

Technology Innovation News Survey

Entries for February 16-28, 2015

Market/Commercialization Information

MUNITIONS RESPONSE ACTION SERVICES AT VIEQUES, PUERTO RICO AND OTHER SITES IN NAVFAC ENGINEERING COMMAND, ATLANTIC AOR

Naval Facilities Engineering Command, NAVFAC Atlantic, Norfolk, VA.
Federal Business Opportunities, FBO-4873, Solicitation N6247015R8000, 2015

NAVFAC Atlantic seeks to determine the availability and adequacy of potential qualified 8(a), HUBZone, service-disabled veteran-owned, and other small business concerns interested in submitting a proposal as a prime contractor for munitions response actions performed mainly at former Navy facilities on Vieques, Puerto Rico, and at other sites located on Navy and Marine Corps installations. The contractor shall perform investigations, removals, and remedial services in terrestrial and aquatic environments to locate, identify, recover, evaluate, manage, and perform final disposition of munitions and other debris removed from the site as designated in individual Task Orders. The Government contemplates the award of a cost-plus-fixed-fee IDIQ munitions response actions contract with an estimated ceiling of \$95M for a base year and four one-year options, NAICS code 562910. Projects typically are \$10M or more. Responses to the sources sought are due by April 21, 2015. <https://www.fbo.gov/spg/DON/NAVFAC/N6247015R8000/N6247015R8000/listing.html>

ARCHITECT-ENGINEERING SERVICES FOR HAZARDOUS TOXIC AND RADIOLOGIC WASTE (HTRW) PROJECTS, VARIOUS LOCATIONS IN NORTH ATLANTIC DIVISION

U.S. Army Corps of Engineers, USACE District, New England, Concord, MA.
Federal Business Opportunities, FBO-4873, 2015

The USACE New England District plans to acquire both small business and unrestricted IDIQ contracts to provide HTRW A-E Services. The NAICS code for this procurement is 541330, with a small business size standard of \$15M. Projects could involve all phases of work under the RCRA/CERCLA programs. Work will be issued by negotiated performance-based and firm-fixed-price Task Orders, primarily within the New England and New York Districts and potentially at other locations within the North Atlantic Division. Both solicitations will be available through FedBizOpps in early April 2015. Contract awards are expected in summer 2015.

Solicitation W912WJ-15-R-0038 (Small Business): Up to six IDIQ small business contracts will be negotiated and awarded with a five-year ordering period. The amount of two of the contracts set aside for small businesses only will not exceed \$5M each. Up to four remaining contracts, not to exceed \$2.5M each, are set aside for a pool of firms such as service-disabled veteran-owned small business (SDVOSB), economically disadvantaged woman-owned small business (EDWOSB), and/or 8(a) small business.
<https://www.fbo.gov/spg/USA/COE/DACA33/W912WJ-15-R-0038/listing.html>

Solicitation W912WJ-15-R-0039 (Unrestricted): A single contract will be negotiated and awarded with a five-year ordering period, not to exceed \$10M.
<https://www.fbo.gov/spg/USA/COE/DACA33/W912WJ-15-R-0039/listing.html>

Cleanup News

FORMER NAS CECIL FIELD, JACKSONVILLE, FLORIDA

2014 Secretary of Defense Environmental Awards, 2014

Cleanup efforts at the former Naval Air Station Cecil Field were recognized with a 2014 Base Realignment and Closure Cleanup Team Award. RODs have been signed and remedies implemented for all 25 CERCLA sites, and 99% of the total 17,225 acres has been transferred. Innovative remediation techniques implemented during cleanup include the following: (1) A solar-powered pilot-scale air sparging system was installed at Site 3 in 2012 to prevent contaminated groundwater from discharging into the nearby creek. The system is still in the pilot stage but has functioned with very little down time or need for maintenance and repairs. (2) ORC Advanced™ injection at the BP Wells petroleum site treated groundwater contamination directly, quickly, and effectively. Concentrations of 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and total xylenes in site groundwater are nearing regulatory limits after exceeding the limits by more than an order of magnitude prior to injection. (3) Beginning in 2008, a bioparging system was installed to treat TCE contamination in groundwater at Site 59. The system was adapted and expanded in 2011 to treat the only remaining hot spot, and is achieving significant concentration reductions. <http://www.denix.osd.mil/awards/upload/Naval-Air-Station-Cecil-Field-BRAC-Cleanup-Team.pdf>

EX SITU THERMAL SUSTAINABLE REMEDIATION OF TPH IMPACTED SOILS

Kessel, L., G. Geckeler, and C. Winell.

EcoForum Conference & Exhibition, 29-31 October 2014, Gold Coast, Australia. Presentation E036, Abstract only, 2014

Remedial goals at this diesel-contaminated site were to treat the contaminants of concern to levels 3 of mixed sands and diesel-impacted soils totaling a target treatment volume of 77,692 ft³ was removed from the vadose zone to a depth of 5 ft bgs and stockpiled about 100 ft north of the source area atop an impermeable barrier. Following soil excavation, the contractor installed 36 gas thermal remediation (GTR®)-type thermal conduction heating wells and soil vapor extraction wells into the pile in accordance with action plan detailing for ex situ thermal desorption (ESTD). Soil heating and LNAPL extraction continued for an average duration of 45 days, to an average target treatment temperature of 200°C. An average of 191 kW per ton of soil was used in ESTD remediation of the treatment volume. The project achieved remedial goals (average reduction in TPH concentration of 99.7%) without disruption to site activities and received a No Further Action notice. The treated soils were reused on site as road base. <http://www.ecoforum.net.au/In%20Program/E029%20Iwell%20Kessel.pdf>

CHALLENGES IN PLANNING FOR GROUNDWATER REMEDY TRANSITION AT A COMPLEX SITE

O'Steen, W.N. and R.O. Howard, Jr.

2014 National Ground Water Association Groundwater Summit, 12 pp, 2014

Complex groundwater contamination sites require comprehensive, structured groundwater monitoring in planning for transition to a new groundwater remedy. This paper provides as an example the Medley Farm Superfund site, a former waste solvent dump located in South Carolina. Groundwater affected by PCE, TCE, and their degradation products was addressed with pump and treat from 1995 to 2004. Between October 2004 and April 2012, injection of a lactate solution to promote enhanced reductive dechlorination (ERD) was tested on multiple occasions, with positive responses in hydrogeochemistry and groundwater quality. In 2012, EPA issued an amended ROD, changing the groundwater remedy to ERD. MNA was selected as a contingency remedy in anticipation that ERD might transition to MNA as cleanup progresses. Restructuring the site's monitoring and data evaluation program will enable EPA to discern treatment effects and facilitate MNA evaluation more effectively. <http://clu-in.org/download/techfiles/bio/Challenges-in-Planning-for-Groundwater-Remedy-Transition-at-a-Complex-Site-Feb-2015.pdf>

COMPENDIUM OF REDEVELOPMENT SUCCESSSES AT PETROLEUM UNDERGROUND STORAGE TANK SITES, VERSION 1

Association of State and Territorial Solid Waste Management Officials (ASTSWMO) LUST Task Force, Tanks Subcommittee, 36 pp, 2014

Underground storage tank release sites historically have been located on main thoroughfares and busy intersections. Remediation of these sites can offer redevelopment opportunities for new business ventures. This compendium documents redevelopment efforts that have occurred over the last few years. The 21 site-specific stories were developed by individual state tanks programs and provided to ASTSWMO for use in this compendium. Each story briefly describes the site, identifies contamination problems and cleanup measures, and describes the redevelopment process. New redevelopment stories will be added in future updates.

[http://www.astswmo.org/Files/Policies_and_Publications/Tanks/2014%2012_Tanks-Redevelopment-Compendium_v1%20Final%20\(2\).zip](http://www.astswmo.org/Files/Policies_and_Publications/Tanks/2014%2012_Tanks-Redevelopment-Compendium_v1%20Final%20(2).zip)

COMPENDIUM OF EMERGENCY RESPONSE ACTIONS AT UNDERGROUND STORAGE TANK SITES, VERSION 2

Association of State and Territorial Solid Waste Management Officials (ASTSWMO), LUST Task Force, Tanks Subcommittee, 43 pp, 2014

ASTSWMO's LUST Task Force released Version 1 of this compendium in October 2012 and now has prepared Version 2 to document examples of emergency response actions that have occurred within the last few years. The compendium will be updated periodically to provide interested parties with an understanding of the types of emergency response actions that are often undertaken and the need to have adequate manpower and financial resources available for proper response and oversight of emergency actions at UST sites. The site-specific fact sheets in this compendium were developed and provided to ASTSWMO by individual state tank programs.

http://www.astswmo.org/Files/Policies_and_Publications/Tanks/2014_07_LUST%20ER%20Compendium_v2_Final.pdf

Demonstrations / Feasibility Studies

IN SITU CO₂ SPARGING. I. NEUTRALIZATION OF A CAUSTIC BRINE PLUME AND REDUCTION OF MERCURY LEVELS

Carbonaro, R.F., R.D. Mutch Jr., D.C. Changa-Moon, P.K. Gupta, J.J. Morris, A. Nambiar, L. Cordone, and J.M. O'Loughlin.
Journal of Hazardous, Toxic, and Radioactive Waste, Vol 19 No 1, Paper C4014005, 2015

When used as an alternative to air as a gas for in situ sparging, CO₂ acts as a weak acid that can lower groundwater pH. In situ sparging of gaseous CO₂ was demonstrated to be an effective means to neutralize a caustic brine plume and to reduce concentrations of Hg and other heavy metals in a pilot-scale system comprising two sparge wells and 13 monitoring wells installed at varying depths and radial distances up to 100 ft. The monitoring wells were equipped with data-logging field electrodes for continuous pH monitoring and with automatic data loggers to monitor water level mounding and collapse during intermittent sparging operations. The plume lies at the base of a moderately permeable aquifer at depths ranging from 30 to 50 ft bgs and exhibits high pH levels ranging from 10.5 to 12.0, densities as high as 1.06 g/mL, and Hg concentrations ranging from 50 to 1,000 µg/L. The pilot test demonstrated that pH within an aquifer volume of ~6,500 ft³ could be reduced to near-neutral pH. A radius of influence (ROI) of at least 20 ft was achieved in the deep aquifer, with significantly larger ROIs in the intermediate and shallow portions of the aquifer. Hg levels declined by 80-90% in monitoring wells where the pH fell to near 7, along with significant declines in silica, As, and Cr concentrations. Based primarily on the successful pilot results, a full-scale CO₂ sparging system to treat the 8-acre caustic brine plume is underway.

APPLICATION OF EMULSIFIED SUBSTRATE BIOBARRIER TO REMEDIATE TCE-CONTAMINATED GROUNDWATER: PILOT-SCALE STUDY

Kuo, Y.C., S.H. Liang, S.Y. Wang, S.H. Chen, and C.M. Kao.

Journal of Hazardous, Toxic, and Radioactive Waste, Vol 18 No 2, Paper 04014006, 2014

An in situ biobarrier system containing an emulsified substrate (ES) comprising soybean oil, lactate, biodegradable surfactant, and nutrients was evaluated for its potential to enhance reductive dechlorination of a TCE plume and inhibit its migration. In a field study, 150 L of ES solution was pressure-injected into three remediation wells located in the upgradient area of the plume to form a biobarrier. Total organic carbon increased from 12 mg/L before ES injection to 9,800 mg/L after 45 days of ES injection, and then slowly declined to 1,500 mg/L after 230 days of operation. Complete consumption of groundwater dissolved oxygen in the injection wells (from 0.6 down to 0 mg/L) occurred within 5 days of ES injection. Results also show that TCE concentrations dropped from 140 to Ralstonia sp., Clostridium sp., uncultured Burkholderiales bacterium, Hydrogenophaga sp., Acidovorax sp., Hydrocarboniphaga sp., uncultured Curvibacter sp., Pseudomonas sp., Comamonas sp., Aquabacterium sp., and Variovorax strains. Results indicate that the injected ES enhanced the anaerobic dechlorination of TCE, and the developed biobarrier contained the TCE plume effectively.

COUPLING OXIDATIVE AND REDUCTIVE TREATMENT TECHNOLOGIES FOR INTEGRATED SITE REMEDIATION

Bryant, D.

RemTEC Summit Conference, March 2-4, 2015, Westminster, Colorado. Abstract only, 2015

A novel combination of technologies was implemented at pilot scale to address a site characterized by relatively high source area TCE concentrations, low permeability saprolite and highly transmissive bedrock, low natural attenuation, and a large plume area with limited accessibility. In situ chemical oxidation using potassium permanganate in the source area was integrated with zero-valent iron (ZVI) chemical reduction barriers in the downgradient plume area. Reagents were injected as high-solids slurries. Monitoring results show that permanganate persists in the source area groundwater, with a radius of influence of up to 40 ft and VOC reductions of 84-100%. Coring has documented that the ZVI was distributed at least 15 ft horizontally from each boring, with associated shifts in pH and ORP. VOC reductions range from 46-100% in monitoring wells farther downgradient of the ZVI barrier. Full-scale expansion of the pilot remedies is underway. See additional details in a journal article at <http://www.gecleanse.com/assets/2014/07/Pollution-Engineering-Geo-Cleanse.pdf>.

PILOT-SCALE DECONTAMINATION OF SMALL-ARMS SHOOTING RANGE SOIL POLLUTED WITH COPPER, LEAD, ANTIMONY, AND ZINC BY ACID AND SALINE LEACHING

Guemiza, K., G. Mercier, and J.-F. Blais.
Journal of Environmental Engineering, Vol 141 No 1, Paper 04014054, 2015

The performance of a chemical leaching process was evaluated for metals removal from a fine (99.9% Pb, 95.1% Sb, and 99.9% Zn for Batoche soil, and 90.4% Cu, >99.7% Pb, 79.1% Sb, and >99.9% Zn for Normandie soil) by adding sodium hydroxide until pH=9.

Research

THE PLUME FRINGE: A ZONE OF INCREASED POTENTIAL FOR BIODEGRADATION IN CONTAMINANT PLUMES

Cieslak, L., S. Thornton, and S. Rolfe.
Contaminated Land: Applications in Real Environments (CL:AIRE), London. AB8, 4 pp, 2015

Groundwater quality data (including hydrogeochemistry and microbiology analysis) are necessary to interpret contaminant fate, redox processes, and biodegradation potential in aquifers to support the monitoring of natural attenuation and other remediation approaches. The spatial variability in redox processes and relative distribution of microbial populations mediating biodegradation is similar in many organic contaminant plumes. The plume core with the highest contaminant mass is usually highly reducing and often characterized by relatively slow anaerobic biodegradation processes. In contrast, at the less reducing plume fringe (interface between the plume and background groundwater), in situ biodegradation potential typically is enhanced by transverse mixing of contaminants with background groundwater that contains a higher proportion of soluble oxidants (e.g., dissolved oxygen and nitrate). The plume fringe provides optimal conditions for microorganisms to biodegrade organic contaminants. Using field and laboratory data from two UK sites contaminated with different organic compounds, this bulletin presents the concept of the plume fringe and its role in biodegradation of contaminant plumes. http://www.daire.co.uk/index.php?option=com_phocadownload&view=file&id=458&Itemid=230

AN INTEGRATED FIELD AND LABORATORY STUDY OF THE BIOAVAILABILITY OF METAL CONTAMINANTS IN SEDIMENTS

Fisher, N.
SERDP Project ER-1494, 390 pp, 2012

In this project, worms were fed sediments collected from geochemically diverse estuaries to evaluate the influence of sediment geochemistry on bioavailability of arsenic, cadmium, and chromium in deposit-feeding polychaetes. The sediments were labeled by sorbing dissolved radiotracers or mixing with radiolabeled algae. Metal phase speciation in sediments was determined with a sequential extraction scheme, and assimilation efficiencies of ingested metals were determined by pulse-chase feeding experiments using gamma-emitting isotopes. <https://www.estcp.com/content/download/32768/319739/file/ER-1494-ER.pdf>

AN ASSESSMENT OF AQUIFER/WELL FLOW DYNAMICS: IDENTIFICATION OF PARAMETERS KEY TO PASSIVE SAMPLING AND APPLICATION OF DOWNHOLE SENSOR TECHNOLOGIES

Britt, S., J. Martin-Hayden, and M.A. Plummer.
SERDP Project ER-1704, 96 pp, 2014

Contaminant redistributive effects in wells are nearly always present. Complete mixing appears to be very common; however, it is not universal. There is a continual balance between inflowing contaminant stratification (where present) and factors driving in-well mixing. Findings in this project imply common and very small drivers are responsible for slow but vigorous mixing relative to the residence time of water flowing through a typical well screen; therefore, a tendency toward homogenization is anticipated to be common in field conditions. Most wells should experience strong redistribution effects, but some wells may maintain stratification or perhaps re-stratify differently from the surrounding formation. Better understanding in the environmental community that wells often represent a mixed flow-weighted average of the adjacent formation chemistry can yield cost savings in both short- and long-term timeframes by accelerating the approval process for nonpurge alternative sampling strategies, including passive sampling and in situ sensor technologies. <https://www.serdp-estcp.org/content/download/32774/319789/file/ER-1704-ER.pdf>

ACTIVATED CARBON PRECONDITIONING TO REDUCE CONTAMINANT LEACHING IN CEMENT-BASED STABILIZATION OF SOILS

Crane, R.E., D.P. Cassidy, and V.J. Srivastava.
Journal of Environmental Engineering, Vol 140 No 10, Paper 04014032, 2014

Adding powdered activated carbon (PAC) with cement can enhance stabilization and solidification (SS) by adsorbing organic contaminants. Simultaneous addition of PAC and cement reduces soil-handling costs, but cement-hydration reactions coat PAC with calcium hydroxide before contaminants can be adsorbed onto PAC. Results from lab studies done on four aged, contaminated soils from manufactured gas plant sites showed that allowing a 20-week PAC preconditioning time dramatically enhanced leaching and strength compared with adding cement and PAC simultaneously, whereas adding cement at the same time as PAC resulted in only slight improvements in leaching and strength compared with adding cement alone.

BIOVENTING IN A RESIDUAL CLAYEY SOIL CONTAMINATED WITH A BLEND OF BIODIESEL AND DIESEL OIL

Thome, A., C. Reginatto, I. Cecchin, and L.M. Colla.
Journal of Environmental Engineering, Vol 140 No 11, Paper 06014005, 2014

Biodegradation of a blend of 80% diesel and 20% biodiesel (B20) in clayey soil was investigated using bioventing and natural attenuation (NA). The tests were carried out in bioreactors with soil contaminated with 4% of B20. Three airflow intensities (2, 4, and 6 L/min) were tested in three different airflow intervals (1 h every 24, 36, and 48 h). Contaminant degradation was determined by the contaminant's residual fraction in the soil after 15, 30, 60, and 120 days. Bioventing returned a higher contaminant degradation rate of 85%, while NA achieved 64%. Airflow intensities and airflow intervals showed no significant differences in results. The authors suggest that use of the lowest airflow intensity (2 L/min) and the longest airflow interval (1-h application each 48 h) might be the most economically viable bioventing scenario.

GOWANUS CANAL SUPERFUND SITE. II: STABILIZATION/SOLIDIFICATION OF MGP-IMPACTED SEDIMENTS

Gentry, J.L., M.R. Niemet, D.G. Grubb, M. Bruno, D.R. V. Berggren, and C.D. Tsiamis.
Journal of Hazardous, Toxic, and Radioactive Waste, Vol 19 No 1, Paper C4014004, 2015

The sediment of the 1.8-mile long canal is affected at multiple locations by measured NAPL saturations up to 50%, mainly from three former manufactured gas plant sites. A stabilization/solidification treatability study was completed using 15 mix designs in a tiered testing suite that included unconfined compressive strength, hydraulic conductivity, and contaminant leach testing by equilibrium and semidynamic leach methods, where semidynamic leach testing was modified with polydimethylsiloxane liners. Mix designs contained 5-10% (by dry weight) of a cement blend paired with 0.5% bentonite, or 1-4% organoclay added to wet NAPL-impacted sediments. Leaching reductions for key contaminant naphthalene ranged from 89-93% for all mix designs compared to untreated baseline conditions. The chief contributor to leaching reduction appeared to be a decrease in the hydraulic conductivity value rather than the inclusion of a hydrophobic organic sorbing phase. http://www.enviroblend.com/userdata/userfiles/file/RE3%202014/2014%20Presentations/Gentry_RE3%20Gowanus%20MGP%20Final.pdf

SULFATE REDUCING BIOREACTOR DEPENDENCE ON ORGANIC SUBSTRATES FOR LONG-TERM REMEDIATION OF ACID MINE DRAINAGE: FIELD EXPERIMENTS

Walters, Evan Robert, Master's thesis, Southern Illinois University, Carbondale. 161 pp, 2014

Alternating ratios of herbaceous matter (leaves, grass, spent brewing grains) and ligneous (maple wood chips and saw dust) reactor matrices were tested to determine the optimal mixture of substrate types to use in five anaerobic sulfate-reducing bioreactors (ASRBs) installed alongside one control reactor containing only limestone at the Tab-Simco abandoned coal mine site in southern Illinois. Results documented contaminant removal in all the reactors via sulfate-reducing microbial (SRM) populations that contributed to enhanced removal of sulfate, Fe, and trace metals (Cu, Cd, Zn, Ni). SRM activity was dependent on temperature, with bioreactors exhibiting decreases in both effluent sulfide concentrations and $\text{p}^{\text{H}}\text{S}$ -depletion of sulfate during low-T months (i.e., http://lilianalefcaru.weebly.com/uploads/2/0/9/1/20917354/walters_thesis_final_2013.pdf)

CAPTURE ZONE COMPARISON FOR PHOTOVOLTAIC MICROGRID-POWERED PUMP AND TREAT REMEDIATION

Conroy, J.P., A.C. Elmore, and M. Crow.
Journal of Hazardous, Toxic, and Radioactive Waste, Vol 18 No 3, Paper 04014009, 2014

This paper describes a hypothetical renewable energy-powered pump-and-treat remediation system that uses an off-grid photovoltaic array to power a submersible solar water pump. The pump operates on an intermittent schedule predicted by available solar irradiance. The intermittently operated pump generates an effective capture zone defined by multiple transient capture zones. Effective capture zones were modeled using Visual MODFLOW and MODPATH and compared against a continuously pumped steady-state capture zone. The comparison showed that a renewable energy-powered intermittently pumped remediation system performs 90% as effectively as a utility-powered continuously pumped remediation system and is cost-effective when the capital cost and annual costs of the utility-powered system exceed the capital cost of the renewable-energy powered system.

SUITABILITY OF OIL BIOREMEDIATION IN AN ARCTIC SOIL USING SURPLUS HEATING FROM AN INCINERATION FACILITY

Couto, N., J. Fritt-Rasmussen, P.E. Jensen, M. Hojrup, A.P. Rodrigo, and A.B. Ribeiro.
Environmental Science and Pollution Research, Vol 21 No 9, 6221-6227, 2014

A 168-day field study was carried out in Sisimiut, Greenland, to assess the potential of enhancing soil remediation with surplus heat from an incineration facility and the feasibility of extending ex situ bioremediation throughout the year at low cost. Individual and synergistic effects of biostimulation also were tested in parallel. At the end of the first 42 days, biostimulation and active heating as separate treatments had enhanced petroleum hydrocarbon (PHC) removal compared to natural attenuation, and coupling the technologies was even more effective. Between day 42 and day 168, however, biostimulation and active heating, separately or together, yielded no significant decrease in PHC levels, whereas PHC values continued to decline in the natural attenuation zone. Coupling biostimulation with active heating over the short term delivered the best results for PHC removal, and that strategy can be considered a viable option for faster PHC removal with low maintenance using waste heat from an incineration facility.

BIOPOLYMER AS AN ALTERNATIVE TO PETROLEUM-BASED POLYMERS TO CONTROL SOIL EROSION— IOWA ARMY AMMUNITION PLANT: ESTCP COST AND PERFORMANCE REPORT

ESTCP Project ER-200920, 59 pp, Nov 2013

This project examined the use of a nontraditional soil additive, a biopolymer, as a substitute for the petrochemical-based synthetic polymers currently used to increase soil resistance to erosion. The biopolymer offers several advantages over the synthetic polymers, including rapid revegetation and reduced transport of solids in runoff water. The use of synthetic polymers can be problematic from the standpoint of biodegradation, cost, availability, and logistics. The biopolymers examined in this study are a natural material of low density that can be transported in a dry state and reconstituted with local water supply. <https://www.serdp-estcp.org/content/download/29849/289466/file/ER-200920-CP.pdf>

General News

STATE REGULATIONS AND POLICIES FOR CONTROL OF NATURALLY-OCCURRING AND ACCELERATOR PRODUCED RADIOACTIVE MATERIALS (NARM) AND TECHNOLOGICALLY ENHANCED NATURALLY-OCCURRING RADIOACTIVE MATERIALS (TENORM)

Association of State and Territorial Solid Waste Management Officials (ASTSWMO), Radiation Focus Group, 17 pp, 2014

Between 2011 and 2014, the ASTSWMO Radiation Focus Group requested regulatory information from all state waste and/or radiation programs specific to licensing and disposal of NARM, NORM, and TENORM. Forty states responded, and the information received is provided in this report with a short analysis. This report does not include recommendations for state or federal programs. http://www.astswmo.org/Files/Policies_and_Publications/Materials_Management/State%20Statutes%20and%20Regulations%20on%20TENORM%20Final%20Dec%202014.pdf

PHYTO2ENERGY

Institute for Ecology of Industrial Areas, FP7-PEOPLE-2013-IAPP, 2015

The goal of the Phyto2Energy project is to develop and validate a novel approach that combines phytoremediation and biomass production on sites contaminated with heavy metals to engender feedstock for local energy uses. The innovation is to demonstrate a complex solution that covers the whole value chain, from setting a brownfield management target through producing a successful crop to preparing biofuel feedstock and finally to converting the biomass to energy in a local small-scale gasification installation. The 48-month project commenced operation on February 1, 2014, with six EU partners: three commercial firms and three academic/institute organizations. Visit the project website <http://www.phyto2energy.eu/>.

PRACTICAL DESIGN CALCULATIONS FOR GROUNDWATER AND SOIL REMEDIATION, SECOND EDITION

Kuo, J.
CRC Press, Boca Raton, FL. ISBN: 9781466585232, 320 pp, 2014

This latest edition covers important aspects of major design calculations as well as practical and relevant working information for groundwater and soil remediation. Liberal use of realistic examples illuminates the design calculation applications to assist readers in building the right concepts. The text illustrates the engineering calculations needed during site assessment and remedial investigation; continues with a discussion on plume migration in soil and groundwater; and then covers the mass-balance concept, reaction kinetics, and the types, configurations, and sizing of reactors. The author presents design calculations for capture zone and optimal well spacing and incorporates important design calculations for commonly used in situ and ex situ remediation technologies, such as soil venting, air sparging, air stripping, bioremediation, chemical oxidation, and off-gas treatment. *See the table of contents with abstracts at* <http://www.crcnetbase.com/isbn/9781466585232>.

UNIFORM ENVIRONMENTAL COVENANTS ACT: IMPLEMENTATION AT FEDERAL FACILITIES

Association of State and Territorial Solid Waste Management Officials (ASTSWMO), Remediation and Reuse Focus Group, 88 pp, 2015

ASTSWMO developed this report to evaluate how the Uniform Environmental Covenants Act (UECA) is being used at federal facilities. This document provides an introduction to land use controls (LUCs) and the UECA; summarizes state-specific regulations and policies specific to UECA and LUCs; analyzes information provided by states concerning the use of UECA and LUCs at federal facilities; and offers recommendations for states. Six case studies are provided, including studies from states that use alternative statutes for LUCs. http://www.astswmo.org/Files/Policies_and_Publications/Federal_Facilities/2015-01-ASTSWMO%20UECA%20at%20FF%20Issues%20Paper_FINAL.pdf

ENHANCING THE HYDRAULIC CONDUCTIVITY OF HORIZONTAL REMEDIATION WELLS

Lubrecht, M., D.W. Ombalski, and B. Younkin.
IPEC 2014: 21st Annual International Petroleum Environmental Conference, 13-16 October 2014, Houston, Texas. 20 slides, 2014

This presentation briefly describes the evolution of horizontal well construction for environmental wells, enumerates the current best practices for constructing such a well, and highlights some of the currently available products that may be specified for their installation. http://ipec.utulsa.edu/Conf2014/Full_Manuscripts_Presentations_Speech/Lubrecht.pdf

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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