Technology Innovation News Survey

Entries for May 1-31, 2017

Market/Commercialization Information

CALLAHAN MINE SUPERFUND SITE, BROOKSVILLE, MAINE U.S. Army Corps of Engineers, USACE District, New England, Concord, MA. Federal Business Opportunities, FBO-S678, Solicitation W912W117R0005, 2017

The former Callahan Mine site was an open-pit mine developed in Goose Pond, a shallow tidal estuary of ~75 acres in the town of Brooksville, ME. The tailings impoundment and waste rock pile #3 lie adjacent to the Goose Pond Salt Marsh, creating a potential risk of significant ecological damage from metals (Cu, Zn, Pb, As) detected in groundwater and soil at levels above remediation objectives. The major work elements are remediation of the tailings impoundment is not solge stabilization, consolidation, and capping; sediment excavation and disposal in a confined aquatic disposal cell; remediation of residual contannication at waster cork pile #3 and the ore process area; site restoration and mitigation; and moltoring. The contract is a small business set-aside. Task orders will be issued on a cost-plus-fixed-fee and firm-fixed-price basis, not to exceed \$45M over the 5-year ordering period. Proposals are due by 11:59 PM ET on July 24, 2017. <u>https://www.the.gov/pn/1547/CF/PMC4337W917V117800074571cm</u> thml

FY17 MADISON COUNTY OU-3 REMEDIAL ACTION: RESIDENTIAL SOILS U.S. Environmental Protection Agency, Region VII, Lenexa, KS. Federal Business Opportunities, FRO-S689, Solicitation SOL-R7-17-00010, 2017

U.S. EPA Region 7 seeks an experienced firm to provide remedial action services for OU-3 residential properties affected by human transport of mine waste resulting from nearly 250 years of mining at the Madison County Mines Superfund site, Madison County, Missouri. Services under this contract consist of excavation, consolidation, disposal, and revegetation of mining wastes and contaminated soils at portions of the site. Remediation will be conducted and prove the value of this procurement is between \$100 the \$200. This procurement is a total small business set-aside. Proposals must be received by 3:30 PM ET on July 31, 2017. Monitor FedConnect for updates at <u>Interview Mediconnect net/FedConnect Protocons</u> **100**, 212-1010 (101), 102-12-100 (101), 102-12-1010 (101), 102-12-1010 (101), 102-12-100 (101), 102-12-100 (101), 102-12-100 (101), 102-12-100 (101), 102-12-100 (101), 102-12-100 (101), 102-12-100 (101), 102-12-100 (101), 102-12-100 (101), 102-12-100 (101), 102-1

JCCC LAGOON REMEDIATION PROJECT, BECKER COUNTY, MINNESOTA Department of the Interior, Fish and Wildlife Service, CGS-WO, Bloomington, MN. Federal Business Opportunities, FBO-5692, Solicitation F17P500810, 2017

This procurement will be issued as a small business set-aside under NAICS code 238910. Work consists of furnishing all labor, supervision, tools, equipment, materials, and transportation necessary for remediation of asbestos-containing material (ACM) Transite, construction debris, and consultant (EC) shall develop and table of soils located at the former Job Corp Conservation Center's sewage lagoon. An environmental consultant (EC) shall develop and table of soils located at the former Job Corp Conservation Center's sewage lagoon. An environmental consultant (EC) shall develop and table of this requirement, and tables of the sevent sets approximate the solication of the solication processes used and results of the remediation. The magnitude of this requirement sis between \$25,000 and \$100,000. Release of the solicitation package is anticipated around or after July 7, 2017. Monitor FedConnect for updates at <u>this solication sourcesses</u> to corp and paste the URL into your browser for direct cess].

BLM-CO WATERSHED SUPPORT ABANDONED MINE RECLAMATION AND CHARACTERIZATION Department of the Interior, Bureau of Land Management (BLM), Funding Opportunity L17AS00135, 2017

EXPLOSIVE ORDNANCE DISPOSAL (EOD) APPLIED RESEARCH PROGRAM Department of Defense, Office of Naval Research, Funding Opportunity N00014-17-S-B011, 2017

The Office of Naval Research develops and demonstrates emerging technologies for functional areas of the DoD EOD Science and Technology Program, which include the ability to detect/locate, access, diagnose/identify, neutralize or render safe, and dispose of explosive hazards include explosive development in the diagnosis of burned and surface munitions. The Control is networked in receiving which propers and for exploratory of evelopment or the diagnosis of burned and surface munitions. The Control is networked in receiving which propers and for exploratory of evelopment in the diagnosis of burned and surface munitions. The Control is networked in receiving which propers and for exploratory of evelopment in the diagnosis of burned and surface munitions. The Control is development is development in the diagnosis of burned and surface munitions. The Control is development in the diagnosis of burned and surface munitions. The Control is development in the diagnosis of burned and surface munitions. The Control is development in the diagnosis of burned and surface munitions. The Control is development in the diagnosis of burned and surface munitions. The Control is development in the diagnosis of burned and surface munitions. The Control is development in the diagnosis of burned and surface munitions. The Control is development in the diagnosis of burned and surface munitions. The Control is development is development in the diagnosis of burned and surface munitions. The Control is development in the diagnosis of burned and surface munitions. The Control is development is development in the diagnosis of burned and surface munitions. The Control is development is development in the diagnosis of burned and surface munitions. The Control is development is development in the diagnosis of burned and surface munitions. The Control is development is development in the diagnosis of burned and surface munitions. The Control is development is development in the diagnosis of burned and surface munitions. The Control is develop

Cleanup News

BIOREMEDIATION MANAGEMENT REDUCES MASS DISCHARGE AT A CHLORINATED DNAPL SITE Baldwin, B.R., D. Taggart, Y. Chai, D. Wandor, A. Biernacki, K.L. Sublette, J.T. Wilson, et al. Groundwater Monitoring & Remediation 37(2):55-70(2017)

At a site where the fractured bedrock aquifer was affected by a mixture of 1,1,2,2-TeCA, 1,1,2-TeCA, and 1,2-DCA at concentrations on the order of 100-1000 mg/L, chloroform was present as a co-contaminant and background sulfate concentrations were ~400 mg/L. Following propylene glycol injections, concentrations of organohalder-respiring bacteria including *Deblacoaccodes* (dhc) and *Deblacogeninonas* sp. Increased by 2-3 orders of magnitude across most of the source concentrations were ~400 mg/L. Following propylene glycol injections, concentrations of organohalder-respiring bacteria including *Deblacoaccodes* (dhc) and *Deblacogeninonas* sp. Increased by 2-3 orders of magnitude across most of the source concentrations - Service and the source concentrations of organohalder and otherwise appropriate georechemical conditions. After implementing a groundwater recipiting the inhibited area, chlorinated hydrocarbon mass discharge by pentition respess in concentrations of dhc and vinyl chloride reductase gene copies. Adaptive site management and aggressive bioremediation in the source zone of this complex site reduced total chlorinated hydrocarbon mass discharge by pentition 4978 (Share) 8000 (Share) 1000 (Share) 8000 (Share) 1000 (S

VOLUNTARY REMEDIATION PROGRAM PROGRESS REPORT #5, RHEEM MANUFACTURING COMPANY, MILLEDGEVILLE, GEORGIA Georgia Environmental Protection Division (EPD), 224 pp, 2016

A vacant building and an asphalt-paved particip, but on cocupy a site used from 1978-2009 for the manufacturing of air conditioning units and furnaces. Following discovery in 1988 of a release of reclaimed TCE from a tank farm area, a groundwater recovery system, still in operation, was installed in 1989-1990. During the current reporting period, in addition to operation of pump and treat and soil vapor extraction (SVE) systems, operation of the property-line Accelerated Remediation Technology (ART) recirculation wells system continued with three new wells (ART-6, ART-7), and ART-6) installed in February 2016 to extend the geographic reach of the ART system and further reduce flux of VOCs off-property. The ART technology (ART) recirculation wells system continued with three new wells (ART-6, ART-7), and ART-7), and ART-7, an

APPLICATION OF ALKALINE-ACTIVATED PERSULFATE TO TREAT PETROLEUM HYDROCARBON CONTAMINATION BENEATH THE ACTIVE CONSTRUCTION OF A 32-STORY HIGH-RISE Marley, M.C., K. O'Shaughnessy, J. Hickey, and S.E. Panter. The 10th International Conference on Remediation of Chlorinated and Recalcitrant Compounds (Palm Springs, CA; May 2016). Battelle, Columbus, OH. Presentation E-002, Abstract only, 2016

Mere a high-first was being constructed in Manhatan, historical site uses had released BTEX, naphthalene, diesel-range organis (SRO) and gasoline-range organis (SRO) and being output of the groundwater and soils. Average concentrations for BTEX and naphthalene, diese BTEX, naphthalene, diese-range organis (SRO), and gasoline-range organis (SRO) and to the groundwater and soils. Average concentrations for BTEX and naphthalene, diese BTEX, naphthalene, diese-range organis (SRO), and gasoline-range organis (SRO) and to the groundwater and soils. Average concentrations for BTEX and naphthalene, diese BTEX, and thalene, diese and BTEX, aphthalene, diese BTEX, aphthalene, diese SRO, and gasoline-range organis (SRO) and to the groundwater and soils. Average concentrations for BTEX and naphthalene, diese BTEX, aphthalene, diese BTEX, aphthalene, diese GTEX, aphthale

SULFATE-ENHANCED BIOREMEDIATION OF BTEX: FULL-SCALE APPLICATION Elkins, B., T. Alperin, and M. Branson. The 10th International Conference on Remediation of Chlorinated and Recalcitrant Compounds (Palm Springs, CA; May 2016). Battelle, Columbus, OH. Presentation E-021, Abstract only, 2016

A BTEX plume from a former gas station site in North Carolina is located within the median of a four-lane highway, with the plume migrating ~150 ft under the eastbound lanes toward a neighboring water supply well (WSW). The site remains high-risk because the downgradient WSW could not be closed and suitably replaced elsewhere with sufficient yield from the shallow underlying fractured bedrock. An in situ technology was required to minimize disruption to the site. EAS®, a commercial suitable-based anemdnent, was selected to enhance anaerobic biodegradation of BTEX under established sulfate-reducing conditions. A 2012 pilot study provided evidence of the vability of sulfate enhancement as a remedial approach, and full-scale application began in May 2015. One drum of EAS® was gravity-fed into each of 21 wells constructed in a grid pattern covering the plume. The performance monitoring network had one deep and 13 shallow monitoring wells, but only three shallow wells within the prime had dissolve de perforem hydrocarbons above the groundwater standards. Following the first of three proposed injection events, 3-mont the post-injection sampling showed 2- to 13-fold intres. Sing suffate in the treatment zone, average pH 6.1, a change to more reducing oxidation-reducing potentials, and variable changes in BTEX concentrations. *For additional information on the pliot study, see*

ACTIVE VAPOR INTRUSION MITIGATION AT PHARMACEUTICAL MANUFACTURER WITH HORIZONTAL DIRECTIONAL DRILLING (HDD) TECHNOLOGY Iosue, G.N. and M.J. Sequino. The 10th International Conference on Remediation of Chlorinated and Recalcitrant Compounds (Palm Springs, CA; May 2016). Battelle, Columbus, OH. Poster D-016, 2016

Regulators mandated groundwater and soil sampling beneath a pharmaceutical manufacturer's building to address vapor intrusion (V), but installation of vertical borings and wells would have disrupted operations. Although subsurface conditions beneath the building slab were unknown, subslab soil and groundwater monitoring along with soil vapor extraction (SVE) for subslab depressurization (SSD) was completed using horizontal directional drilling (HDD). HDD between the vadoes conditions wells advance 2-inch PVC monitoring wells horizontal fuels to a target deployed outside the building wall. The horizontal wells served as completed using horizontal directional drilling (HDD). HDD between vasues do advance 2-inch PVC monitoring wells horizontal inclusion the vadoes cone and thin gravel layer beneath the building to mtigate vapors. Horizontal SVE and monitoring wells were advanced through a 6-in concrete footer and rock underlying the slab. To facilities regulatory approval and acceptance, horizontal enclusion event direction and will with no exit point to maintain similarities with vertical monitoring wells. Advancing the horizontal wells beneath the building actively intigated the source area to eliminate the VI pathway. The site obtained regulatory closure and no further action. <u>http://www.inter.nonitoring.com/inter.nonitoring.com/inter.nonitoring.com/inter.nonitoring.com/inter.nonitoring.com/inter.nonitoring wells. Advancing the horizontal http://www.inter.nonitoring.com/</u>

HORIZONTAL ELECTRICAL RESISTANCE HEATING FOR DNAPL REMEDIATION BENEATH A MANUFACTURING FACILITY Iosue, G.N. and M.J. Sequino. The 10th International Conference on Remediation of Chlorinated and Recalcitrant Compounds (Palm Springs, CA; May 2016). Battelle, Columbus, OH. Poster B-009, 2016

The torus intervences of energies on exercision of inclusion and exercision (Fell Depuis) (Fell Depuis), CR, May 2010). Battelle, Columbus, CR. Poster 6-V09, 2010 Electrical resistance heating (ERH) was selected to address a DNAPL plume of CF and TCE originating from former drycleaning operations that extended onto an adjacent property beneath an active manufacturing facility. Because ERH implementation with conventional vertical electrodes was cost-prohibitive and disruptive to facility portarions, horizontal ERH electrodes were installed to minimize disruptions while remediating impacts beneath the facility within a shorter timeframe. Vertical ERH electrodes were installed in the source area where access and disruption di don to posi susses. Both the horizontal ad vertical electrodes were disruptions as a single system while covering the reatment area. Although unknown building features, bedrock irregularities, and historic fill were encountered while advancing the horizontal RH electrode via horizontal directional directional directional and advances on the electrode encountered while advancing the horizontal RH electrode via horizontal directional directions. Which revealed that the horizontal and pressures and bend radius, were monitored in real time to ensure on adverse effects. ERH system monitoring data included energy use, temperature, and contaminant concentration reductions, which revealed that the horizontal RH electrode harder along were transfered. ERH configuration. <u>http://www.directionaltere.com/wer-content/unionade/SITERHele/TOTE-Normal-ERH-electrode-Harder</u> and heating the second entered and the second entere

Demonstrations / Feasibility Studies

FIRST PILOT TEST ON THE INTEGRATION OF GCW (GROUNDWATER CIRCULATION WELL) WITH ENA (ENHANCED NATURAL ATTENUATION) FOR CHLORINATED SOLVENTS SOURCE REMEDIATION Papini, N.P., M. Majone, F. Arjmand, D. Silvestri, M. Sagliaschi, S. Sucato, E. Alesi, E. Barstch, and L. Pierro. Chemical Engineering Transactions 49:913-96(2016)

COMBINING ZVI AND ORGANIC SUBSTRATES FOR FULL-SOFILE INC. Leigh, D. RemTEC Summit, 7-9 March 2017, Denver, Colorado. Poster, 2017 NING ZVI AND ORGANIC SUBSTRATES FOR FULL-SCALE TREATMENT OF TCE IN AEROBIC AQUIFER AT CONCORD NAVAL WEAPONS STATION

A dissolved-phase TCE plume at the Concord Naval Weapons Station extends ~700 ft downgradient from the source area and 100 ft bgs. The aquifer consists of unconsolidated silt, sands and clays. Groundwater in the treatment area is highly aerobic. An enhanced anaerobic bioremediation (EAB) pilot test demonstrated complete degradation of the TCE concentration from ~5,000 µg/L to 1 µg/L in ~500 days. To evaluate a more aggressive approach, a second pilot test was conducted to evaluate enhancement of the biological approach by a nist, uchenical reduction (ISCR). The ISCR pilot demonstrated much faster contaminant degradation than EAB alone. The Navy then applied ISCR to the remainder of the plume. Abiotic processes from distribution of zero-valent iron (ZVI) provide a long-lasting substrate that degradate to the elevation of daughter products, and amending the ZVI with a long-lasting organic substrate (Emulsified Leicthin SUSS). The ISCR process rapidly degraded TCE, DCE, and VC below MCLs in the enapired conditioned groundwater. Injection was added to the amendment water to help establish the SCP-³ biolaugementation on this project at <u>thirt of the conditional difformatic conditional information</u> 31 and analysis. The ISCR process rapidly degraded TCE, DCE, and VC below MCLs in the majority of the plume during the first injection event. See additional information on this project at <u>thirt of the conditional informatic conditional informatic station</u>.

SURFACTANT ENHANCED RECOVERY OF SEPARATE-PHASE PETROLEUM HYDROCARBONS McGuckin, C. and R. Mohlenhoff. RAILTEC 2016 Conference Proceedings, University of Illinois at Urbana-Champaign. 21 slides, 2016

Activities at the Amtrak Sunnyside Yard located in Queens, New York City, created an aged separate-phase petroleum hydrocarbon (SPH) plume that contains PCB contamination. The 2007 NYSDEC Record of Decision for OU-3 required cleanup Stiffees that <u>Strate Littrative Contained Strates</u> and the second strates and the secon

EVALUATION OF THIN-LAYER PLACEMENT AND AMENDMENTS AT BERRY'S CREEK SUPERFUND SITE: FINDINGS FROM TREATABILITY STUDIES AND PILOT STUDIES Himmelheber, D., H.: Cumberland, T. Krug, M. Vanderkovy, R. Bonaparte, M. MCNally, P. Brussock. 19 M International Conference on Remediation and Management of Contaminated Sediments, January 9-12, 2017, New Orleans. Battelle Press, OH. Abstract only, 2017

A pliot program was implemented in conjunction with a lab treatability study to (1) evaluate the effectiveness of thin-layer placement of sand with and without amendments to reduce contaminant (mercury, methyl mercury, PCB) bioavailability in the biologically active zone (B42), and (2) reduce uncertainty related to how the system will respond over time to thin-layer placement. The lab study focused on screening amendments mixed with site sediment slurres and measuring entrational and and and and and amended with ACL, StedMinett, "or spaced with site site site and a site and a steries and amended with a site sediment slurres and measuring amendments. The site and and and and a mended with ACL, StedMinett, "or spaced with a site site and a site and a

DEMONSTRATION AND COMMERCIALIZATION OF THE SEDIMENT ECOSYSTEM ASSESSMENT PROTOCOL Rosen, G., D.B. Chadwick, M.A. Colvin, C. Stransky, A. Burton, J. Radford, H. Bailey, et al. SPAWAR Technical Report 3052, ESTCP Project ER-201130, 278 pp. 2017

The Sediment Ecosystem Assessment Protocol (SEAP), an integrated ecological risk assessment approach developed under SERDP Project Ec.1550, is based on the performance of a field-deployed device referred to a schematic assessment (approach) and and the sediment set of the sediment approach). Assessment (approach) devices and physicochamical tools to basess the ediment-vater interface, surficial addiment, project and advective exposure pathways at contaminated sediment sites. Minor modifications also allow for direct application to surface water exposure pathways at contaminated sediment sites. Minor modifications also allow for direct application to surface water exposure pathways at contaminated sediment sites. Minor modifications also allow for direct application to surface water exposure pathways at contaminated sediment sites. Minor modifications also allow for direct application to surface water exposure pathways at contaminated sediment sites. Minor modifications also allow for direct applications to surface water exposure pathway assessment. The commercially available SEA Ring diverse that the project consists of a circular caroused is capable of housing an array of in sub bioassary chambers and possive sampling devices. The SEA Ring represents an alternative to traditional lab-based approaches to toxicity and bioaccumulation or toxicity testing at the Puget Sound Naval Shipyard and Intermediate Maintenance Facility; the Marine Corps Base in Quantico, VA; and Naval Base San Diego. https://www.estro.org/notent/ndvic/1402156/file/EE-011309.2016mai/S02.00160.0

PASSIVE BIOBARRIER FOR TREATING CO-MINGLED PERCHLORATE AND RDX IN GROUNDWATER AT AN ACTIVE RANGE: ESTCP COST AND PERFORMANCE REPORT Hatzinger, P.B. and M.E. Fuller: ESTCP Project ER-201028, 107 pp, 2016

Results of the field trial at Nava Surface Warfare Center Dahlgren Division (Virginia) suggest that an emulsified oil biobarrier is a viable alternative to reduce the migration of co-mingled perchlorate and explosives in groundwater at this and similar range sites. The optimal areas for application of this technology includions of the section and explosives in groundwater at this and similar range sites. The optimal areas for application of this technology includions of the section and explosives in groundwater at this and similar range sites. The optimal areas for application of this technology includions of the section and explosives in groundwater at this and similar range sites. The optimal areas for application of this technology includions of the section and explosives in groundwater at this and similar range sites. The optimal areas for application of this technology includions of the section and explosives in groundwater at this and similar range sites. The optimal areas for application of this technology includions of the section and explosives in groundwater at the section a

ANGLED INJECTION TO MITIGATE PCE INTRUSION INTO A STREAM AT A FEDERAL SUPERFUND SITE IN THE PIEDMONT REGION OF NORTH CAROLINA Krouse, C., C. Fitzgerald, S. Noland, and N. Thacker. The 10th International Conference on Remediation of Chlorinated and Recalcitrant Compounds (Palm Springs, CA; May 2016). Battelle, Columbus, OH. Presentation G-119, 13 slides, 2016

PCE concentrations in groundwater adjacent to a small, perennial, gaining stream in the piedmont region of North Carolina have been detected as high as 281 µg/L within 30 ft (laterally) of the stream and as high as 22.2 µg/L in stream wat After investigations indicated that PCE travels into the stream primarily vertically and from partially weathered rock as deep as 65 ft, an angled injection to place a 2VI-impregnated activated carbon injectant (Trap & Traetie 800-2108) into struated sapprofile adjacent to an below the stream was proposed and pilot tested. Performed in October and Movember 2013, the event include 669 injection intervals across 43 injections points; intervals spaced 1.5 ft apart between 6.5 learned regizing preparation, achievable injection depths, and management of injectant surfacing. PCE decreases were documented in 12 of 15 wells and 8 of 12 piezometers. The 8 piezometers located most directly downgradient of the injection showed decreases ranging from 88-100% and illustrated time trends consistent with the expected metactive barrier. Stream water PCE concentrations decreased in the injection vicinity but are difficult to assess due to instruit background fluctuations. A second angled injection has been designed for ~20,000 lb of 805-110 and 120 DPT injection points.

IN SITU GEOCHEMICAL STABILIZATION PILOT STUDY FIELD IMPLEMENTATION REPORT, PORT OF ASTORIA Oregon Department of Environmental Quality, 208 pp, 2016

Releases from historical operations at the port resulted in petroleum impacts (gasoline-, diesel-, and some oil-range petroleum hydrocarbons) to soil and groundwater. The pilot study was performed to evaluate in situ geochemical stabilization (ISGS) as a containment approach for mitigating mobilization risks in the shallow aquifer. The pre-injection baseline sampling, ISGS injection, and monitoring well installations were performed June 2-4, 2015. Injection of 67 Sg ol of a 1.5% solution in the pilot bit of activity test area included 60.7 gal of 40% sodium permanganate, 24 gal of 3.7% sodium silicate, 150 b of farcus carbonate, and 150 b of calcium chindride. The components were systematically mixed into a low-viscosity fluid and then injected (using a top-down approach) at 75-200 lb/psi beginning on the downgradient side of the pilot study area and moving upgradient and inward from the edges toward the middle. As a result, any INAPL or impacted water mobilized from the area would only a treated zone, thereby mitigating the potential for distribution of contaminants resulting. Following and the edges toward the middle. As a result, any INAPL or impacted water resulting from Carbonate, and 1505 injection. Following 1505 injection, Free-phase INAPL monitoring were took place there were conclusted in August and October 2015; and a post-treatment groundwater field parameter monitoring event took place in February 2016. See the other post of Astoria Cleanny documents at <u>hittoria cleanny documents at hittoria or using and constration in the 2007.</u>

Research

MIT RESEARCHERS DEVELOP NEW ELECTROCHEMICAL METHOD TO CLEAR POLLUTANTS FROM WATER Chandler, D.L., MIT News Office, 10 May 2017

A novel system developed at MIT relies on an electrochemical process for selective removal of organic contaminants (e.g., pesticides, chemical waste products, pharmaceuticals) as the water flows between chemically treated or "functionalized" surfaces that serve an positive and negative electrochemical entry of the surfaces are coasted with Faradaci materials, which can undergo reactions to become positively or negatively charged. These active groups can be tuned to bind strongly with using appropriately functionalized electrodes on both the positive and negative sides in an asymmetric configuration, the researchers almost completely eliminated the side reactions. The sections also allow the instrumentative sides in an asymmetric configuration, the researchers almost completely eliminated the side reactions. The sections also allow the instrumentative sides in an asymmetric configuration, the researchers almost completely eliminated the side reactions. The sections also allow the instrumentation, the researchers almost completely eliminated the side reactions. The sections also allow the side is not asymmetric configuration, the researchers almost completely eliminated the side reactions. The sections also allow the positive and negative sides in an asymmetric configuration, the researchers almost completely eliminated the side reactions. The sections also allow the softwards also allow the side is not asymmetric configuration, the researchers almost completely eliminated the side reactions. The sections also allow the side is not asymmetric configuration, the researchers almost completely eliminated the side reactions. The sections allows a

CORRELATION BETWEEN DNAPL DISTRIBUTION AREA AND DISSOLVED CONCENTRATION IN SURFACTANT ENHANCED AQUIFER REMEDIATION EFFLUENT: A TWO-DIMENSIONAL FLOW CELL STUDY Wu, B., H. LI, X. Du, L. Zhong, B. Yang, P. Du, Q. Gu, and F. LI. Chemosphere 144:2142-2142(216)

During the process of surfactant-enhanced aquifer remediation (SEAR), free-phase DNAPL may be mobilized. To evaluate the correlation between DNAPL spreading and remediation efficiency, a 2-D sandbox apparatus was used to simulate the migration and dissolution process of 1,2-DCA DNAPL during SEAR. DNAPL distribution in the sandbox was determined by digital image analysis and correlated with effluent DNAPL concentration, which revealed that the effluent DNAPL distribution area, indicating that mobilized to of DNAPL during sector and the effluent DNAPL concentration of DNAPL and significant (here) by enlarging total NAPL-water interfacial area for mass transfer. Meanwhile, vertical migration of 1,2-DCA was limited within the aquifer boundary in all experiments, suggesting that manipulation of injection parameters in SEAR could achieve optimal remediation efficiency while minimizing the risk of DNAPL concentration in the migration. The study providee at convenient visible and quantitative method for optimizing SEAR project parameters and a rapid approach for predicting the extent of DNAPL contaminant distribution area, indicating that Long the concentration while medication efficiency we harging to a mode on dissolved DNAPL concentration in the

EVALUATION OF AN ALTERNATIVE NATURAL SURFACTANT FOR NON AQUEOUS PHASE LIQUID REMEDIATION Beach, Brian A., Master's thesis, Western Michigan University, 50 pp, 2016

Saponins derived from the bark of the *Quillaja* soapbark tree were evaluated as an alternative natural surfactant for use in NAPL remediation. The following properties were measured: the critical micelle concentration (CMC), emulsion kinetics, and the solubilization enhancement of 16 PAHs. The CMC for *Quillaja* saponin was found to be 60 mg/L. Soli contaminated with NAPL from a former manufactured gas plant was used to evaluate saponin's ability to enhance the solubilization of PAHs commonly found in NAPL. Subilization enhancement was observed for all of the PAHs analyzed, but the greatest enhancements were for PAHs having a larger number of aromatic rings. The solubilization enhancement was the available to evaluate saponin's ability to enhance the solubilization of the PAHs commonly found in NAPL from a former manufactured gas plant was used to evaluate saponin's ability to enhance the solubilization enhancement was observed for all of the PAHs analyzed, but the greatest enhancements were for PAHs having a larger number of aromatic rings. The solubilization enhancement ware in turn used to quantify the solubilization capacity of saponins, which showed a strong correlation with the intrinsic properties of the PAHs. A novel determination was made with respect to emulsion kinetics. The optimal resting period determined by this research to maximize the effectiveness of saponins was found to be ~14 dos. <u>http://chanawode.wmlnh.auku/master.thmase/KBN</u>

THE SCENARIO EVALUATOR FOR ELECTRICAL RESISTIVITY (SEER) SURVEY DESIGN TOOL Terry, N., F.D. Day-Lewis, J.L. Robinson, L.D. Slater, K. Halford, A. Binley, C.D. Johnson, J.W. Lane, and D. Werkema. Groundwater [Published online prior to print May 2017]

Goodivide (Publishere much to offer users in environmental, water resource, and geotechnical fields; however, techniques such as electrical resistivity imaging (ERI) are often oversold or overinterpreted due to a lack of understanding of the limitations of the techniques, such as the appropriate depth intervals or resolution of the methods. The relationship between ERI data and resistivity is nonlinear; therefore, these limitations depend on site conditions and survey design and are best assessed through forward and inverse modeling. Avercises prior to field investigations. In this approach, proposed field surveys were first numerically simulated given the exected electrical properties of the site, and the resulting hypothetical data then were analyzed using inverse models. Performing ERI forward/inverse modeling, however, requires substantial expertise and can take many hours to implement. A new spreadsheet-based tool, the Scenario Evaluator for Electrical Resistivity (SEER), features a graphical interface that allows users to manipulate a resistivity model and instantly view to instant view how that model models. Performing ERI forward/inverse modeling, however, requires substantial expertise and can take many hours to implement. A new spreadsheet-based tool, the Scenario Evaluator for Electrical Resistivity (SEER), features a graphical interface that allows users to manipulate a resistivity model and instantly view how that model would likely be interpreted by an ERI survey. The SEER tool is intended for use by those who wish to determine the value of including ERI to achieve project goals. The tool can be downloaded at <u>https://water.uses.gov/ngw/bgas/seer/</u>.

TRACER EXPERIMENT IN A BROWNFIELD USING GEOPHYSICS AND A VADOSE ZONE MONITORING SYSTEM Fernandez de Vera, N. J. Beaujean, P. Jamin, V. Hakoun, D. Caterina, O. Dahan, M. Vanclooster, et al. Vadose Zone Irania 116(1):2(2017)

A saline tracer infiltration test across the fractured vadose zone of an industrial contaminated site in Belgium was monitored by combining surface and cross-borehole electrical resistivity tomography (ERT) methods with a vadose zone monitoring system (VMS). The VMS provides continuous in situ hydraulic and chemical information on the percolating tracer at multiple depths in the vadose zone. The combination of high-resolution data with time-lage geophysical information on the specification provides continuous in situ hydraulic and chemical information and transport, provides (Set and Cross-Borehole electrical resistivity tomography (ERT) methods with a vadose zone that capture the specification provides continuous in situ hydraulic and chemical information on under set and transport, provides (Set and Cross-Borehole electrical resistivity tomography (ERT) methods with a vadose zone that capture the specification provides continuous in situ hydraulic and chemical information and transport, provides (Set and Cross-Borehole electrical resistivity tomography (ERT) methods with a vadose zone that capture the specification provides contains and provides contains and provides (Set additional project de monitorial episodes active and matrix flow mechanisms across the vadose zone. Results demonstrated how combining ERT and VMS can bitra chemical additional project in additional and transport addition and transport addition categorities of the diverse and transport addition categorities of the diverse additional and containing exceeded additional episodes active addition

NATURAL ATTENUATION IN STREAMBED SEDMENT RECEIVING CHLORINATED SOLVENTS FROM UNDERLYING FRACTURE NETWORKS SImsir, B., J. Yan, J. Im, D. Graves, and F.E. Loeffer: Environmental Science & Technology 51(9):4021-4830(2017)

An integrated approach was accessed to relatively include that reductive decision potential of sediment that forms the transition zone between upwelling groundwater from a chlorinated solvent-contaminated fractured bedrock aquifer and the receiving surface water. In situ measurements demonstrated that reductive decision into esdiment attenuated chlorinated compounds before they reached the water column. Microcosms established with creek sediment or in situ includated Bio-Sep beads degraded 1-1-2 chlorinated solvents to less chlorinator or innocuous products. Quantitative PCA and 165 rRNA gene amplicon sequencing revealed the abundance and spatial distribution of known dechlorinator populations degrading chlorinated C1-C3 alkanes and alkenes co-inhabit the sediment. Phylogenetic classification of bacterial and archaeal sequences indicated a relatively uniform distribution over spatial (300 m horizontally) scale, but Dehalococcides and Dehalobacter were more abundant in deeper sediment. The microbiological and hydrogenological characterization showed that microbial processes at the fractured bedrock-sediment interface were crucial for preventing contaminants reaching the water column, emphasizing the relevance of this critical zone environment for contaminant attenuation.

COMPLETE GENOME SEQUENCE OF THE POLYCHLORINATED BIPHENYL-DEGRADING BACTERIUM PSEUDOMONAS PUTIDA KF715 (NBRC 110667) ISOLATED FROM BIPHENYL-CONTAMINATED SOIL Suenaga, H., A. Yamazoe, A. Hosoyama, N. Kimura, J. Hirose, T. Watanabe, H. Fujihara, et al. Genome Announcements 5(7):e01624-16(2017)

Pseudomonas putida KF715 (NBRC 110667) utilizes biphenyl as a sole source of carbon and degrades PCBs. A complete genome sequence of the KF715 strain is reported, comprising a circular chromosome and four plasmids. Biphenyl catabolic genes were located on the largest plasmid, pKF715A. http://genomea.asm.org/content/5/2/e01624-16. full.odf

WORLDWIDE SURFACE-SOIL POLYCHLORINATED BIPHENYL REGULATORY GUIDANCE VALUES Jennings, A.A. and K. Baker. Journal of Environmental Engineering 143(9):04017056(2017)

In a review of the regulatory guidance values used to control the health risks of direct contact with PCB-contaminated residential soil, a total of 2,471 PCB guidance values were identified: 57.2% from U.S.-related jurisdictions and 42.8% from 50 other United Nations member states. Identified values included total PCBs, 70 individual PCB congeners, and 9 Arcotor PCB blends. The guidance values for total PCBs and most congeners varied by more than site vorters of magnitude. Arcotor values were less variable because they were specified by free "Jurisdictions and 45.5%) of PCB guidance values fail within uncertainty bounds computed from the U.S. EPA cancer-risk guidance value model. For total PCBs, 90.0% of values were less uncertainty bounds computed by more than site of total PCBs, 90.0% of values in uncertainty bounds complexes, extreme values set by the values in uncertainty bounds complexes to control PCB bends. The suidance values failed to the values of 0.11 to 0.75 mg/kg (0.85 orders of magnitude), but expanding these bounds slightly to span from the dualts of Span's risk-mode to use the value set by TOA (0.01 mg/kg) in the U.S. captured 58.% of the values; nonetheless, extreme values at both ends of the value distributions emphasized that universal agreement on appropriates to control PCB bendth risks to soft to PCB bendth. The sub-state of the values is nonetheless, extreme values at both ends of the value distributions emphasized that universal agreement on appropriates to control PCB bendth risks that yet b be attained.

ARSENIC REMOVAL BY PHYTOFILTRATION AND SILICON TREATMENT: A POTENTIAL SOLUTION FOR LOWERING ARSENIC CONCENTRATIONS IN FOOD CROPS Sandhi, Arifin, Ph.D. thesis, KTH Royal Inst. of Technology. TRITA-LWR PHD-2017:02, 67 pp, 2017

The source species Workstone fullance groups usually in mining areas in northern Swelaw where high concertrations of assenic occur in lakes and nices; W. fullance was selected as a model for field climate characterize and the next methods of the source in the source is an associated in the source in the source in the source is an associate in the source in the source is an associate in the source in the source is an associate in the source in the source in the source is an associate in the source in the source is an associate in the source in the source is an associate in the source in the source is an associate in the source in the source in the source is an associate in the source in the source is an associate in the source in the source is an associate in the source in the source is an associate in the source in the source isource is an asso

ASSESSMENT OF REPEATED HARVESTS ON MERCURY AND ARSENIC PHYTOEXTRACTION IN A MULTI-CONTAMINATED INDUSTRIAL SOIL Grifoni, M., F. Pedron, G. Petruzzelli, I. Rosellini, M. Barbafieri, E. Franchi, and R. Bagatin. AIMS Environmental Science 4(2):187-205(2017)

Repeated phytoextraction cycles are often needed to reduce soil metal concentration to acceptable levels. After the first harvest, a certain amount of metal can remain in soil and further cycles of plant growth can reduce residual metals to bioavailable forms. To verify the technology's success and the absence of extractable metals, both metal concentration in plants and the amount of metal extracted by mobilizing agents from soil must be examined. This study evaluated the differency of repeated phytoextraction cycles to remove Hg and As by. Brassica juncea (Indian mustrad') from a multi-contaminated soil. Two mobilizing agents, amonium thousailtaet and potassium dihydrogen phosphate, were used to increase metal bioavailability in soil with the further goal of investigating the possibility of using only one additive for simultaneous removal of Hg and As. Four growing cycles on the same soil sample were carried out, with and without consecutive additive can offer advantageous new developments for phytoextraction technology by reducing both remediation timeframe and costs. This paper is **Open Access** at interview than in the single additive can offer advantageous new developments for phytoextraction technology by reducing both remediation timeframe and costs. This paper is **Open Access** at interview that the cost of the same soil sample were tarried to mobilize agents. Reservent that

ARSENIC REMOVAL FROM DRINKING WATER: EXPERIENCES WITH TECHNOLOGIES AND CONSTRAINTS IN PRACTICE Hering, J.G., I.A., Katsoylannis, G.A. Theoduloz, and M. Berg. Journal of Environmental Engineering 143(5):(2017)

Although a standard of 10 ug/L has been widely adopted, locating information on arsenic treatment performance at full scale is a challenge. A review of available information on installed treatment provides only limited insight into the scale of implementation, factors driving process selection, and difficulties that arise in practice. Advances in information technology and consequent elimination of technical barriers to sharing information and knowledge should allow the development of html/streatment constraints and consequent elimination of scale is to benefit from past and ongoing experience in practice. This paper is **Depare Recess** at html/streatment of html/streatm

BIOREMEDIATION OF MERCURY: NOT PROPERLY EXPLOITED IN CONTAMINATED SOILS! Mahbub, K.R., M.M. Bahar, M. Labbate, K. Krishnan, S. Andrews, R. Naidu, and M Megharaj. Applied Microbiology and Biotechnology 101(3):953-976(2017)

This review focuses on recent uses of mercury-resistant bacteria in bioremediation of Hg-contaminated sites and the limitations and advantages of this approach. Gaps in existing research are identified.

MERCURY RESISTANCE AND VOLATILIZATION BY *PSEUDOXANTHOMONAS* SP. SE1 ISOLATED FROM SOIL Mahbub, K.R., K. Krishnan, R. Naidu, and M. Megharaji. Environmental Technology & Innovation 6:94-104(2016)

A mercury-resistant bacteria strain SE1 isolated from contaminated soil was identified as *Pseudoxarthomonas* based on 16s rRNA sequencing. Hg resistance was oxamined in nutrient-rich media as well as low-nutrient media and expressed as Carcury-resistant bacteria strain SE1 isolated from contaminated soil was identified as *Pseudoxarthomonas* based on 16s rRNA sequencing. Hg resistance was oxamined in nutrient-rich media as well as low-nutrient media and expressed as demonstrated value and the strain as the strain was in the formination of the formination of the SE2 and L 4 mg/L an

COMBINED OZONE AND ULTRASOUND FOR THE REMOVAL OF 1,4-DIOXANE FROM DRINKING WATER Dietrich, M., G. Andaluri, R.C. Smith, and R. Suri. Dorne: Solience & Engineering 39(4):244-254(2017)

Ozone, ultrasound, and ozone/ultrasound processes were evaluated for the removal of 1,4-dioxane from tap water using a continuous flow reactor with online aqueous ozone measurement. The addition of ultrasound to ozone was found to boost removal significantly. Dioxane removal variant for a concelultrasound alone showed REMEDIATING 1.4-DIOXANE-CONTAMINATED WATER WITH SLOW-RELEASE PERSULFATE AND ZEROVALENT IRON Kambhu, A., M. Gren, W. Tang, S. Comfort, and C.E. Harris.

Kambhu, A., M. Gren, W. Tang, S. Chemosphere 175:170-177(2017)

Metal-activated persulfate can degrade 1.4-dioxane, but exertion kinetics typically have been characterized by a rapid decreases during the first 30 min followed by either a slower decrease or no further charage. The study objective was to identify the factor as subscription of the decrease of the de

RESULTS FROM CONTINUOUS MONITORING AT COMMERCIAL AND RESIDENTIAL FACILITIES

Hartman, B. and M. Kram. 10th International Conference on Remediation of Chlorinated and Recalcitrant Compounds (Palm Springs, CA; May 2016). Battelle, Columbus, OH. Presentation D-006, 21 slides, 2016

Documented TCE and PCE contamination lay beneath a commercial warehouse building, formerly an appliance manufacturing facility, which was being remodeled for lease. To ensure that current and future tenants were not exposed to unsafe levels of solvent vapors, continuous monitoring of TCE and PCE in the building began happliance manufacturing facility, which was being remodeled for lease. To ensure that current and future detector was set up in an empty office, and Afer the floor of the office area in the large building were detector was set up in an empty office, and Afer the floor of the office area in the large building were detector as a truth detector as set up in an empty office, and Afer the floor of the office area in the large building were detector as a truth detector as solvered with Refrocat, a notable doop in indoor concentrations in the office area was observed. Two adjoining areas in the large twarehouse powered with Refrocat, a notable doop in indoor concentrations in the office area was observed. Two adjoining and account of the spikes, coupled with the short-term increases in concentrations in thor was observed. The adjustications in indoor air. The frequency of the spikes, coupled with the short-term increases in concentrations in short as observed. The adjustications areas in the large building and contained contained to the spikes of too. The monitoring program is expected to continue until the source is identified. The true monitoring program is expected to continue until the source is identified.

DEHALOCOCCOIDES ABUNDANCE AND ALTERNATE ELECTRON ACCEPTOR EFFECTS ON LARGE, FLOW-THROUGH TRICHLOROETHENE DECHLORINATING COLUMNS Mirza, B.S., D.L. Sorensen, R.R. Dupont, and J.E. McLean. Applied Mircobiology and Biotechnology, Vol 100 No 5, 2357-2379, 2016

Ecological conditions that developed different dechlorination stages were investigated by quantitating *Dehalococcoide* 155 RNA (dhc) and reductive dehalogenase gene abundance, and by describing biogeochemical properties of lab columns in response to biostimulation. Eight columns packed with write or one of two different flexibility and from Hill AB (L), were flexibility and the columns in the start and t

PHYTOREMEDIATION OF HISTORIC LEAD SHOT CONTAMINATED SOIL, GRAND VALLEY RANCH, NORTHEAST OHIO Tening Ndifet, Claret Mengwi, Master's thesis, Youngstown State University, OH. 114 pp, 2016

Different herbaceous species and 25- to 30-cm soil core samples from around field plants were collected from the Grand Valley Ranch, a historic gun range in NE Ohio. Soil and plant total metal content were examined using acid digestion and ICP-AES. The core samples showed variation in concentrations of lead and it was noted that the top 15 cm of soil was more polluted than the bottom 15 cm, thus indicating the surficial spread of lead due to water leaching horizontally. Root/shoat accumulation of tall fescue, common rush, and dwarf sunflower was 10,660/6,418,12,229/4,059, and 42,4469/698 mg/kg Pb, respectively. Common rush and alore the highest removal rate with 9.5±0.9 and 15,11-0,9 mg of Pb removed per g dry weight shoot, respectively. The translocation factor for all samples was 1, indicating a high amount of Pb was accumulated in the biomass as compared to the soil. http://craw.high.edu/act/eu/act_cmum_suit.1853444412/1035

ARSENIC REMEDIATION BY FORMATION OF ARSENIC SULFIDE MINERALS IN A CONTINUOUS ANAEROBIC BIOREACTOR Rodriguez-Freire, L, S.E. Moore, R. Sierra-Alvarez, R.A. Root, J. Chorover, and J.A. Field. Biotechnology and Bioengineering 113(3):522-530(2016)

The objective of this research was to study arsenic (As) biomineralization in a minimal iron environment for the bioremediation of As-contaminated groundwater using simultaneous arsenate (AsV) and sulfate reduction. With ethanol used as an electron foror, a continuous forwar and the same conditions but lacking sulfate was operated as a distributed as a distributed was and the same conditions but lacking sulfate was operated as a land ted with AsV and sulfate for over 250 d. A second bioreactor running under the same conditions but lacking sulfate was operated as a distributed as a distributed as a distributed was and the same conditions and the same conditions but lacking sulfate was operated as a distributed a

A NOVEL ADSORPTION PRODUCT FOR THE TREATMENT OF PER- AND POLY-FLUORINATED ALKYL SUBSTANCES (PFAS) IN WASTEWATER FROM AIRPORT FIRE-TRAINING GROU Marquez, N., R. Stewart, C. Lawrence, and J. Kirk. 10th International Conference on Remediation of Chiorinated and Recalcitrant Compounds (Palm Springs, CA; May 2016). Battelle, Columbus, OH. Poster F-042, 2016

An independent global engineering consultant was engaged to test the ability of a new product formulation—RemBind[™] and RemBind Plus[™]—to bind PFOS and PFOA in wastewater and reduce their concentrations to http://ziltek.com.au/pdf/Z097-01-RemBind-Poster-Battelle-2016.pdf

POLYMER NETWORK CAPTURES DRINKING WATER CONTAMINANT: CROSS-LINKED CYCLODEXTRIN REMOVES 93% OF THE PERFLUORINATED CHEMICAL PFOA FROM WATER IN LAB TESTS Lockwood, D. Chemical & Engineering News, 20 June 2017

emical & Engineering News, 20 June 2017

Scientists have designed a cross-linked polymer that might remove PFOA from water more effectively than current methods. The team (Xiao et al., J. Am. Chem. Soc. 2017, DOI: 10.1021/jacs.7b02381) has developed an alternative adsorbent: a cross-linked cyclodextrin polymer with much higher affinity for PFOA than activated carbon. It also tends not to clog up with humic acid and can be regenerated with a methanol rinse. The researchers still have to design a practical system for continuous water treatment with the soluble polymer, possibly by attaching the material to a solid substrate like a cloth or filter. http://contence.org/actical/Styce/Moh/D117/Difk/Boh/mer.ehtwick-indine_water.html/litm. source=Newsletter&utm_medium=Newsletter&utm_campaign=CFN

COUPLING SORPTION AND BIODEGRADATION FOR RAPID AND PERMANENT GROUNDWATER CLEANUP: FIELD PERFORMANCE OF DISPERSIVE COLLOIDAL ACTIVATED CARBON Birnsting, J., C. Sandefur, and K. Thoreson. 9. Fachtagung ChloroNet, 24 Movember 2016, Switzerland. 43 slides, 2016

PlumeStop® Liquid Activated Carbon[™] supports accelerated biodestruction and flux management of chlorinated solvents by dispersion of colloidal activated carbon in the subsurface. PlumeStop can be flow-emplaced to leave a micron-scale coating on soil particles within groundwater flow channels, which provides a means of capturing contaminants, focusing bioremediation, and managing back-diffusion over the long term. Plume dynamics can be passively engineered, Placement does and design exploration containment or control which up unping while the groundwater flow remains uninterrupted. Placement does and design exploration containment soles include several case studies. https://www.bis.admin.bit.di/di.dimumeta/altation/cate/laten/las.comtion_and_biodenradation_for_groundwater (eae-un.org/ download.pdf/las.Coupling_Sortion_and_Biodegradation_for_Groundwater (eae-un.org/ download.pdf/las.Coupling_Sortion_and_Biodegradation_for_Groundwater (eae-un.org/ download.pdf/las.Coupling_Sortion_and_Biodegradation_for_Groundwater (eae-un.org/ download.pdf/las.coupling_Sortion_and_Biodegradation_for_Groundwater (eae-un.org/ download.pdf/las.coupling_Sortion_and_Biodegradation_for_Groundwater (eae-un.org/ download.pdf/las.coupling_Sortion_and_Biodegradation_for_Groundwater (eae-un.org/ download.pdf/las.coupling_Sortion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater.comtion_and_Biodegradation_for_Groundwater

POTENTIAL APPROACH TO HOW RADIOACTIVE ELEMENTS COULD BE "FISHED OUT" OF NUCLEAR WASTE University of Manchester News, 9 Mar 2017

Manchester scientists are investigating how arsenic molecules might be used to remove the most toxic elements from radioactive nuclear waste, a breakthrough that could make the decommissioning industry safer and more effective. The study follows previous research published on uranium-phosphorus, uranium-arsenic, and thorium-phosphorus chemistry. This latest study looked at how the soft element arsenic interacts with thorium, because arsenic could in principle be used in noranie molecules that hout the most latest study looked at how the soft element arsenic interacts with thorium, because arsenic could in principle be used in noranie molecules that hout the motal tames. Fund the study looked at how the soft element arsenic interacts with thorium, because arsenic could in principle be used in noranie molecules that hout the motal tames. Fund the study looked at how the soft element arsenic interacts with thorium, because arsenic could in principle be used in thoranic molecules that hout the motal tames. Fund the study looked at how the soft element arsenic interacts with thorium, because arsenic could in principle be used in the soft element arsenic interacts with thorium, because arsenic could in principle be used in the soft element arsenic interacts with thorium, because arsenic could in principle active element are used to a soft element are soft element are

General News

LABORATORY, FIELD, AND ANALYTICAL PROCEDURES FOR USING PASSIVE SAMPLING IN THE EVALUATION OF CONTAMINATED SEDIMENTS: USER'S MANUAL Burgess, R.M., S.B.K. Onscoll, G.A. Burton, U. Ghosh, P.M. Gschwend, D. Reible, S. Ahn, and T. Thompson. EPA 600-R-16-37, ESTCP Project ER-201216, 167 pp, 2017

U.S. FPA and SERDP/ESTCP produced this document as a guide for using passive sampling to evaluate contaminated sediments. The guide is intended to cover lab, field, and analytical aspects of passive sampling applications. This resource is designed to aid in developing user-specific lab, field, and analytical procedures and to complement existing sediment tools. <u>https://doc.org/applications</u>

SUPERFUND 2017: CLEANUP ACCOMPLISHMENTS AND THE CHALLENGES AHEAD Probst, K.N.

Council of Engineering Companies (ACEC), 56 pp, 2017

This paper was commissioned by the American Council of Engineering Companies to provide information on the overall progress of the Superfund remedial program, looking at both the number and types of sites added to the NPL since FY 2000 as well as at key measures of program success. Program funding is also examined; one of the questions affecting the program for many years is whether Congress is appropriating adequate funds to ensure the timely cleanup of sites. This paper focuses on sites on the NPL that are not some of one-prated by federal adencies (referred to as "non-federal" NPL sites). From FY 2000 through FY 2016, but does not address proposed. NPL sites, referred Tacilities, and Superfund alternative sites. Where appropriate, actual EPA expenditures and accomplishments are compared with the estimates presented in a 2001 Report to Congress, *Superfund's Future: What Will It Cost?*, published by Resources for the Future. All dollar anies so therwise noted to otherwise noted as the stress funding. Superfund 2017 ENAL pdf

TOOLBOX FOR COMMUNITY REDEVELOPMENT: A BEGINNER'S GUIDE TO CONTAMINATED PROPERTY REDEVELOPMENT ASTSWMO Brownfields Focus Group. Association of State and Territorial Solid Waste Management Officials, Washington, DC. 43 pp, 2017

MODELS AND LESSONS FOR DEVELOPING A CONTAMINATED SITE PROGRAM: AN INTERNATIONAL REVIEW Kovalick, W.W. Jr. and R.H. Montgomery. Environmental Technology & Innovation 7:77-86(2017)

This article contains a brief overview and highlights from two recent World Bank publications: the first deals with the development of a contaminated site program in low- and middle-income countries, and the second describes alternatives available for financing remediation and redevelopment of contaminated sites. The first report (1) provides a description of the various policy, legislative, regulatory, and implementation options for creating a cleanup program and suggests targets in developing a management plan. The second publication (2) reviews established and emerging financing mechanisms for contaminated sites is established and emerging financing mechanisms for contaminated site deanup and utilines the strengths and challenges of each based on the experiences of several (0) Kovalle, W, and K. Montoneey. 2014. Developing a management plan. The second publication alternation and suggests with the development of the various policy legislative, regulatory, and utilines the strengths and challenges of each based on the experiences of several (0) Kovalle, W, and K. Montoneey. 2014. Developing a Program for Contaminated Site Management for Low and Middle Income Countries. World Bank, Washington, DC. 31 pp. https://onek.nkw.cont.et./income.com/active/activ

AUSTRALIAN GUIDANCE VALUES FOR ASSESSING EXPOSURE TO PERFLUOROOCTANE SULFONATE (PFOS) AND PERFLUOROOCTANOIC ACID (PFOA) Australian Government, Department of Health, 2017

On 3 April 2017, the Australian Government released Perfluorinated Chemicals in Food, a review by Food Standards Australia New Zealand (FSANZ) that recommended tolerable daily intake (TDI) values for people potentially exposed to PFASs, including PFOS and PFOA. Based on the report, the TDIs in Australia have been lowered to 20 ng/kg of body weight per day for PFOS and 160 ng/kg of body weight per day for PFOA. The drinking water quality value has been reduced from 0.5 to 0.07 µg/L for PFOS and from 5 to 0.56 µg/L for PFOA. More information, including the FSANZ report and several fact sheets, is available on the Australian Department of Health website.

NEW BROWNFIELD HEALTH INDICATOR TOOL

Minnesota Brownfields and the Minnesota Department of Health have developed a 20-page Brownfield Health Indicator Tool for community planners, landscape architects, developers, and community leaders. The tool incorporates a series of indicators that address community health factors and are designed to streamline the project decision-making process by providing a framework for stakeholders to identify and prioritize redevelopment goals. The tool is available in both PDF and Mirrosoft Excel at http://www.indicatorsoft.com

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 <u>adam michael@epa.gov</u> or (703) 603-9915 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