Technology Innovation News Survey

Entries for January 16-31, 2014

Market/Commercialization Information

ENVIRONMENTAL DREDGING AND DREDGED MATERIAL HANDLING OF DENSE NON-AQUEOUS PHASE LIQUID (DNAPL) CREOSOTE CONTAMINATED SEDIMENTS AT THE ATLANTIC WOOD INDUSTRIES SUPERFUND SITE, PORTSMOUTH, VIRGINIA Department of the Army, U.S. Army Corps of Engineers, USACE District, Norfolk, VA. Federal Business Opportunities, FBO-4467, Solicitation W91236-14-R-0019, 2014

This procurement requires the mechanical dredging of ~330,000 cubic yards of contaminated sediments, amendment with Portland cement, and consolidation in two on-site designated containment areas. Associated activities include installation of ~425,000 vertical linear feet of prefativities includes, and site grading. The project will be completed in phases, and contract duration is estimated to be three years. This is an unrefuted procument under NACE Code 56210. Submission requirements (plans/species) will be available on/about 25 February 2014 on FedBizOpps.

ENVIRONMENTAL SERVICES ASSISTANCE TEAM (ESAT) REGION 2 U.S. Environmental Protection Agency, Washington, DC. Federal Business Opportunities, FBO-4465, SOL-HQ-12-00022, 2014

EPA plans to obtain contractor ESAT Region 2 services to provide technical, analytical, and quality assurance support, primarily to the U.S. EPA Superfund Program, other EPA programs, federal and state agencies, and tribal organizations to facilitate identification, assessment, regulation, and remediation of environmental hazards. The contractor will provide analytical chemistry and biological, field sampling, and analytical support to EPA on site at the Agency's regional laboratory facilitate identification is expected around the end for our orm or EPA-formisted mobile laboratories and/or field instrumentation. Release of the solicitation is expected around the end of March 2014 at A on site at the Agency's regional laboratory facilitate and a superfield field locations using of or March 2014. This acquisition will be conducted on a full and open basis. <u>https://www.ena.gov/namstnod/lasc/FSATR2/COL.pdf</u> This acquisition will be conducted on a full and open basis. <u>https://www.ena.gov/namstnod/lasc/FSATR2/COL.pdf</u>.

FY14 BROWNFIELDS TRAINING, RESEARCH, AND TECHNICAL ASSISTANCE GRANTS GUIDELINES U.S. EPA Funding Opportunity EPA-OSWER-OBLR-14-2, 2014

EPA is soliciting proposals from eligible entities, including nonprofit organizations, to conduct research or provide technical assistance to communities facing brownfields cleanup and revitalization challenges. Focus areas of this announcemen includer. 1) technical assistance to environmental justice and equitable development for brownfields impacted communities. Focus areas of this announcemen includer. 1) technical assistance to environmental justice and equitable development for brownfields impacted communities. The community of environmental justice and equitable development for brownfields impacted communities. The communities frames, 3) and a common development strategies to brownfields impacted communities. The closing date for this grant opportunity is April 18, 2014. http://www.ena.ow/icswer/cnarts-fields-impacted communities. The closing date for this grant opportunity is April 18, 2014.

FY 2014 SMALL BUSINESS INNOVATION RESEARCH (SBIR) PROGRAM Department of Commerce, National Institute of Standards and Technology, 2014-NIST-SBIR-01, 2014

The National Institute of Standards and Technology (NIST) invites small businesses to submit Phase I research applications under this funding opportunity. Among the specific NIST needs areas announced in section 9 at http://www.nist.gov/tmo/shir/unicad/fy14-fmai-2 (NIST) invites small businesses to submit Phase I research applications under this funding opportunity. Among the specific NIST needs areas announced in section 9 at operating in the new essafe infrared region around 1.6 micrometrs in wavelength. Such laser systems are in demand for remote sensing of fugitive industrial emissions as well as for sensing and mitigation of other vapor-phase environmental of the new section of the system for the sensing of fugitive industrial emissions as well as for sensing and mitigation of other vapor-phase environmental of the sensing of fugitive industrial emissions as well as for sensing and mitigation of other vapor-phase environmental of the sensing of fugitive industrial emissions as well as for sensing and mitigation of other vapor-phase environmental of the sensing of fugitive industrial emissions as well as for sensing and mitigation of the vapor-phase environmental of the sensing of fugitive industrial emissions as well as for sensing and mitigation of the vapor-phase environmental of the sensing of fugitive industrial emissions as well as for sensing and mitigation of the vapor-phase environmental for environmental of the sensing of fugitive industrial environmental operating in the eye-safe infrared region around 1.6 micrometers pollutants. Applications must be received by May 2, 2014.http:///

TECHNOLOGY TRANSFER SUPPORT U.S. Environmental Protection Agency, Office of Research & Development, Cincinnati, OH. Federal Business Opportunities, FBO-4465, Solicitation SOL-CI-13-00041, 2014

EPA's National Center for Environmental Research (NCER) has a requirement to provide technology transfer support in four key areas: 1) dissemination of technical information, 2) preparation of technical publications, 3) preparation of electronic products, and 4) logistical and technical support for the conduct of meetings. Release of the solicitation is anticipated on/about February 28, 2014, at https://www.eng.gov/nam/cing.cmd. The Government anticipates awarding the new contract as an indefinite-delivery, indefinite-quantity contract with firm fixed-price and cost-plus-fixed-fee task orders over a 5-year ordering period. EPA intends to award a single contract as a small business set-aside with an anticipated maximum of \$30 million. The applicable NAICS code is \$41520, with a size standard of \$14 million.

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY (CLEAN), PRIMARILY IN THE MID-ATLANTIC, NORTHWEST, AND SOUTHWEST REGIONS AND SOME OVERSEAS LOCATIONS Department of the Navy, Naval Facilities Engineering Command, Norfolk, VA. Federal Business Opportunities, FBO-4480, Solicitation N6247014459007, 2014

The Navy is conducting market research to determine the availability of sources prior to issuing an RFP. The procurement will be a cost-plus-award-fee, indefinite-delivery, indefinite-quantity A-E contract for the full range of environmental engineering support services for Comprehensive Long-Term Environmental Action Navy (CLEAN), NALCS code 541330. The anticipated A-E IDIQ contract term will have a base period of one year, with four 1-year option periods. Responses are due by March 31, 2014, 3:00 me FL integration/IDMINAUEA/IDMINSTATION/IMMED in the Integration Integration

Cleanup News

NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN, NATIONAL PRIORITIES LIST: DELETION OF THE LUDLOW SAND & GRAVEL SUPERFUND SITE

U.S. Environmental Protection Agency. Federal Register, Vol 78 No 191, 60721-60726, 2 Oct 2013

The 2003 ROP identified pressure grouting as the method to be used to solidify PCB-impacted soils in the North Gravel PIt (NGP) of OU2. EPA performed a value engineering assessment between the proposed pressure grouting and soil mixing technologies and then selected in situ soil mixing (ISSM), sometimes referred to as in situ solidification, to address PCB contamination above. 10 ppm in the NGP. In July 2007, the ISSM contractor mobilized equipment to begin field advanced to 15 to begin. The ISS has been than the referred to as in situ solidification, to address PCB contamination above. 10 ppm in the NGP. In July 2007, the ISSM contractor mobilized equipment to begin field advanced to 15 to besc. End to the selected in situ solidification. The NGP is a selected in situ solidification and the NGP is a selected in situ solidification. The NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification. The NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification. The NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ solidification and the NGP is a selected in situ s

SAUGET AREA 1 SUPERFUND SITE, OPERABLE UNIT 1, SAUGET AND CAHOKIA, ST. CLAIR COUNTY, ILLINOIS: RECORD OF DECISION U.S. EPA Region 5, Chicago. 127 pp, 2013

Contaminants of concern (COCs) at this site include benzene, chlorobenzene, PCE, TCE, 1,2-DCE, VC, 1,4-dichlorobenzene, 4-chloroaniline, and 2,4-dichlorophenoxyacetic acid (an herbicide). The selected remedy calls for off-site incineration of the pooled DNAPL recovered from Site I South and extensive in situ aerobic biodegradation of COCs in areas of sites G, H, and I South using pulsed air biosparging (PABS) systems. To evaluate the feasibility and effectiveness of full-scale PABS operation, a plot test will be conducted for a period of about one year to determine operational parameters, measure performance characteristics, and verify the optimal spacing of the biosparging types well pairs. The biosparging systems will target Sauget Area 1 residual contaminant areas in the middle hydrogeologic unit, potentially treating as many as 230,000 kg of contaminants.

AMENDED RECORD OF DECISION: WEST SIDE CORPORATION SITE, OPERABLE UNIT NO. 2 (OFF-SITE), JAMAICA, QUEENS COUNTY, NEW YORK New York State Department of Environmental Conservation, 70 pp, Dec 2013

The New York State Department of Environmental Remediation conducted an evaluation of groundwater monitoring data collected from groundwater pump-and-treat system startup operations completed in 2012. The evaluation did not support restarting the system for long-term operation in accordance with the original 2002 ROD. Instead, an in situ chemical evidation (ISCO) technology has been selected to treat the remaining plume. The ISCO plan calls for installation of a network of permanganate injection wells within the 10 pb PCE plume in the shallow and intermediate groundwater zones; and installation of new monitoring well clusters. The ongoing vapor intrusion mitigation program will continue to monitor soil gas levels at adjacent residences and assess the need for additional subslab depressurizations system installations. <u>https://doi.org/12/12/12/24/</u>

MERCURY REFINING SUPERFUND SITE: TOWNS OF COLONIE AND GUILDERLAND, ALBANY COUNTY, NY U.S. EPA Region 2, 4 pp, Sep 2013

From 1956 to 1998, the half-acre Mercury Refining Company, Inc. site, located in Colonie, New York, was used for reclaiming mercury from batteries and other mercury-bearing materials. Site soil, groundwater, and sediment are contaminated with mercury. The final cleanup plan selected in 2008 requires a combination of soil excavation and removal and in situ soil solidification/stabilization (ISS). The ISS portion of the cleanup will involve the use of an auger system to blend columns of soil in situ with a mixture of Portland compound. The suffic compound acts chemically to stabilize mercury in both the soli and groundwater into an immobile state. The specific suffic compound will be determined after a plot study in spring 2014. The cement significantly restricts the ability of groundwater the ISS area and carry mercury off site. The solidified soil columns will extend downward - 60 to 70 feet to the day layer underlying the size, which acts a natural bactury contamination. More information about the Mercury Refining Superfund Site is available affection.

RECONTAMINATION OF THE THEA FOSS WATERWAY: YEAR 7 POST-REMEDIATION UPDATE

Dalton, M. and P. Fuglevand. Book of Abstracts: Seventh International Conference on Remediation of Contaminated Sediments, 4-7 February 2013, Dallas, Texas. Battelle Press, Columbus, OH. 2013

The Thea Foss Waterway is a 7,000 ft long marine waterway within the Commencement Bay Nearshore/Tide Fats Superfund site located in Tacoma, Washington. A hybrid cap was installed at the head of the waterway to contain contaminated sediment and database of tocal terreliation of the sediment and tables of tocal terreliation. The sediment is a superfund site located in Tacoma, Washington. A hybrid cap was installed at the head of the waterway to contain contamination included upwort impraction of contamining contamining sediments of the sediment of the sedimate of the sediment of the sediment of the se

CLEAN AND GREEN: CARBON FOOTPRINT ANALYSIS FOR THREE MGP SITE REMEDIATION ALTERNATIVES

McCormack, B., F. Ricciardi, and W. Hoynack. Book of Abstracts: seventh International Conference on Remediation of Contaminated Sediments, 4-7 February 2013, Dallas, Texas. Battelle Press, Columbus, OH. 2013

A carbon footprint analysis was performed for three remedial alternatives at a coal tar-impacted sediment remediation site in Keene, New Hampshire. Carbon footprint analysis can be readily performed by tracking project fuel use, electricity use, material transportation, and personnel transportation during the construction phase. The selected remedial approach involved excavation of impacted sediment from a drainage creek and treatment of the material at an off-site dremedial approach involved excavation of construction approach. The selected off-site thermal desorption remedy. Conversion factors for fossil fuel use, electricity associated with the selected off-site thermal desorption remedy. Conversion factors for fossil fuel useque volumes to carbon emission quantities were determined based on review of available published literature. On-site acadated with power guesque volumes to carbon emission quantities were determined based on review of available published literature. On-site and off-site fettration, after attach off-site fettration and net situ thermal desorption remedy. Conversion factors for fossil fuel useque volumes to carbon emission group entipy of the selected approach, carbon emissions associated with power guesque volumes to carbon emission factors for the selected approach, carbon emissions associated with power guesque volumes to carbon emissions for the selected approach, carbon emissions for the selected approach, carbon emissions associated with power guesque volumes to carbon emissions for the selected approach, carbon emissions for the selected approach, carbon emissions associated with associated with power guesquest to carbon emissions for the selected approach, carbon emissions for the selected approach, carbon emissions for the selected approach, carbon forthor atternation and the high implementation cost. Additional information cortificat

ANCHORED SORBENT CAP FOR BOND BROOK STEEP SLOPES, FORMER AUGUSTA GAS WORKS, AUGUSTA, MAINE Amber, D., J. Beaver, A. Evans, M. Hendry, K. Sellers, and R. Koster. Book of Abstracts: Seventh International Conference on Remediation of Contaminated Sediments, 4-7 February 2013, Dallas, Texas. Battelle Press, Columbus, OH. 2013

The fill sols of the former Augusta Gas Works contain manufactured gas plant (MGP) residuals and hardened tar deposits that periodically contributed to sheens observed in the adjacent Bond Brook. The MGP residuals were identified within a steep (1:1) embankment. Gravity and pressure sewer lines within the lower portion of the slope, along a local utility easement, further complicated remedial design and construction. The endangered Atlantic salmon is present in the brook. A remedy comprising an anchored sorbent cap (a combined armor mattress and reactive core mat), sediment cover, and temporary hydraulic bypass was designed and permitted. This design reduces the risk of erosion of bank soils and surficial soil instability of the steep slope. Implementation of the remedy occurred in summer through October of 2012.

CHATTANOOGA CREEK (TENNESSEE WOOD PRODUCTS SUPERFUND SITE) INTERIM CAPPING REMEDY: FIVE YEARS POST INSTALLATION UPDATE, OVERVIEW AND MONITORING RESULTS

Zeller, C. and J. Collins. Book of Abstracts: Seventh International Conference on Remediation of Contaminated Sediments, 4-7 February 2013, Dallas, Texas. Battelle Press, Columbus, OH. 2013 From September 2005 to September 2007, a combined removal and interim capping remedy was performed on a reach of Chattanooga Creek, which empties into the Ternessee River just north of Chattanooga. Ternessee. The site oneight for the present of the second secon

NAVY'S ENVIRONMENTAL RESTORATION PROGRAM BOASTS SUCCESSFUL SITE CLEANUPS: PROGRAM APPLIES INNOVATIVE APPROACHES TO COMPLEX PROBLEMS Currents: The Navy's herry's Environmental Magazine, 52-61, Spring 2013

This article presents four case studies that illustrate some of the innovative approaches the Department of the Navy has implemented to solve complex remediation situations at Navy sites throughout the country: 1) evaluating vapor intrusion with radon as a tracer; 2) time-critical absetsor removal; 3) applying green and sustainable remediation practices to improve remediation of soil and groundwater at Marine Corps Logistics Base Albany, Georgia; and 4) screening potentially explosive material at a scrap year. <u>http://greenilet.doi/us.ml/life.27111/115413_Fourmental_Bestoration_Program</u>_Cleanues.pdf

Demonstrations / Feasibility Studies

TREATING DREDGED SEDIMENTS FOR BENEFICIAL USE: PILOT PROJECT INVESTIGATES THE FEASIBILITY OF USING DREDGED MATERIAL AS SOIL PRODUCT Currents: The Navy's Energy & Environmental Magazine, 18-21, Spring 2013

In a pilot project undertaken to investigate the feasibility of using dredged material as a soil product, ~1,000 yd³ of dredged sediments from Pearl Harbor were excavated, screened for explosive munitions, and transported to a biosolids facility where they were blended with compost, followed by bioremediation and phytoremediation to improve soil quality. TPHs and PAHs were degraded to acceptable levels during the first year. Metals (copper, lead, and zinc) fell by 30-40% during the first 60 days to below cleanup goals, but them gradually rebuinded the following year, possibly because degradation of the organics in the compost over time resulted in an effective increase in concentration of residual metals. Though the pilot test continues for experimental purposes, the intent for reuse is to treat the material for a year or less. The resulting soil is of a quality suitable for landscaping to support vigorous plant growth.

REMEDIATION OF ARSENIC CONTAMINATED SEDIMENT IN YANGZONGHAI LAKE

Wang, Q. and M.F. Knight. Book of Abstracts: Seventh International Conference on Remediation of Contaminated Sediments, 4-7 February 2013, Dallas, Texas. Battelle Press, Columbus, OH. 2013

High levels of arsenic contamination released into Yangzonghai Lake from three lakeside manufacturing facilities received great attention from the Chinese Government in September 2008. The examination committee chose a combination of impermeable sediment capping using AquaBlok® and in situ chemical reduction using EHC-M® as the most cost-effective remedial solution. In the lake, upwelling flow pressure and turbulence causes continuous released a rasenic from sediments into the water column. AquaBlok® will be used to isolate the contaminated sediment from the water column to prevent resuspension and fluxing of the dissolved arsenic. After EHC-M® injection using the arsenic approximation to the covered sediments, rapid generation of an extremely low redox condition is anticipated to immobilize the arsenic by combined physical, chemical, and biological mechanisms. Pilot-scale implementation of the Yangzonghai Lake project is pending&dditional information: Ditp://www.researchapte.pet/chubication/28085757 Yangzonghai 2004 Addressed by AquaBlok. Canning and In. Situ Chemical Agenturics. Therefield 312dhf104 Addressed by AquaBlok. Canning and In. Situ Chemical Agentures. File/9804 Site 312dhf104 Add f

EVALUATION OF ACTIVATED CARBON TREATMENT TECHNOLOGIES IN A PCB-CONTAMINATED WETLAND Bielier, J.A., K. Gardner, S. Greenwood, R. McGarthy, and N. Ruiz. Book of Abstracts: Seventh International Conterence on Remediation of Contaminated Sediments, 4-7 February 2013, Dallas, Texas. Battelle Press, Columbus, OH. 2013

A field demonstration project is underway at a mid-Atlantic site to evaluate the efficacy of different application technologies for delivering activated carbon (AC) to wetlands. The demonstration began in fall 2010, when two different pelletized AC amendments were delivered via a small-scale granular application spreader and a mulch blower, while powdered AC in an AC slurry system was delivered to test plots using a portable high solids sprayer. Performance in these field applications is being gauged through contaminant bioavalability reductions. Its months following AC treatment, reductions in porwater concentrations were observed for both dry-broadcast (58.9%) and slumy-delivered amendments (52.1%). Preliminary data show that no significant variation in macroinvertebrate species composition or plant species richness occurred over the first 6 months. Inert sand caps and "no treatment" controls were included in the study. Longer abstract: http://www.eender.org/dom/data/2013-opstect-Bielier Longer State Stat

DEMONSTRATION OF AN ACTIVATED CARBON SEDIMENT AMENDMENT AT THE PUGET SOUND NAVAL SHIPYARD & INTERMEDIATE MAINTENANCE FACILITY, BREMERTON, WA Conder, J., V. Kirtay, M. Grover, D.B. Chadwick, V. Magar, and D. Moore. Westem Dredging Association, Pachic Chapter 2013 Annual Meeting, October 25, 2013, Long Beach, CA. 42 slides, 2013

A demonstration project for Pier 7 at the Puget Sound Naval Shipyard and Intermediate Maintenance Facility located in Sinclair Inlet, Puget Sound, Washington, is evaluating and validating the placement, stability, and performance of activated carbon to foreat PCB-contaminated sediments in an active harbor setting. The demonstration consists of amending the contaminated area with powdered activated carbon (PAC) using the Aquadate+PAC⁺⁺ composite aggregate system to improve delivery and physical stability, and decrease the bioavailability of PCBs and other contaminants in the 190 x 115 ft transfer area availability of the Sing advectment sufform decrease the bioavailability of PCBs and other contaminants in the 190 x 115 ft transfer area. Abtroadcast application with conveyor belty pe guipment from a moored barge was selected for rapid, relatively uniform amendment placement. A second barge supplies material to the broadcast distributes, *and extendent endocument* and the advected activated area on active harder active set bioavailability of 2013 to pacific-weak apresentations. Conveyor system carbon and and activate area to the puget sound and a schulated active set and the provide sound and activated active set and activated active set and the puget sound and activated active set at the puget sound and activated active set and the puget sound and material to

Research

ACTIVATED CARBON IN SEDIMENT REMEDIATION: BENEFITS, RISKS AND PERSPECTIVES Kupryianchyk, Darya, Ph.D. thesis, Wageningen University, The Netherlands, 264 pp, 2013

This thesis contains a review of the current state of the art in activated carbon (AC) sorbent amendment technology for sediment remediation. Published data indicate that the effectiveness of remediation with AC may be different for powdered AC versus granular AC, and AC effectiveness may be less if black carbon (BC) is already present in the sediment. The effectiveness of AC amendments mainly depends on desorption processes from the native sediment particles and subsequent sorption processes to AC. Aside from sediment geochemical characteristics; the efficiency of AC application depends on factors like particle size, AC concentration applied, and AC pore structure and surface area. Recent ecological studies suggest that AC effects on the community and ecosystem level are absent or less severe compared to those observed in single-species lab tests. Results from full-scale AC application studies showed stability of AC in the environment and demonstructed its efficiency in binding contaminants in sediments severe) years dater application dependent wir ni/24235.

1,4-DIOXANE AND THE APPLICATION OF PHYTOREMEDIATION AT NORTH CAROLINA HAZARDOUS WASTE GROUNDWATER CONTAMINATED SITES Sorensen, Heather, Master's thesis, North Carolina State University, 45 pp, 2013

Twelve 1,4-dioxane-contaminated sites were identified within the state of North Carolina, and six of the sites were assessed in detail for the potential applicability of phytoremediation. Following a review of the sites' characteristics and the strengths and limitations of phytotechnology, results indicated that phytoremediation can be considered as a potentially viable remedial option for 1,4-dioxane at sites that have enough space for plantings of appropriate tree stands and no treatments planned that would interfere with tree uptake of groundwater. <u>http://enositree.jikht/sman1844</u>, 442721/JScnnee.<u>Http://enositree.jikht/sman1844</u>, 442721/JScnnee.<u>Http://enositree.jikht/sman1844</u>, 443721/JScnnee.<u>Http://enositree.jikhtp://</u>

SUB-PPM QUANTIFICATION OF HG(II) IN AQUEOUS MEDIA USING BOTH THE NAKED EYE AND DIGITAL INFORMATION FROM PICTURES OF A COLORIMETRIC SENSORY POLYMER MEMBRANE TAKEN WITH THE DIGITAL CAMERA OF A CONVENTIONAL MOBILE PHONE Kaouth, H.E., P. Estevez, F.C. Garcia, F. Serna, and J.M. Garcia. Analytical Methods, Vol 5 No 1, 54-58, 2013

Colorimetric sensory membranes have been developed for detecting mercury [Hg(II)] in aqueous media. The membranes contain a florescent organic compound called rhodamine, which acts as a mercury sensor. The color response or sensory materials can be tuned for detection with the naked eye, auch as the maximum contaminant level of Hg(II) sets by U.S. EPA for drinking water. Furthermore, the Hg(II) concentration of Hg(II) but concentration of Hg(II)

DETECTION AND SPATIAL MAPPING OF MERCURY CONTAMINATION IN WATER SAMPLES USING A SMART-PHONE Wei, Q., R. Nagi, K. Sadeghi, S. Feng, E. Yan, S.J. Ki, R. Caire, D. Tseng, and A. Ozcan. AGS Nano, Vol 8 No 2, 1121-1129, 2014

A smart-phone-based hand-held platform allows the quantification of Hg(II) ions in water samples with parts-per-billion (ppb) level of sensitivity. An integrated opto-mechanical attachment to the built-in camera module of a smart phone was devised for digital quantification of mercury concentration using a plasmonic gold nanoparticle and aptamer-based colorimetric transmission assay that is implemented in disposable test tubes. WeighingAdditional description:

IN SITU APPLICATION OF ACTIVATED CARBON AND BIOCHAR TO PCB-CONTAMINATED SOIL AND THE EFFECTS OF MIXING REGIME Denyes, M.J., A. Rutter, and B.A. Zeeb. Environmental Poliution, Vol 182, 201-208, 2013

In the first in situ experiment conducted at a Canadian PCB-contaminated brownfield site, granular activated carbon (GAC) and two types of biochar exhibited similar performance at reducing PCB uptake into plants. With the addition of 2.8% GAC, Burt's biochar, and BlueLeaf biochar, PCB concentrations in *Cucruitar pepo* root tissue declined by 74%, 72% and 64%, respectively. A complementary greenhouse study, including an evaluation of earthworm bioaccumulation, found that mechanically mixing AC with PCB-contaminated soil (i.e., 2 A that 30 pm) resulted in shoot, root, and worm PCB concentrations 66%, 59% and 39% lower than in treatments manually mixed with a spade and bucket. Although both biochar and GAC reduced PCB uptake into plants and earthworms, biochar offered additional benefits, including increased plant and earthworm bioassas.

General News

BIOCHEMICAL REACTORS FOR MINING-INFLUENCED WATER Interstate Technology & Regulatory Council (ITRC). BCR-1, Available as a Web-based document or a 373-page PDF file, Nov 2013

Mining-influenced water (MIW) includes aqueous wastes generated by ore extraction and processing, as well as acid mine drainage (AMD) and tailings runoff. This document explains biochemical reactor (BCR) technologies used to treat MIW on site and to improve the ambient water quality in nearby watersheds. BCRs are engineered treatment systems that use an organic substrate to drive microbial and chemical reactions to reduce concentrations of metals, acidity, and sulfate in water. This guide covers BCR applicability, testing, design, construction, and monitoring A. decision tree presents the basic factors used to evaluate the efficacy and applicability of BCR treatment for a particular MIW, and 15 case studies allow evaluations of diverse site conditions and different MIW chemical mixtures <u>http://troweb.org/bcr-1/</u>

GROUNDWATER STATISTICS AND MONITORING COMPLIANCE: STATISTICAL TOOLS FOR THE PROJECT LIFE CYCLE Interstate Technology & Regulatory Council (ITRC). GSMC-1, Available as a Web-based document or a 381-page PDF file, Dec 2013

This document was developed to help environmental practitioners understand, interpret, and use statistical techniques to manage groundwater compliance or cleanup projects. The information presented is specifically for environmental project managers who must review or use statistical valuations for reports, make recommendations or decisions based on statistics, or demonstrate compliance for groundwater projects. These individuals typically have a technical background and experience in oer or more disciplines related to site compliance or cleanup, but do not have specific expertise in statistics are estatistical experise. Intro/www.ilrweh.org/smc-1/

IN SITU TREATMENT AT PCB CONTAMINATED SEDIMENT SITES

Blackman, T., M. Martin, G. Braun, S. Ozkan, and E. Ashley. Lockheed Martin Middle River Complex Feasibility Study Team, Project Note 2, 92 pp, 2013

Recent research and pilot studies regarding in situ treatment of contaminated sediments by activated carbon (AC) application and its effectiveness for PCBs, PAHs, and metals stabilization indicate that in situ AC treatment is 75-55% effective for reducing PCBs and PAHs bioavailability. To provide background for https://sedimetar.ability.com/sedimate.ability.com/sedimetar.ability.com/sedimetar.

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>datam michaelisens and</u> or (703) 803-9915 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 acknowledoment that they exist and may be relevant to the Technology Innovation News Survey audience