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KEY=CHEMICALS - JAQUAN REYNA

ANALYSIS, FATE, ENVIRONMENTAL AND PUBLIC HEALTH EFFECTS, REMEDIATION, AND REGULATION

ABSTRACTS AND SUPPLEMENTAL INFORMATION

CHEMICALS IN THE ENVIRONMENT

FATE, IMPACTS, AND REMEDIATION

Amer Chemical Society Chemicals in the Environment: Fate, Impacts, and Remediation is devoted to the broad review of metals and organic compounds in the environment. The volume focuses on three main aspects of chemicals in the environment: 1) fate and transport in soil, sediment, water and air; 2) resulting environmental impacts in the environment, wildlife, and humans, and 3) remediation methodologies and applications. An introductory chapter examines the history of metals and organic chemicals in the environment, exposure to these chemicals through food, air and water, identification of chemical hazards, process and scope of ecological impairment, fate and transport modeling, impacts and monitoring, and remediation methods.

TOTAL PETROLEUM HYDROCARBONS

ENVIRONMENTAL FATE, TOXICITY, AND REMEDIATION

Springer The term “total petroleum hydrocarbons” (TPHs) is used for any mixture of several hundred hydrocarbons found in crude oil, and they represent the sum of

volatile petroleum hydrocarbons and extractable petroleum hydrocarbons. The petrol-range organics include hydrocarbons from C6 to C10, while diesel-range organics are C10-C28 hydrocarbons. Environmental pollution by petroleum hydrocarbons is one of the major global concerns, particularly in oil-yielding countries. In fact, there are more than five million potentially contaminated areas worldwide that represent, in general, a lost economic opportunity and a threat to the health and well-being of humans and the environment. Petroleum-contaminated sites constitute almost one-third of the total sites polluted with chemicals around the globe. The land contamination caused by industrialization was recognized as early as the 1960s, but less than a tenth of potentially contaminated lands have been remediated due to the nature of the contamination, cost, technical impracticability, and insufficient land legislation and enforcement. This book is the first single source that provides comprehensive information on the different aspects of TPHs, such as sources and range of products, methods of analysis, fate and bioavailability, ecological implications including impact on human health, potential approaches for bioremediation such as risk-based remediation, and regulatory assessment procedures for TPH-contaminated sites. As such, it is a valuable resource for researchers, graduate students, technicians in the oil industry and remediation practitioners, as well as policy makers.

PETROLEUM CONTAMINATED SOILS

REMEDIATION TECHNIQUES, ENVIRONMENTAL FATE, AND RISK ASSESSMENT

CRC Press These three volumes provide valuable information to help bring rational and scientifically feasible solutions to petroleum contaminated soils. State-of-the-art information on both technical and regulatory issues is covered, including environmental fate, health effects, risk assessment and remedial alternatives. They show why petroleum contaminated soils are a problem - and propose solutions for that problem. These books are an excellent reference for regulatory personnel and environmental consultants at all levels.

ANALYSIS, FATE, ENVIRONMENTAL AND PUBLIC HEALTH EFFECTS, AND REMEDIATION

ABSTRACTS AND SUPLEMENTAL INFORMATION

GEOENVIRONMENTAL ENGINEERING

CONTAMINATED GROUND : FATE OF POLLUTANTS AND REMEDIATION

Thomas Telford Throughout the world there is an ever increasing awareness of the importance of environmental issues. Pollution of the natural environment is welfare. Nevertheless, economic stability and prosperity necessitate the continuation of such activities and society faces the challenge of minimising the resulting adverse effects. This substantial volume is the proceedings of the British Geotechnical Society's major conference for geo-environmental engineering of contaminated land.

HYDROCARBON CONTAMINATED SOILS AND GROUNDWATER

ANALYSIS, FATE, ENVIRONMENTAL & PUBLIC HEALTH EFFECTS, & REMEDIATION

CRC Press Proceedings of the February 19-22, 1990, conference held at Newport Beach, California. Conference Directors: PAUL T. KOSTECKI, EDWARD J. CALABRESE, and CHARLES E. BELL. Advisory Committee: RICHARD BOZEK, EEI; TERRY BRAZEL, SWRCB; MARK COUSINEAU, AG; SETH DAUGHERTY, Orange County; RALPH De La PARRA, SCE; JERRY HAGGY, Shell; JOHN HANBY, HAL; JOHN HILL, ICF; JOHN HILLS, City of Anaheim; DOROTHY KEECH, Chevron; BILL KUCHARSKI, WC; DAVID LEU, Mittel Hauser; MARY McLEARN, EPRI; PHIL OLWIN, Texaco; DENNIS PAUSTENBACH, MC; ART POPE, ARCO; LYNNE PRESLO, Weston; DON ROTHENBAUM, KA; KIM SAVAGE, EPA/OUST; CARL SHUBERT, IT; WENDELL SUYAMA, Lockheed; MICHAEL WANG, WSPA; JOHN WILLIAMS, TT; and WILLIAM WINTERS, AEM.

PETROLEUM CONTAMINATED SOILS, VOLUME I

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PESTICIDES IN SOILS

OCCURRENCE, FATE, CONTROL AND REMEDIATION

Springer Nature This book reviews the occurrence and fate of pesticides in soils, their impact on soil quality and soil ecosystems, and it also provides a comprehensive overview of the latest prevention and remediation strategies of soil

contamination. Chapters from expert contributors cover topics such as soil pollution monitoring, the role of dissolved organic matter on the environmental fate of pesticides in soils, the effects of pesticides on soil microbial communities, plant uptake of pesticides from soils, and nano-based pesticides. Particular attention is given to the latest physicochemical and biological technologies developed to immobilize or degrade pesticides, preventing soil and water pollution. Given its scope, the book will appeal to researchers, professionals, including environmental chemists, engineers, ecologists, and policy-makers responsible for soil management.

HYDROCARBON CONTAMINATED SOILS: REMEDIATION TECHNIQUES, ENVIRONMENTAL FATE, RISK ASSESSMENT, ANALYTICAL METHODOLOGIES, REGULATORY CONSIDERATIONS

Lewis Pub This new book presents all of the important topics of hydrocarbon contaminated soils from the perspectives of scientific theory, regulatory application, and economic interest. These topics include the analysis of pollutants, soil physics and environmental fate; remediation techniques; health effects; regulations; and case histories. The book also includes a special section on diesel fuel contamination. Hydrocarbon Contaminated Soils will interest anyone who works with contaminated soils, ground water, and underground storage tanks. It will be an excellent reference for regulatory personnel and environmental consultants at all levels.

ANALYSIS, FATE, ENVIRONMENTAL AND PUBLIC HEALTH EFFECTS, AND REMEDIATION

ARSENIC IN SOIL AND GROUNDWATER ENVIRONMENT

BIOGEOCHEMICAL INTERACTIONS, HEALTH EFFECTS AND REMEDIATION

Elsevier This volume presents the recent developments in the field of arsenic in soil and groundwater. Arranged into nine sections, the text emphasizes the global occurrences of arsenic in the environment, particularly on its source, pathways, behavior, and effects it has on soils, plants, water, animals, and humans. It also covers the diverse issues of arsenic in the mining environment, arsenic emanating from hydrothermal springs, and the geochemical modeling of arsenic adsorption to oxide surfaces. Finally, the text includes different cost effective removal mechanisms of arsenic from drinking water using natural red earth, solar oxidation, and arsenic oxidation by ferrrate. Written in simple English, and few technical terms, the book is designed to create interest within the countries with occurrences of arsenic in drinking water with · an update the current status of knowledge on the dynamics of natural arsenic from the aquifers through groundwater to food chain and efficient techniques for arsenic removal. · serve as a standard text book for graduate, postgraduate students and researchers in the field of Environmental Sciences and Hydrogeochemistry as well as researchers, environmental scientists and chemists, toxicologists, medical scientists and even for general public seeking an in-depth view of arsenic which had been classed as a carcinogen. · bring awareness, among

administrators, policy makers and company executives, on the problem and to improve the international cooperation

ADVANCES IN REMEDIATION TECHNIQUES FOR POLLUTED SOILS AND GROUNDWATER

Elsevier Advances in Remediation Techniques for Polluted Soils and Groundwater focuses on the thematic areas for assessment, mitigation, and management of polluted sites. This book covers advances in modelling approaches, including Machine Learning (ML)/ Artificial Intelligence (AI) applications; GIS and remote sensing; sensors; impacts of climate change on geogenic contaminants; and socio-economic impacts in the poor rural and urban areas, which are lacking in a more comprehensive manner in the previous titles. This book encompasses updated information as well as future directions for researchers working in the field of management and remediation of polluted sites. Introduces fate and transport of multi-pollutants under varying subsurface conditions Details underlying mechanisms of biodegradation and biodetoxification of geogenic, industrial and emerging pollutants Presents recent advances and challenges in assessment, water quality modeling, uncertainty, and water supply management Provides authoritative contributions on the diverse aspects of management and remediation from leading experts around the world

ANALYSIS, FATE, ENVIRONMENTAL AND PUBLIC HEALTH EFFECTS, AND REMEDIATION

CONFERENCE WORKBOOK. REMEDIATION

ANALYSIS, FATE, ENVIRONMENTAL AND PUBLIC HEALTH EFFECTS, AND REMEDIATION

CONFERENCE WORKBOOK. INNOVATIVE TECHNOLOGIES, ANALYSIS & FATE, BIOREMEDIATION - NATURAL ATTENUATION

IMPACT OF COVID-19 ON EMERGING CONTAMINANTS

ONE HEALTH FRAMEWORK FOR RISK ASSESSMENT AND REMEDIATION

Springer Nature

EMERGING CONTAMINANTS VOL. 2

REMEDIATION

Springer Nature Emerging contaminants are chemical and biological agents for which there is growing concern about their potential health and environmental effects. The threat lies in the fact that the sources, fate and toxicology of most of these compounds have not yet been studied. Emerging contaminants, therefore, include a large number of both recently discovered and well-known compounds such

as rare earth elements, viruses, bacteria, nanomaterials, microplastics, pharmaceuticals, endocrine disruptors, hormones, personal care products, cosmetics, pesticides, surfactants and industrial chemicals. Emerging contaminants have been found in many daily products, and some of them accumulate in the food chain. Correlations have been observed between aquatic pollution by emerging contaminants and discharges from wastewater treatment plants. Most actual remediation methods are not effective at removing emerging contaminants. This second volume presents comprehensive knowledge on emerging contaminants with a focus on remediation.

HYDROCARBON CONTAMINATED SOILS AND GROUNDWATER

CRC-Press Volume II: Perspectives on Hydrocarbon Contamination:

HYDROCARBON CONTAMINATED SOILS AND GROUNDWATER

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PETROLEUM CONTAMINATED SOILS

VOLUME I

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EMERGING CONTAMINANTS IN THE ENVIRONMENT

CHALLENGES AND SUSTAINABLE PRACTICES

Elsevier Emerging Contaminants in the Environment: Challenges and Sustainable Practices covers all aspects of emerging contaminants in the environment, from basic understanding to different types of emerging contaminants and how these threaten organisms, their environmental fate studies, detection methods, and sustainable practices of dealing with contaminants. Emerging contaminant remediation is a pressing need due to the ever-increasing pollution in the

environment, and it has gained a lot of scientific and public attention due to its high effectiveness and sustainability. The discussions in the book on the bioremediation of these contaminants are covered from the perspective of proven technologies and practices through case studies and real-world data. One of the main benefits of this book is that it summarizes future challenges and sustainable solutions. It can, therefore, become an effective guide to the elimination (through sustainable practices) of emerging contaminants. At the back of these explorations on sustainable bioremediation of emerging contaminants lies the set of 17 goals articulated by the United Nations in its 2030 Agenda for Sustainable Development, adopted by all its member states. This book provides academics, researchers, students, and practitioners interested in the detection and elimination of emerging contaminants from the environment, with the latest advances by leading experts in emerging contaminants the field of environmental sciences. Covers most aspects of the most predominant emerging contaminants in the environment, including in soil, air, and water Describes the occurrence of these contaminants, the problems they cause, and the sustainable practices to deal with the contaminants Includes data from case studies to provide real-world examples of sustainable practices and emerging contaminant remediation

ASSESSMENTS AND REMEDIATION OF OIL CONTAMINATED SOILS

Taylor & Francis Paul T. Kostecki, Associate Director, Northeast Regional Environment Public Health Center, School Of Public Health, University Of Massachusetts At Amherst, Received His Ph.D. From The School Of Natural Resources At The University Of Michigan In 1 980. He Has Been Involved With Human And Ecological Risk Assessment And Risk Management Research For The Last 12 Years. Dr. Kostecki Has Co-Authored And Co-Edited Over 50 Articles And 16 Books On Environmental Assessment And Cleanup Including: Remedial Technologies For Leaking Underground Storage Tanks, Soils Contaminated By Petroleum Products; Petroleum Contaminated Soils, Vols. 1 To 3: Hydrocarbon Contaminated Soils And Groundwater, Vols. 1 To 4; Hydrocarbon Contaminated Soils, Vols. 1 To 5; Principles And Practices For Diesel Contaminated Soils, Vols. 1 To 5; Sesoil In Environmental Fate And Risk Modeling, Contaminated Soils, Vol. 1 And Risk Assessment And Environmental Fate Methodologies.Dr. Kostecki Also Serves As Associate Editor For The Journal Of Soil Contamination, Chairman Of The Scientific Advisory Board For Soil And Groundwater Cleanup Magazine As Well As An Editorial Board Member For The Journal Of Human And Ecological Risk Assessment.In A Addition. Dr. Kostecki Serves As Executive Director For The Association For The Environmental Health Of Soils (Aehs) And Was The Scientific Advisor For The Workshop On Assessment And Remediation Of Oil Contaminated Soils Held In Kuwait 18-22 March 1995.Dr. Manaf Behbehani Obtained His B.S. In Biology From The University Of Akron, Usa (1969) And M.S. In Zoology From The Same University (1972). He Continued His Graduate Studies At The University Of New Hampshire Receiving Ph.D. In Marine Ecology And Invertebrates In 1978. Since Then, He Has Been Teaching Ecology And Marine Biology Courses At The Faculty Of Science, Kuwait University. From 1 982-1987, He Held The Post Of Marine Scientist At The Regional Organisation For The Protection Of

The Marine Environment (Ropme) In Kuwait. Dr. Behbehani Has Worked On A Number Of Pioneering Research Projects, Namely To Study The Zooplankton Of Kuwaiti Waters And The Western Section Of The Arabian Gulf, And To Study The Distribution, Abundance And Taxonomy Of Marine Invertebrates Living In The Intertidal Zones Of Kuwait. He Has Published Several Scientific Articles And Has Served As External Examiner For Several Masters Thesis. From 1991-1995, Dr. Behbehani Was Vice-Dean For Planning And Laboratories At The Faculty Of Science, Kuwait University And Is Presently Chairman Of The National Biodiversity Committee, State Of Kuwait. He Was The Chairman Of The Scientific Committee For The Workshop On Assessment And Remediation Of Oil Contaminated Soils, The Proceedings Of Which Are Published In This Book.

DIOXIN

ENVIRONMENTAL FATE AND HEALTH/ECOLOGICAL CONSEQUENCES

CRC Press Dioxin – Environmental Fate and Health/Ecological Consequences offers a unique, and comprehensive coverage of dioxins and their congeners once they are released to the environment. The book provides readers with a systematic understanding of past and emerging sources of dioxins, current dioxins inventories and historical trends, fate and long-range transboundary atmospheric transport, human health, and ecological risk and regulatory perspective. Providing an excellent analysis of dioxin exposure through the food chain and impact on human health, it also documents the environmental implications of dioxins on ecological flora and fauna. The book offers readers a holistic understanding about dioxins, their atmospheric fate and transport, distribution in various environmental matrices and various routes and exposure pathways through which human beings are exposed to this persistent organic pollutant. It further offers an insight into the toxicological profile and mechanistic analysis of the onset of cancer, remediation technologies, and existing regulatory framework to deal with the problems associated with dioxins. The book will serve as an excellent resource to environmental professionals, particularly environmental toxicologists, environmental health professionals, remediation engineers, environmental regulatory agencies, policymakers, and environmental law professionals.

IMPACT OF COVID-19 ON EMERGING CONTAMINANTS

ONE HEALTH FRAMEWORK FOR RISK ASSESSMENT AND REMEDIATION

Springer The book brings out several unique perspectives of impacts of COVID-19 on the environment with special emphasis on the risk and remediation of emerging contaminants. Idea is to work out under the one health framework and comprehend not only scientific and technical aspects but also environmental, legal and policy aspects for water resources management. The obvious stress is given to the occurrence, fate and transport of geogenic, microbial and anthropogenic contaminants of emerging concern under the preview of the fact that antibiotic and antiviral use has been unprecedented during the global pandemic of COVID-19. At

the same time, this edited volume touches upon the broader framework of integrated water resource management, as well as mitigation and removal strategies to put forward a holistic picture to the readers and policymakers. These contents are divided into three sections: a) monitoring, occurrence, distribution and fate of emerging contaminants; b) source and effects of these contaminants on the total environment; and c) treatment strategies, natural attenuation and mitigation.

HYDROCARBON CONTAMINATED SOILS AND GROUNDWATER: SAMPLING AND SITE ASSESSMENT, ENVIRONMENTAL FATE AND MODELING, REMEDIATION ASSESSMENT AND DESIGN, RISK ASSESSMENT, RISK MANAGEMENT

OIL SPILL REMEDIATION AND RESTORATION

THE FATE AND CONSEQUENCES OF OIL IN THE ENVIRONMENT

The dissertation is concerned with the effects of oil spills on the environment, using the 2010 Gulf of Mexico event, which motivated the selection of this research topic, as a case study. It examines the spill from both a social and biological assessment in which policy, technology, and economics direct oil spill response and remediation. The dissertation is partly based on material collected during two years of fieldwork in Southern Louisiana. The Deepwater Horizon case study includes qualitative research grounded in a participatory action research (PAR) approach. The PAR strategy includes collective inquiry and experimentation through direct experience. Although historically the effort to mitigate the effects of the Deepwater Horizon spill was the greatest cleanup response to an oil spill, the effort only affected 24% of the oil released in the Gulf. The fate of the remaining oil is unknown. Natural gas was not included in the spill discharge metric, nor will recovered oil (skimming and siphoning) be deducted from the fine that will be assessed on the responsible party, British Petroleum. Response strategies, such as the use of chemical dispersants and in-situ burning, did not remove oil, but instead contributed to the cumulative pollution in the environment. This case study revealed an opportunity to create legislation that motivates increased investment in technologies and response strategies that support the removal of the oil from the environment. Trough the Deepwater Horizon case study, I also explored alternative spill response technologies and approaches to remediation and restoration. More than a dozen alternative technologies were evaluated and adopted during the 87-day oil spill event. The technologies evaluated included advancements for oil removal -- skimming and shoreline cleanup. Furthermore, for the first time, an oiled marsh was set aside for the purpose of conducting applied oil remediation and restoration research. Through a multi-institutional collaboration, we designed and implemented a restoration project on set-aside marsh in Louisiana. This project abandoned the use of cultivars and instead embraced genetically diverse, locally adapted plants for shoreline restoration. Included in the marsh project was a plant propagation innovation which utilized composted bagasse, a waste product of the Louisiana sugar cane industry, as a growth medium. The bagasse adds valuable organic material to the oil-impacted marsh and proved to be a viable propagation medium for smooth cordgrass

(Spartina alterniflora) plants. Additional soil remediation research, funded by the Chevron Corporation, investigated the use of vermiremediation for crude oil-impacted soils. Analysis of vermitea, the liquid extract from vermicompost, indicated the presence of biosurfactant producing hydrocarbonoclastic bacteria, allowing for the increased solubility of hydrophobic compounds adsorbed to soil. Additional research and field-scale experiments are required to optimize vermiremediation and demonstrate the potential for scaling and adoption. My research supports the use of natural attenuation of oil-contaminated soil though the adoption of strategies which help to maintain the existing ecosystem. My research findings elucidate the critical limitations of current conventional oil spill response technologies and reveal the environmental tradeoffs that occur during response decision-making. The dissertation demonstrates the need for additional investment in technology innovation and for broader response strategies and preparation for future oil spills.

SPATIAL MODELING AND ASSESSMENT OF ENVIRONMENTAL CONTAMINANTS

RISK ASSESSMENT AND REMEDIATION

Springer Nature This book demonstrates the measurement, monitoring and mapping of environmental contaminants in soil & sediment, surface & groundwater and atmosphere. This book explores state-of-art techniques based on methodological and modeling in modern geospatial techniques specifically focusing on the recent trends in data mining techniques and robust modeling. It also presents modifications of and improvements to existing control technologies for remediation of environmental contaminants. In addition, it includes three separate sections on contaminants, risk assessment and remediation of different existing and emerging pollutants. It covers major topics such as: Radioactive Wastes, Solid and Hazardous Wastes, Heavy Metal Contaminants, Arsenic Contaminants, Microplastic Pollution, Microbiology of Soil and Sediments, Soil Salinity and Sodicity, Aquatic Ecotoxicity Assessment, Fluoride Contamination, Hydrochemistry, Geochemistry, Indoor Pollution and Human Health aspects. The content of this book will be of interest to researchers, professionals, and policymakers whose work involves environmental contaminants and related solutions.

SOIL POLLUTION

FROM MONITORING TO REMEDIATION

Academic Press Soil Pollution: From Monitoring to Remediation provides comprehensive information on soil pollution, including causes, distribution, transport, the transformation and fate of pollutants in soil, and metabolite accumulation. The book covers organic, inorganic and nanoparticle pollutants and methodologies for their monitoring. Features a critical discussion on ecotoxicological and human effects of soil pollution, and strategies for soil protection and remediation. Meticulously organized, this is an ideal resource for students, researchers and professionals, providing up-to-date foundational content for those already familiar with the field. Chapters are highly accessible, offering an authoritative introduction for non-

specialists and undergraduate students alike. Highlights the relevance of soil pollution for a sustainable environment in chapters written by interdisciplinary expert academics and professionals from around the world Includes cases studies of techniques used to monitor soil pollution Includes a chapter on nanoparticles as soil pollutants Offers comprehensive coverage of soil pollution including types and causes

HYDROCARBON CONTAMINATED SOILS

VOLUME II

CRC-Press Hydrocarbon Contaminated Soils, Volume II presents all of the important topics of hydrocarbon contaminated soils from the perspectives of scientific theory, regulatory application, and analysis and site assessment. These topics include an analysis of pollutants, soil physics and environmental fate; remediation techniques; health effects; regulations; and case histories. The book also includes a special section on petroleum contamination in groundwater and soils. Hydrocarbon Contaminated Soils, Volume II will interest anyone who works with contaminated soils, ground water, and underground storage tanks. It will also be an excellent reference for regulatory personnel and environmental consultants at all levels.

PESTICIDES IN THE MODERN WORLD

RISKS AND BENEFITS

IntechOpen This book is a compilation of 29 chapters focused on: pesticides and food production, environmental effects of pesticides, and pesticides mobility, transport and fate. The first book section addresses the benefits of the pest control for crop protection and food supply increasing, and the associated risks of food contamination. The second book section is dedicated to the effects of pesticides on the non-target organisms and the environment such as: effects involving pollinators, effects on nutrient cycling in ecosystems, effects on soil erosion, structure and fertility, effects on water quality, and pesticides resistance development. The third book section furnishes numerous data contributing to the better understanding of the pesticides mobility, transport and fate. The addressed in this book issues should attract the public concern to support rational decisions to pesticides use.

WORKBOOK

HYDROCARBON CONTAMINATED SOILS AND GROUNDWATER : ANALYSIS, ENVIRONMENTAL FATE, ASSESSMENT, AND REMEDIATION

PESTICIDES IN SOILS

OCCURRENCE, FATE, CONTROL AND REMEDIATION

Springer This book reviews the occurrence and fate of pesticides in soils, their impact on soil quality and soil ecosystems, and it also provides a comprehensive overview of the latest prevention and remediation strategies of soil contamination.

Chapters from expert contributors cover topics such as soil pollution monitoring, the role of dissolved organic matter on the environmental fate of pesticides in soils, the effects of pesticides on soil microbial communities, plant uptake of pesticides from soils, and nano-based pesticides. Particular attention is given to the latest physicochemical and biological technologies developed to immobilize or degrade pesticides, preventing soil and water pollution. Given its scope, the book will appeal to researchers, professionals, including environmental chemists, engineers, ecologists, and policy-makers responsible for soil management.

PETROLEUM CONTAMINATED SOILS

VOLUME I

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ENVIRONMENTAL INVESTIGATION AND REMEDIATION

1,4-DIOXANE AND OTHER SOLVENT STABILIZERS

CRC Press A ubiquitous, largely overlooked groundwater contaminant, 1,4-dioxane escaped notice by almost everyone until the late 1990s. While some dismissed 1,4-dioxane because it was not regulated, others were concerned and required testing and remediation at sites they oversaw. Drawing years of 1,4-dioxane research into a convenient resource, Environmental Investigation and Remediation: 1,4-Dioxane and other Solvent Stabilizers profiles the nature of 1,4-dioxane and several dozen other solvent stabilizer compounds. The author takes an approach he calls "contaminant archeology", i.e., reviewing the history of the contaminating chemical’s use in the industrial workplace at the site of release and how those uses impart chemical characteristics to the waste that affects its fate and transport properties. The book examines the uses, environmental fate, laboratory analysis, toxicology, risk assessment, and treatment of 1,4-dioxane in extensive detail. It provides case studies that document the contaminant migration, regulation, treatment, and legal aspects of 1,4-dioxane releases. It also describes the controversy over interpretation of 1,4-dioxane’s toxicology and associated risk, as well as the corresponding disparity in states’ regulation of 1,4-dioxane. A final chapter examines the policy implications of emerging contaminants like 1,4-dioxane, with discussion of opportunities to improve the regulatory and remedial response to this persistent contaminant in the face of toxicological uncertainty. Mobility, persistence, and treatment challenges combine to make 1,4-dioxane a particularly vexing contaminant. It is more mobile than any other contaminant you are likely to find at solvent release sites. Filled with case studies, equations, tables, figures, and citations, the book supplies a wide range of information on 1,4-dioxane. It then

provides passive and active remediation strategies and treatment technologies for 1,4-dioxane in groundwater and provides you with the technical resources to help you decide which are appropriate for your site. For more information about Thomase Mohr and his book, go to http://www.The14DioxaneBook.com

PETROLEUM CONTAMINATED SOILS: REMEDIATION TECHNIQUES, ENVIRONMENTAL FATE, RISK ASSESSMENT, ANALYTICAL METHODOLOGIES

BIOCHAR: FUNDAMENTALS AND APPLICATIONS IN ENVIRONMENTAL SCIENCE AND REMEDIATION TECHNOLOGIES

Academic Press Biochar: Fundamentals and Applications in Environmental Science and Remediation Technologies, Volume Six provides readers with the fundamentals of scientific and technological aspects of biochar application in stormwater treatment, its use in contaminant removal, greenhouse gas mitigation, as landfill cover material, and new environmental and agronomic applications. Chapters in this new release cover Biochar application for soil remediation in a redox-sensitive environment, Remediation of heavy metal contaminated soil: Role of biochar, Role of biochar as a cover material in Landfill waste disposal system- Perspective from Unsaturated soil mechanics, Biochar in soil re-engineering, Green remediation of contaminated agricultural land using biochar, and more. Additional chapters cover the Impact of biochars on redox processes in soils, Biochar for manipulation of manure properties, A relationship paradigm between biochar amendments and green house gas emissions, Biochar amalgamation with clay: Enhanced performance for environmental remediation, Functionalization of biochar using microbial consortia, and the Potential role of biochar to mitigate the negative impacts of climate change on water quality. Provides up to-date information on the use of biochar for contaminant remediation, as landfill cover material, and as a tool for energy transition Includes the aspect of biochar’s use in mitigating impacts of climate change and how manure properties can be altered through biochar addition Covers the role of microbial consortia on biochar functionalization

ENVIRONMENTAL ISSUES AND SUSTAINABLE DEVELOPMENT

In recent years, attention to climate change and its associated impacts on economic and social development has increased significantly. Extreme weather conditions worldwide are threatening the survival of sensitive species and habitats. The situation is so dire that governments, academia, and non-governmental organizations across the globe are actively working to meet the United Nations Sustainable Development Goals. This book enhances understanding of environmental changes and the relative response to the socio-economic challenges of development. It provides a comprehensive overview of the impact of environmental change on natural resources and the climate, as well as discusses waste management and sustainable solutions.

ANALYSIS, FATE, ENVIRONMENTAL AND PUBLIC HEALTH EFFECTS, AND REMEDIATION

CONFERENCE WORKBOOK. CALIFORNIA LUFT, REGULATORY, RISK, NAVY

ENVIRONMENTAL FATE OF NOVEL POLYFLUOROALKYL SURFACTANTS IN SURFACE SOIL

"The use of aqueous film forming foams (AFFFs) to extinguish accidental fires or for firefighting training purposes is a major source of perfluoroalkyl and polyfluoroalkyl substances (PFASs) to the environment. PFASs are recognized as contaminants of emerging concern due to their bioaccumulation, persistence and toxicity. Being designed to be chemically stable, PFASs remain in the environment for long periods of time. Consequently, the understanding of their environmental fate is of significance for the assessment, management and remediation of impacted sites. Recent reports on the presence of a large number of PFASs with non-fluorinated functionalities -- referred to as novel -- in AFFF formulations reveal a substantial knowledge gap in regards to their fate once released to the environment. The research starts by assessing the analytical techniques used to characterize PFASs in soil. Sites impacted by AFFFs are likely to present high concentrations of petroleum hydrocarbons. The effect of soil properties and hydrocarbon co-contamination on the extraction of PFASs from soil was studied. The extraction method developed was then used to characterize soils that were impacted by the firefighting effort following the accidental derailment of a train carrying crude oil in Lac-Mégantic, Québec, and to qualitatively and quantitatively characterize the PFAS contamination.Biotransformation was found to be a major environmental process undergone by AFFF components. Therefore, the biotransformation potential in soil of two fluorinated surfactants used in AFFF formulations was further investigated. Finally, the mobility in surface soils of nine PFASs relevant to AFFF formulations was explored through batch sorption experiments. The findings of this research emphasize the different behaviors of novel PFASs contained in AFFF formulations as opposed to the widely studied PFOS, PFOA and related perfluoroalkyl acids. As the presence of more novel PFASs is revealed across impacted sites, improved understanding of their environmental fate and effects is necessary for a proper assessment and management of such sites." --