

Technology Innovation News Survey

Entries for January 1-15, 2014

Market/Commercialization Information

ENVIRONMENTAL BROAD AGENCY ANNOUNCEMENT (BAA)

Naval Facilities Engineering Command, Naval Facilities and Expeditionary Warfare Center.
Federal Business Opportunities, FBO-4449, Solicitation N3943014R1423, 2014

Via this BAA, the Naval Facilities and Expeditionary Warfare Center seeks to further the development and application of environmental methodologies and technologies that are either new, innovative, advance the state of the art, or increase knowledge or understanding of a technology or methodology relevant to one or more of the following areas: (1) Environmental Assessment, Restoration, and Cleanup; (2) Conservation of Natural Resources; (3) Unexploded Ordnance (UXO); (4) Pollution Prevention; (5) Environmental Compliance; and (6) Sustainability and Climate Change. This BAA is for abstracts/white papers only.

Submittals can be made using the abstract form and instructions at

http://www.navfac.navy.mil/navfac_worldwide/specialty_centers/exwc/products_and_services/ev/ec/baa.html. The BAA is open for one year from the date of publication, until January 26, 2015. <https://www.fbo.gov/notices/04362d2b4c2dee31061837eb480ed526>

SMALL BUSINESS EVENT: WOMEN-OWNED SMALL BUSINESS COUNSELING SESSION

U.S. EPA, Office of Small Business Programs, Washington, DC.
Federal Business Opportunities, FBO-4458, 2014

U.S. EPA's Office of Small Business Programs will offer a free Women-Owned Small Business (WOSB) counseling session on Thursday, March 6, 2014, from 9:00 am to 12:00 pm at the U.S. William Jefferson Clinton East Building, 1201 Constitution Avenue, NW, Room 1153, Washington, DC. This free, interactive session will provide an overview of the contracting opportunities available to WOSBs at EPA. Contracting and program officers will attend. See more visitor information at <http://www2.epa.gov/aboutepa/visiting-epa-headquarters>. RSVP for registration via email only no later than February 25. A limited number of seats will be available for this event and only two attendees per company may attend. Bring a valid picture ID and your company's capabilities statement. All attendees will be required to undergo a security screening upon entering the building. <https://www.fbo.gov/notices/8862391ed6e2b99e14c0a4f23af21fc3>

BROAD AGENCY ANNOUNCEMENT (BAA) FOR THE AIR FORCE CIVIL ENGINEER CENTER (AFCEC), ENVIRONMENTAL DIRECTORATE

Air Force Installation Contracting (AFICA), Wright Patterson AFB, OH.
Federal Business Opportunities, FBO-4458, 2014

The AFCEC Environmental Directorate seeks proposals that demonstrate and validate innovative, sustainable, and cost-effective technologies and/or methodologies that will lead to more efficient and effective solutions for environmental restoration and compliance concerns across the Air Force. The areas of need for this announcement are as follows:

1. Perfluoroalkyl and polyfluoroalkyl substances (PFASs) remediation treatment train technologies in source areas, including soil and groundwater.
2. PFASs remediation mass balance.
3. Sensor demonstration and validation of a patent-pending, patented, or commercially available real-time field sensor for PFASs with particular emphasis on PFOS and PFOA in groundwater.
4. Methods to process water-sludge from oil-water separators units.
5. Drinking water sensor technology to comply with Safe Drinking Water Act.
6. Standardized ignition internal combustion engine (ICE) monitoring.
7. Chemical fate and transport of jettisoned jet fuel.

TO AVOID REDUNDANCY, applicants should be aware of ongoing studies funded through SERDP/ESTCP. This opportunity is restricted to U.S. companies, academic institutions, non-profit institutions, and/or government agencies (as primary). Submittals are due no later than 4:00 pm CST, March 19, 2014. From selected initial submittals, AFCEC will invite a full proposal. Awards are anticipated in third quarter FY14. <https://www.fbo.gov/notices/fb11f98fff0c6e278ef27c5955b0041f>

EMERGENCY AND RAPID RESPONSE SERVICES IV

U.S. EPA, Region IV, Atlanta, GA.
Federal Business Opportunities, FBO-4459, Solicitation SOL-R4-13-00008, 2014

EPA Region 4 has a requirement for Emergency and Rapid Response Services (ERRS) to conduct emergency responses, time-critical and non time-critical removals, and remedial actions. This procurement will also include the cleanup for incidents involving weapons of mass destruction, acts of terrorism, and nuclear, biological, and chemical incidents. The contract will cover the eight states within Region 4: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee. As many as three indefinite-delivery, indefinite-quantity, time-and-materials contracts (a 3-year base period with one 2-year option period) may be awarded under this total small business set-aside, NAICS code 562910. The RFP for this ERRS procurement will be issued on or around February 20, 2014. <https://www.fbo.gov/spg/EPA/OAM/ReqIV/SOL-R4-13-00008/listing.html>

ENVIRONMENTAL TECHNOLOGIES SOLICITATION

Environmental Security Technology Certification Program (ESTCP), 2014

ESTCP is requesting proposals for demonstration of environmental technologies from federal organizations, universities, and private industry. The solicitation to both non-federal applicants and federal non-Defense entities is limited to a single topic: Assessment of Vapor Intrusion from Subsurface Volatile Organic Compound Contamination. Federal Defense entities may submit pre-proposals for multiple topics: 1) Assessment of Vapor Intrusion and 2) Weapons Systems & Platforms (i.e., environmental and worker health and safety associated with manufacturing and maintenance, green energetics, waste reduction, and lead-free electronics). Pre-proposal ideas are due by April 1, 2014. Detailed instructions are available on the SERDP and ESTCP website at www.serdp-estcp.org/Funding-Opportunities/ESTCP-Solicitations. Additionally, the ESTCP Director will conduct a webinar, "ESTCP Funding Opportunities for Environmental and Energy Technologies, FY 2015," on February 21, 2014, at 12:30 pm ET. Pre-registration is required for the live webinar; a recording of the webinar and the presentation will be available on the SERDP-ESTCP website in late February.

Cleanup News

HAZARDOUS WASTE BRANCH HIGHLIGHT: PADUCAH GASEOUS DIFFUSION PLANT

Kentucky Division of Waste Management Annual Report, FY 2013, 22-24, 2013

At the Paducah Gaseous Diffusion Plant (PGDP) Superfund site, the C-400 Cleaning Building is the source of much of the TCE that now contaminates the site groundwater. In July 2013, the second phase of an electrical resistance heating (ERH) remedy was initiated to address part of an estimated 75,000 gallons of TCE in the subsurface. The ERH system features 52 borings, each with three 10-ft-long metal electrodes that heat soil to more than 194°F to evaporate the TCE so that it can be removed from the soil via vacuum extraction. The vapors are treated using carbon filtration and air stripping. Once this phase of the C-400 remedy is complete, a final phase will be initiated for TCE present within the aquifer at greater depths. <http://waste.ky.gov/Annual%20Reports/DWM%20Annual%20Report%20for%202013.pdf>

Heat also will be applied during steam-enhanced deep soil mixing to remediate TCE at the PGDP Oil Landfarm, a dumping ground for waste oils. See the *Treatability Study Work Plan for Steam Injection* at <http://www.paducaheic.com/media/114083/ENV1-A-00516-PD105.pdf>.

LAWRENCE DRY CLEANERS: PROGRESS REPORT ON 10 MONTHS OF FULL-SCALE ENHANCED IN SITU BIOREMEDIATION OF CHLORINATED SOLVENTS IN THE BOTANY SANDS

Clay, J., J. Ho, J. Hughes, and P. Limage.

CleanUp 2013: 5th International Contaminated Site Remediation Conference, 15-18 September 2013, Melbourne, Victoria. Presentation C44, 24 slides, 2013

A plume of dissolved-phase PCE migrated from the drycleaner and affected five other properties. Cleanup goals were determined for the chlorinated solvent groundwater concentrations: 5 mg/L by 26 May 2013 and 0.5 mg/L by 26 May 2016. Following a successful pilot test, the in situ bioremediation system design incorporated 20 groundwater recirculation loops installed across the affected sites, covering an area of almost one hectare. Groundwater was extracted downgradient, amended with sodium lactate, and reinjected upgradient. After 10 months of operation, groundwater contaminant concentrations fell to the 0.5 mg/L (2016) goal in 40% of the area. See file C44 in the folder that opens from <http://www.cleanupconference.com/presentations/Management%20and%20remediation%20strategies%20for%20DNAPL.zip>

SITE OT017: PATH TO FINAL REMEDY

Beale Air Force Base: Environmental Cleanup Program, Issue 59, 1-5, Oct 2013

For control and management of free-phase TCE DNAPL at Site 17, Beale Air Force Base, a slurry wall was keyed into siltstone bedrock ~35 ft bgs to isolate the DNAPL source area, from which a dissolved-phase plume extends about 4,000 ft downgradient. As part of this interim remedy, a phytoremediation system of 400 cottonwood, willow, and holly trees was installed within the slurry wall in 2001. The design called for elimination of pump and treat when the trees matured; however, the tree plantation so far has not reduced the need for pumping to maintain an inward hydraulic gradient. To control a secondary source of DNAPL discovered adjacent to and outside the slurry wall in 2005, a combined slurry wall/ZVI PRB was designed and built in 2006. A final remedy being evaluated includes 1) injecting EHC-L to treat DNAPL residuals in source areas; 2) removing a 200-ft downgradient section of the primary slurry wall and replacing it with another ZVI/PRB; and decommissioning the existing pump-and-treat system. <http://www.beale.af.mil/shared/media/document/AFD-131104-131.pdf>

ENHANCED IN-SITU CHEMICAL REDUCTION FOLLOWED BY ENHANCED BIOREMEDIATION TO TREAT CIS-1,2-DCE AND VC

Haryani, A. and R. Doshi.

IPEC 2013: 20th Annual International Petroleum Environmental Conference, 11-14 Nov 2013, Houston, Texas. The Integrated Petroleum Environmental Consortium (IPEC). 15 slides, 2013

The source area wells had cis-1,2-DCE and VC concentrations of 47,000 and 8,000 µg/L, respectively, from undocumented buried drums. Groundwater contamination was addressed with in situ chemical reduction (ISCR) using the DARAMEND® ISCR technology (a carbon source and zero-valent iron particles). The groundwater is relatively stagnant, anaerobic, and mildly reducing, with an estimated velocity of about 0.0023 ft/day. Site soils consist of silty clay overlying bedrock (~16 ft bgs). After excavation to remove the drums, DARAMEND was added at an application rate of 1 wt% to native soil mass in the soils below the water table. Upon completion of the excavation, mixing, and backfill operations, the contractor capped the former drum area. Remediation to groundwater quality standards was reported in all the wells except the source area monitoring well, and additional enhanced bioremediation will target the source area. http://ipec.utulsa.edu/Conf2013/Manuscripts_pdfs/ISCR_Haryani.pdf

HORIZONTAL REMEDIATION WELL IN-SITU CHEMICAL OXIDATION: A CASE STUDY

Sequino, M.

CleanUp 2013: 5th International Contaminated Site Remediation Conference, 15-18 September 2013, Melbourne, Victoria. Presentation E24, 25 slides, 2013

Horizontal remediation well technologies were used in conjunction with in situ chemical oxidation (ISCO) to remedy a PCE-contaminated drycleaner site in Parole, Maryland. The cleanup took place on an active construction site. Site soils were silty sand. The contaminated groundwater zone was 25-55 feet bgs, and groundwater flow was 0.2-0.4 ft/day. Ten horizontal wells of a total of 3,875 ft at two soil depths were installed. The first of two injections delivered 340,000 gallons of permanganate solution, and the second delivered 1,032,333 gallons of solution. The ISCO treatment reduced PCE groundwater concentrations in the source area from 13,000 ppb to 400 ppb. Downgradient, PCE concentrations declined from 8,000 ppb to a maximum of 1,840 ppb, though most wells were nondetect. The length of screen in the horizontal wells permitted faster and more effective delivery of the ISCO treatment. The large permanganate zone of influence permitted a more complete reaction with the soil and groundwater PCE such that rebound did not occur and the site was closed. <http://www.cleanupconference.com/presentations/Advanced%20remediation%20technologies.zip>

Demonstrations / Feasibility Studies

PERCHLORATE DESTRUCTION AND POTABLE WATER PRODUCTION USING MEMBRANE BIOFILM REDUCTION AND MEMBRANE FILTRATION

Evans, P., J. Smith, T. Singh, et al.

ESTCP Project ER-200541, 384 pp, Nov 2013

The project successfully demonstrated the feasibility of a membrane biofilm reactor (MBfR) to destroy perchlorate and nitrate in groundwater via anoxic autotrophic biodegradation and produce potable water at the pilot scale. The investigators also evaluated process control parameters to optimize performance and estimated full-scale technology costs. The unit consisted of two 575-gallon MBfR vessels in a two-stage lead/lag configuration, with each tank containing seven polypropylene-fiber membrane modules—a total membrane surface area of 2,000 m². The MBfR was colonized with indigenous perchlorate- and nitrate-reducing bacteria within about one month. In the effluent of the lag reactor during steady state, perchlorate declined by ~94% to 9.2±2.3 µg/L and total nitrogen (the sum of nitrate and nitrite) fell by ~99% to an average of 0.12±0.07 mg-N/L. <http://www.serdp-estcp.org/content/download/23078/235147/file/ER-200541-FR.pdf>

BIOREMEDIATION/IN SITU CHEMICAL REDUCTION REMEDIATION OF TRICHLOROETHENE IMPACTED GROUNDWATER

Wall, R.C., A.M. Cooper, T. Robertson, J. Paul, and J.M. Medd.

CleanUp 2013: 5th International Contaminated Site Remediation Conference, 15-18 September 2013, Melbourne, Victoria. Presentation D24, 11 slides, 2013

A trial of technologies to evaluate the efficacy of bioremediation and in situ chemical reduction at remediating TCE-contaminated groundwater within a fractured basalt environment was undertaken in July 2011. A custom blend of organic carbon and zero-valent iron (ZVI), a propriety blend of controlled-release organic carbon plus fine-grained particles of ZVI (EHC-F®), and a sodium lactate-based organic amendment were injected into separate well arrays using a helical screw direct-displacement pump and pneumatic packer to transfer the amendment to the treatment zone. Periodically, the injection wells were gravity-fed with organic-based amendments, and three of the wells were bioaugmented with a *Dehalococcoides* culture 10 months after the first injection. Mass reduction and complete reductive dechlorination with resulting molar reduction was evident for some of the trialled compounds, and monitoring for long-term trends continues. A full-scale injection well network of ~90 wells was designed, installed, and injected with EHC® in late 2012. See file D24 in the folder that opens at the link: <http://www.cleanupconference.com/presentations/In%20situ%20remediation%20technologies.zip>

Research

AMENDING SOILS WITH PHOSPHATE AS MEANS TO MITIGATE SOIL LEAD HAZARD: A CRITICAL REVIEW OF THE STATE OF THE SCIENCE

Schechel, G.L. Diamond, M.F. Burgess, J.M. Klotzbach, M. Maddaloni, B.W. Miller, C.R. Partridge, and S.M. Serda.

Journal of Toxicology and Environmental Health, Part B: Critical Reviews, Vol 16 No 6, 337-380, 2013

Phosphate amendments have been studied as a means to mitigate risks from exposure to Pb in soil by promoting the formation of highly insoluble Pb species, such as pyromorphite. The formation of insoluble Pb species thereby reduces the risk of Pb leaching through soils into drinking waters and absorption by soil biota, and likely makes it less bioavailable during physiological transport in the human gastrointestinal tract following incidental ingestion. This paper provides a detailed description of phosphate chemistry and the goal of converting Pb into pyromorphite.

THE EFFECT OF SOIL PROPERTIES ON METAL BIOAVAILABILITY: FIELD SCALE VALIDATION TO SUPPORT REGULATORY ACCEPTANCE

Hawkins, A., M. Barnett, N. Basta, E. Dayton, R. Lanno, S. Casteel, P. Jardine, and K. Savage.

TR-NAVFAC-EXWC-EV-1304, ESTCP Project ER-200517, 278 pp, June 2013

ESTCP Project ER-200517 had the following technical objectives:

1. Provide validation that the relationships between soil properties and in vitro bioaccessibility methods can serve as a screening tool for estimating in vivo toxic metal bioavailability in DoD soils.
2. Provide a scientifically and technically sound method for estimating human and ecological risk associated with metal contaminated soils in place of or as justification for more detailed, site-specific bioavailability (e.g., animal dosing) studies.
3. Promote the use of in vitro methods in human health and ecological risk assessments.

<http://www.serdp-estcp.org/content/download/22833/233127/file/ER-200517-FR.pdf>

BIORED: BIOMARKERS AND TOOLS FOR REDUCTIVE DECHLORINATION SITE ASSESSMENT, MONITORING AND MANAGEMENT

Loeffler, F., K. Ritalahti, E. Edwards, and C. Lebron.

SERDP Project ER-1586, 184 pp, Nov 2013

To overcome current technology limitations and more accurately assess, predict, monitor, and manage reductive dechlorination processes at contaminated DoD sites, this research effort identified novel reductive dechlorination biomarker genes and developed molecular biological tools and approaches that improve the current understanding of target gene presence, abundance, and expression, and thus, contaminant detoxification.

<http://www.serdp-estcp.org/content/download/23154/235722/file/ER-1586-FR.pdf>

PHYTOREMEDIATIVE URBAN DESIGN: TRANSFORMING A DERELICT AND POLLUTED HARBOUR AREA INTO A GREEN AND PRODUCTIVE NEIGHBOURHOOD

Wilschut, M., P.A. Theuvs, and I. Duchhart.

Environmental Pollution, Vol 183, 81-88, Dec 2013

Phytoremediation can be integrated into the transformation of urban post-industrial areas, while improving public space. Buiksloterham, an industrial area contaminated with heavy metals (e.g., zinc) in Amsterdam, serves as case study. A regression-model estimate of the time needed to remediate the site using Alpine Pennycress (*Thlaspi caerulescens*) revealed a conflict in time between remediation and urban development. A research-by-design experiment showed how to overcome this conflict by dealing with contaminated soil innovatively while emphasizing spatial and aesthetic qualities of the phytoremediation plant species. The resulting landscape framework integrated phytoremediation with biomass production, giving new ecological and economic value to Buiksloterham.

BIOSTIMULATION OF ANAEROBIC BTEX BIODEGRADATION UNDER FERMENTATIVE METHANOGENIC CONDITIONS AT SOURCE-ZONE GROUNDWATER CONTAMINATED WITH A BIODIESEL BLEND (B20)

Ramos, D.T., M.L. da Silva, H.S. Chiaranda, P.J. Alvarez, and H.X. Corseuil.
Biodegradation, Vol 24 No 3, 333-341, 2013

Field experiments were conducted to assess the potential for anaerobic biostimulation to enhance BTEX biodegradation under fermentative methanogenic conditions in groundwater containing a biodiesel blend (B20, 20% v/v biodiesel and 80% v/v diesel). One 100-L B20 release was biostimulated with ammonium acetate added weekly through injection wells near the source zone over 15 months. The other release remained unamended to serve as a control. BTEX removal began within 8 months in the biostimulated source zone, whereas BTEX concentrations were still increasing in the control two years after the release due to source dissolution. Biostimulation fortuitously enhanced the growth of putative anaerobic BTEX degraders and associated microorganisms that consume acetate and enhance the thermodynamic feasibility of BTEX fermentation. Field results indicate that anaerobic-methanogenic biostimulation can enhance source zone bioremediation of groundwater aquifers affected by biodiesel blends. <http://alvarez.blogs.rice.edu/files/2013/05/156.pdf>

INFLUENCE OF SOIL GEOCHEMICAL AND PHYSICAL PROPERTIES ON CHROMIUM(VI) SORPTION AND BIOACCESSIBILITY

Jardine, P.M., M.A. Stewart, M.O. Barnett, N.T. Basta, S.C. Brooks, S. Fendorf, and T.L. Mehlhorn.
Environmental Science & Technology, Vol 47 No 19, 11241-11248, 2013

The primary risk driver at DoD sites with Cr(VI) in the soil is hand-to-mouth ingestion of contaminated soil by children. Investigators evaluated the impact of soil geochemical and physical properties on the sorption and bioaccessibility of Cr(VI) in 35 soils. A-horizon soils typically sorbed significantly more Cr(VI) relative to B-horizon soils. Multiple linear regression analysis suggested that the bioaccessibility of Cr(VI) and its reduced counterpart Cr(III) decreased with increasing soil TOC and increasing soil pH. The results of this study help to define what soil types have the greatest risk associated with Cr(VI) exposure.

CAN WE BUILD BETTER COMPOST? USE OF WASTE DRYWALL TO ENHANCE PLANT GROWTH ON RECLAMATION SITES

Naeth, M.A. and S.R. Wilkinson.
Journal of Environmental Management, Vol 129, 503-509, 2013

Varying compositions (15-30% by weight) of coarse and ground waste drywall were added to manure and biosolids during composting. Six composts were applied at four rates (0, 50, 100, 200 Mg/ha) to three reclamation soils (agricultural, urban clean fill, and oil sands tailings). Response to composts was assessed with three plant species: barley, slender wheatgrass, and Rocky Mountain fescue. Although no negative effects were observed after drywall addition, only low-quality tailings sand showed improved plant response following addition of 30% coarse drywall. Grinding drywall did not improve plant performance significantly; hence, use of coarse drywall would eliminate the need for specialized equipment and resources.

PRACTICE-BASED EVIDENCE INFORMS ENVIRONMENTAL HEALTH POLICY AND REGULATION: A CASE STUDY OF RESIDENTIAL LEAD-SOIL CONTAMINATION IN RHODE ISLAND

Thompson, M.R., A. Burdon, and K. Boekelheide.
Science of the Total Environment, Vol 468-469, 514-522, 2014

Lead (Pb) data from environmental soil sampling on 31 residential properties adjacent to six municipal water towers historically coated in Pb-based paint were derived from 498 core samples. Analysis indicated that surface samples alone were insufficient to classify a property as "lead safe." Post-remediation Pb-soil concentrations suggest the extent of Pb contamination might have been deeper than initially determined. Recommendations for improvement include specific modifications to Pb-soil sampling regulations reflective of lowered CDC reference blood Pb value for children 1 to 5 years old (5 µg/dL). <http://www.ecori.org/storage/WaterTowerLeadStudy.pdf>

RM 10.9 REMOVAL ACTION: SEDIMENT-WASHING BENCH-SCALE TESTING REPORT

River Mile 10.9 Removal Action Final Design Report, Lower Passaic River Study Area. U.S. Army Corps of Engineers, Appendix H: 12 pp, 2013

In August 2012, two vendors of sediment washing technologies (BioGenesis and Pear Technology) performed bench-scale treatability tests using bulk sediment samples collected from the Lower Passaic River study area river-mile 10.9. This report summarizes results for key site constituents. The sediment washing bench-scale tests did not achieve the degree of removal required to meet residential soil cleanup standards or provide cost-effective contaminant reductions for disposal at landfills (RCRA Subtitle D versus Subtitle C) for dioxins/furans, PCBs, and PAHs in the RM 10.9 removal area sediments; therefore, the cooperating parties group will not conduct sediment washing at pilot scale. <http://passaic.sharepointspace.com/Public%20Documents/20130731%20RM%2010%209%20Final%20Design%20App%20H%20Bench-Scale%20Rep.pdf>

FIELD EVALUATION OF IN SITU REMEDIATION OF CD-CONTAMINATED SOIL USING FOUR ADDITIVES, TWO FOLIAR FERTILISERS AND TWO VARIETIES OF PAKCHOI

Feng, R., W. Qiu, F. Lian, Z. Yu, Y.-X. Yang, and Z. Song.
Journal of Environmental Management, Vol 124, 17-24, 2013

A field study was conducted to determine the optimal planting mode for pakchoi (*Brassica rapa chinensis*, i.e., bok choy, or Chinese cabbage) in Cd-contaminated soil to reduce accumulation of Cd in the edible parts while maintaining yields. Four additives (red mud, silicon calcium fertilizer, spodium, and calcium magnesium phosphate), two foliar fertilizers (Ca and Zn), and two varieties of bok choy were used in the study. Red mud provided optimal results in reducing Cd accumulation in the edible parts as well as the available Cd concentration in the contaminated soil while simultaneously increasing plant biomass in both bok choy varieties. http://www.aepi.org.cn/Upload/Files/NewsAttatches/2647/additive_201353155343.pdf

PHYTOREMEDIATION USING AROMATIC PLANTS: A SUSTAINABLE APPROACH FOR REMEDIATION OF HEAVY METALS POLLUTED SITES

Gupta, A.K., S.K. Verma, K. Khan, and R.K. Verma.
Environmental Science & Technology, Vol 47 No 18, 10115-10116, 2013

Abundant aromatic plant resources are grown for their essential oils rather than food and hence are unlikely to be consumed by humans or animals. The authors suggest the use of aromatic plants, which can be planted at large scale, as a novel option for phytoremediation of heavy metal contaminated sites and present a conceptual diagram to show the benefits of the proposed use. <http://pubs.acs.org/doi/pdf/10.1021/es403469c>

OCCURRENCE OF DEHALOCOCCOIDES AND REDUCTIVE DEHALOGENASE GENES IN MICROCOSMS, A CONSTRUCTED WETLAND AND GROUNDWATER FROM A CHLORINATED ETHENE CONTAMINATED FIELD SITE AS INDICATORS FOR IN SITU REDUCTIVE DEHALOGENATION

Meszaros, E., G. Imfeld, M. Nikolausz, and I. Nijenhuis.
Water, Air, & Soil Pollution, Vol 224, Paper 1768, 2013

Scientists evaluated the diversity of *Dehalococcoides* sp. and three of their reductive dehalogenase (RDase) genes in groundwater, microcosms set up with contaminated groundwater from the same field site, and water from a constructed wetland. The investigators found that although the *Dehalococcoides* 16S rRNA gene sequences retrieved from the investigated systems were identical, the RDase gene diversity varied among the systems according to the spectrum of the chlorinated ethenes present.

General News

WHITE PAPER ON PCBs IN THE BUILT ENVIRONMENT

American Industrial Hygiene Association (AIHA), 57 pp, 2013

PCBs can emanate from PCB-containing products in building environments in both vapor and particulate form. Secondary sources of PCBs, such as caulk or light ballasts, can contribute to the overall exposures. Building owners and occupants may be unaware of the existence of these materials and their potential hazards. Due to a lack of data on potential exposures from sources in the built environment, it is not clear what the risk from these PCB-containing building materials is when compared to other PCB exposures (e.g., diet). This white paper 1) provides an overview of currently available information pertaining to PCBs in construction materials; 2) evaluates the exposure potential for building occupants and maintenance and construction personnel; and 3) identifies gaps in the current knowledge concerning the risk to public health from PCBs in building materials. <http://www.aiha.org/government-affairs/WhitePapers/PCBs%20in%20Construction%20White%20Paper%20FINAL%20209-26-13.pdf>

TECHNICAL REVIEW WORKGROUP RECOMMENDATIONS REGARDING GARDENING AND REDUCING EXPOSURE TO LEAD-CONTAMINATED SOILS

U.S. EPA, Office of Solid Waste and Emergency Response.
OSWER 9200.2-142, 22 pp, Dec 2013

This document provides an overview of potential exposure to lead (Pb) while gardening and consuming home-grown produce. Based on currently available information, best management practices (BMPs) are suggested for gardening in Pb-contaminated areas to reduce Pb exposure in contaminated soil. The BMPs are based on a review of the literature and best professional judgment to identify appropriate risk-mitigating actions associated with the varying ranges of soil

Pb concentrations in produce gardens. Key data gaps and uncertainties are noted. The U.S. EPA Technical Review Workgroup for Lead website at <http://epa.gov/superfund/lead/trw.htm> is an additional source of background information on Pb exposure and risk assessment. <http://www.epa.gov/superfund/lead/products/FINAL%20TRW%20Lead%20Committee%20Gardening%20Recommendations.pdf>

FY2014 SUPERFUND REMEDIAL PROGRAM REVIEW ACTION PLAN

U.S. EPA, 43 pp, 26 Nov 2013

The Superfund remedial program has sustained substantial budget reductions over the past two fiscal years. This action plan, the result of a remedial program review, identifies short- and long-term measures and activities EPA will undertake to maintain an effective remedial cleanup program under budgetary constraints. The plan is divided into two major sections: Cleanup Process and Program Management Actions. The cleanup processes sections discuss adaptive management (an iterative process that allows modifications to remedial approaches based on newly acquired information) and the assessment, study, design and construction phases of the remedial process. The program management activities outline actions to use internal Agency resources, such as contracts (acquisitions), budget, in-house expertise, and information technology, more efficiently. [http://www.epa.gov/superfund/cleanup/pdfs/Final_SPR_Action_Plan-11_26_2013_\(2\).pdf](http://www.epa.gov/superfund/cleanup/pdfs/Final_SPR_Action_Plan-11_26_2013_(2).pdf)

CONTINUOUS SOIL GAS MEASUREMENTS: WORST CASE RISK PARAMETERS

Everett, L. and M. Kram (eds).
ASTM International, Reston, VA. STP1570, ISBN-PRINT: 978-0-8031-7585-3, 181 pp, 2013

This compilation contains peer-reviewed papers presented at the 2013 ASTM symposium in Jacksonville, Florida, which addressed methods for identifying and managing vapor intrusion risks. Prevailing sampling programs may fail to characterize vapor intrusion problems fully due to extreme spatial and temporal variability of VOCs and methane at contaminated sites. Ideally, where vapor intrusion risks are dynamic, vapor intrusion investigations also will be dynamic, and the investigations will involve continuous monitoring rather than one or two discrete monitoring events. The papers in this volume summarize state-of-the-art thinking on vapor intrusion by an international team of authors. The table of contents and chapter abstracts are available at http://www.astm.org/DIGITAL_LIBRARY/STP/SOURCE_PAGES/STP1570.htm.

WASTE LANDS: AMERICA'S FORGOTTEN NUCLEAR LEGACY

Singer-Vine, J., J.R. Emshwiller, N. Parmar, and C. Scott.
Wall Street Journal Projects website, 2013

The Wall Street Journal has compiled a database that draws on thousands of public records and other sources to trace the historic development of atomic power in the United States and its consequences. The website identifies the Manhattan Project sites and the progress of their cleanup. <http://projects.wsj.com/waste-lands/>

ALL APPROPRIATE INQUIRIES RULEMAKING UPDATE

U.S. EPA, Brownfields Newsroom Announcements, 2013

On December 30, 2013, EPA published a final rule amending the All Appropriate Inquiries (AAI) Rule to reference ASTM International's E1527-13, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" and allow for its use to comply with the AAI Rule (78 FR 79319). ASTM (www.astm.org) regularly reviews and revises its standards, and it recently revised the 2005 version of E1527. Among other changes, the E1527 2013 version states that Phase I environmental site assessments must include, within the scope of the investigation, an assessment of the real or potential occurrence of vapor migration and vapor releases on, at, in, or to the subject property. Other than recognizing the new ASTM E1527-13 standard as compliant with the AAI rule, there are no changes to the final rule setting standards and practices for conducting AAI at 40 CFR Part 312. See the Federal Register notice, "Amendment to Standards and Practices for All Appropriate Inquiries under CERCLA" at <https://www.federalregister.gov/articles/2013/12/30/2013-31112/amendment-to-standards-and-practices-for-all-appropriate-inquiries-under-cercla>.

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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