YouTube recording: https://www.youtube.com/watch?v=qgzJ1s0ESEw&t=1s
Slides: https://serdp-estcp-storage.s3.us-gov-west-1.amazonaws.com/s3fs-public/2023-05/SERDP%20ESTCP%20Webinar%20%23175%20%28ER%2005182023%29.pdf?VersionId=aU3TTLpp.4orNLK1akcVldGBAomH7QZc

NOVEL ADSORBENT FOR ENVIRONMENTAL REMEDIATION
Liu, Y., B. Biswas, and Prof. Dr. Ravi Naidu (eds.). Special Issue of Processes

This Special Issue focuses on novel adsorbents derived from various natural, waste, or synthetic materials that are mechanically robust, resistant to thermal and chemical transformation, and have higher selectivity toward target contaminants and high reusability. Developing the desired novel adsorbents is the primary goal of this issue, which aims to gather outstanding researchers and policymakers to contribute advanced research in these research areas. High-quality research articles were published on the following different aspects of novel adsorbents and their applications:

- Synthesis and application of novel adsorbents to remediate the environment;
- Development in synthesis methods of novel adsorbents;
- Theoretical and experimental investigation of properties and effectiveness of the novel adsorbents; and
- Promoting, commercializing, distribution, utilization, regeneration, and sustainable management of novel adsorbents.

https://www.mdpi.com/journal/processes/special_issues/Novel_Adsorbent_Environmental_Remediation

EPA'S DETECTION METHODS, THE DRINKING WATER TREATABILITY DATABASE, AND INNOVATIVE TECHNOLOGIES FOR PFAS REMEDIATIO
Kuzniewski. S. I Remediation 32(4):309-323(2022)

This article briefly discusses regulatory milestones and evaluates EPA's detection methods for PFAS, including EPA Methods 533, 537.1, and 8327, and other methods currently under development, such as the total organic fluorine and total organic precursor methods. EPA's drinking water treatability database (TDB) and the advantages and challenges of effective treatment methods for PFAS are described. Most treatment methods in EPA's drinking water TDB face the challenge of disposal of PFAS-containing wastes, an issue not faced by innovative technologies, some of which are also discussed. This article will help readers understand the current status of detection and remediation technologies to treat PFAS in soil and water. It is imperative to have these technologies ready to assist with the remediation objectives in the PFAS Strategic Roadmap.

APPLICATIONS AND ADVANCES IN ENVIRONMENTAL FORENSICS FINGERPRINTING TECHNIQUES - THEIR USE IN LITIGATION AND DETERMINATION OF RESPONSIBILITY FOR ENVIRONMENTAL CONTAMINATION
Philip, P. I AEHS Foundation 32nd Annual International Conference on Soil, Water, Energy and Air, Workshop 6, 20-23 March, San Diego, CA, 167 slides, 2023

This workshop covers the evolution of environmental forensic techniques and their application to different environmental forensic problems. In addition, the integration of historical product information, site histories, and other potentially useful information is discussed.
https://s3.amazonaws.com/amz.xcdsystem.com/A51108D5-EA2F-2B6D-01D92AC0F42DCE3B_abstract_File22921/PDFforhandouttoattendeesopt_258_0317110544.pdf

TOTAL OXIDIZABLE PRECURSOR (TOP) ASSAY—BEST PRACTICES, CAPABILITIES AND LIMITATIONS FOR PFAS SITE INVESTIGATION AND REMEDIATIO
Ateia, M., D. Chiang, M. Cashman, and C. Acheson.
Environmental Science & Technology Letters 10(4):292-301(2023)

This article outlines the benefits and challenges of using the total oxidizable precursor (TOP) assay with aqueous samples for site assessments and suggests ways to address some of its limitations.

FIELD SAMPLING METHODS FOR REMEDIAL INVESTIGATIONS, THIRD EDITION
Byrnes, M.E. CRC Press, Boca Raton, FL. ISBN: 9781032033013, 434 pp, 2023

This updated book provides the most current and cost-effective environmental media characterization methods and approaches to support all aspects of remediation activities. The book integrates recommendations from over one hundred of the most current U.S. EPA, state regulatory agency, USGS, U.S. Army Corps of Engineers, and National Laboratory environmental guidance and/or technical documents. Guidance, examples, and/or case studies are provided on the following topics:

- Implementing EPA's latest Data Quality Objectives process.
- Developing cost-effective statistical and non-statistical sampling designs to support all aspects of environmental remediation activities, and available statistical sample design software.
- Aerial photography, surface geophysics, airborne/surface/downhole/building radiological surveys, soil gas surveying, environmental media sampling, DNAPL screening, and portable X-ray fluorescence measurements.
- Direct push groundwater sampling, well installation, well development, well purging, no-purge/low-flow/standard groundwater sampling, depth-discrete ground sampling, and groundwater modeling.
- Tracer testing, slug testing, waste container and building material sampling, pipe surveying, and defining background conditions.
- Documentation, quality control sampling, data verification/validation, data quality assessment, decontamination, health and safety, and waste management.

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 Remediation and Technology Innovation at adam.michael@epa.gov or (703) 603-9915 with any comments, suggestions, or corrections.

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