2019 ITRC Teams
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New Teams

1,4-Dioxane

Leads: Kitty Hiortdahl (kirsten.hiortdahl@ncdenr.gov) and Gladys Liehr (gladys.liehr@flhealth.gov)

1,4-Dioxane (DX) is a likely human carcinogen that has been used in food additives and laboratory and manufacturing processes. It is also a byproduct of many chemicals used in household products, personal care products, plastics, and polyester, and from the 1950's to 1996, DX was commonly used in chlorinated solvents. DX releases into the surrounding environment from wastewater discharge, unintended spills, leaks, historical disposal practices of host solvents, and unregulated manufacturing waste streams. These releases have impacted groundwater sites and potable drinking water sources across the country. Since no federal regulations currently exist for DX, it is often overlooked as a contaminant of potential concern.

To address DX contamination, some states have devised health standards or regulatory guidelines for drinking water and/or groundwater standards. However, many states do not have the necessary guidance to implement standards or guidelines and have expressed the need for input on DX site assessment, detection, monitoring, and remediation. This Team will produce factsheets, a guidance document, and training curricula that reviews the technical knowledge and regulatory barriers to meet these needs. Topics include, but are not limited to: sources of contamination, detection technologies, remediation technologies, regulatory framework, and risk communication.

Green and Sustainable Remediation with Resiliency to Extreme Weather Events and Wildfires (Resiliency)

Leads: Tom O'Neill (tom.o'neill@dep.nj.gov) and Tom Potter (thomas.potter@state.ma.us)

Project: Green and Sustainable Remediation (GSR) is the site-specific employment of products, processes, technologies, and procedures that mitigate contaminant risk to receptors while making decisions that are cognizant of balancing community goals, economic impacts, and environmental effects. An integral aspect of GSR is the Conceptual Site Model (CSM) that synthesizes and summarizes what is already known about a site that is pertinent to decision-making requirements into the future. As current weather events become more frequent and extreme, resiliency to extreme weather affects a site's CSM.

Released in 2012, the ITRC GSR Guidance document was a fresh look at how to best manage environmental assessment and remediation. After seven years, environmental professionals have learned many lessons that need to be captured and shared to allow more effective implementation of GSR. In addition, resiliency to extreme weather events and wildfires have begun to play a more significant role in the planning process. The Resiliency Team will focus on updating the ITRC GSR guidance document to bring the frameworks, tools, and implementation strategies necessary to further support acceptance of GSR principles and resiliency strategies. The updated guidance document and new fact sheets will include topics such as: integrated vulnerability and GSR assessment and adaptation strategies, disaster preparedness, rehabilitated land, technical and regulatory barriers and opportunities, and best management practices developed by the states.

Incremental Sampling Methodology (ISM) Update

Leads: Caroline Eigenbrodt (caroline.eigenbrodt@dec.ny.gov) and Troy Keith (troy.keith@tn.gov)

The 2012 ITRC guidance document on Incremental Sampling Methodology (ISM) presents an advancement in how sites with soil and sediment contamination are characterized for risk assessment and remediation purposes. Done properly, ISM significantly improves the reliability of sample data, as well as the time and cost needed to investigate and remediate soil and sediment contamination by using structured protocols that reduce data variability and provide reasonably unbiased estimate of mean contaminant concentrations. In the past six years, ISM-type investigation methods have evolved, and regulators have gained more experience in the application of ISM in the field. This update Team will revise the ISM guidance document and training to focus on the practical implementation of ISM-type sample collection and analysis, and incorporate experience gained since 2012. The updated guidance document and training will be organized to mirror the stages of a site investigation.

Strategies for Preventing and Managing Harmful Cyanobacterial Blooms (HCBs)

Leads: Ben Holcomb (bholcomb@utah.gov) and Angela Shambaugh (angela.shambaugh@vermont.gov)

Harmful Cyanobacterial Blooms (HCBs) pose significant threats to freshwater inland lakes and reservoirs. These waterbodies are typically open ecological systems that are susceptible to eutrophication and increased water temperature, which has led to the increase of HCBs frequency, intensity, and geographic range. Impacts from HCBs vary from nuisance to catastrophic, with negative short and long-term human and ecosystem health consequences.

Determining effective mitigation strategies for HCBs is a challenge for environmental regulators since mitigation approaches vary in scale and scope, from investigation of individual technologies to integrated watershed monitoring, modeling, and prediction. The goal of this Team is to develop a technical and regulatory guidance document as a comprehensive resource for prevention and management of HCBs. The Team will produce fact sheets on the primary steps of prevention and early response, best management practices, and risk communication. The group will also develop tools and training materials to aid regulators in identifying prevention and remediation approaches.

Vapor Intrusion Mitigation Training (VI) Update

Leads: Matt Williams (williamsm13@michigan.gov) and Kelly Johnson (kelly.johnson@ncdenr.gov)

Vapor intrusion (VI) is the movement of chemical vapors from contaminated soil and groundwater into a structure. Vapors primarily enter through openings in the building foundation or basement walls ─ such as cracks in the concrete slab, gaps around utility lines, and sumps. Once inside the home or workplace, vapors may be inhaled, posing immediate or long-term health risks. While the investigation of contaminated soil and groundwater has been around for decades, VI has only been in the national spotlight for the last 10-15 years. Scientific research is continually providing new insight into the movement and mitigation of subsurface vapors. Prior ITRC training on VI and PVI focused on the investigative process, and not on mitigation. The VI Mitigation Training Team will create a new training program using ITRC's 2007 Vapor Intrusion and subsequent 2014 Petroleum Vapor Intrusion (PVI) guidance documents. The proposed modules for the VI Mitigation training program include, but are not limited to: general overview of chlorinated and petroleum vapor intrusion, conceptual site models, active mitigation systems, passive mitigation systems, and communication and outreach.

Continuing Teams

Implementing the Use of Advanced Site Characterization Tools

Leads: Alex Wardle (alexander.wardle@deq.virginia.gov) and Edward Winner (edward.winner@ky.gov)

A number of advanced site characterization tools, which greatly expand the ability to understand contaminant concentration and mass, as well as increase the ability to understand the stratigraphy of the contaminated media (soil, rock), are available but underutilized. These tools can be broadly classified into analytical tools and geophysical tools. While some of these tools, as well as the core principles underlying newer variations of such tools, have been in existence for several years, advances in computing and supporting technologies have vastly improved data analysis, presentation, and user experience. The goal of this Team is to meld existing guidance, primary literature, vendor literature and personal experience, illustrated by projects from the states, into a practical guidance document on the selection and application of advanced site characterization tools. The Team will also develop videos on the various tools. These resources will address the selection, application, and integration of the tools into the project life-cycle of site characterization, remediation, monitoring, and closure.

Optimizing In Situ Remediation Performance & Injection Strategies

Leads: Dave Scheer (dave.scheer@state.mn.us) and Janet Waldron (janet.waldron@state.ma.us)

In situ (on site) reagent injection-based remediation technologies have advanced to mainstream acceptance and offer a competitive advantage over many forms of ex situ treatment of soil and groundwater. However, detailed site-specific injection-based strategies are critical to the success of such in situ treatment remedies. In the interest of expedited and cost-effective solutions, many in situ projects have been executed based on an incomplete understanding of the hydrogeology, geology, and contaminant distribution and mass. Many sites have undergone multiple rounds of in situ injections and not advanced to closure. Better strategies and minimum design standards are required to decrease uncertainty and improve outcomes. To concisely summarize the issues surrounding the topic, the Team will create a guidance document on optimizing injection-based remediation technologies. The document will discuss risks and limitations on these technologies, and how to address them to improve remedial success.

Per- and Polyfluoroalkyl Substances (PFAS)

Leads: Bob Mueller (bob.mueller@dep.nj.gov) and Ginny Yingling (virginia.yingling@state.mn.us)

The goal of this project is to produce concise technical resources that will help regulators and other stakeholders improve their understanding of the current science regarding PFAS compounds. Per- and polyfluoroalkyl substances (PFASs) such as perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) are a large and complex class of anthropogenic compounds whose prevalence in the environment have become an emerging, worldwide priority in environmental and human health. Certain compounds are believed to be environmentally persistent, and bioaccumulative, and pose human health risks. Recent high-profile cases involving human exposure in the United States have further focused both public and regulatory scrutiny on PFASs.

The scientific community's understanding of PFAS sources, site characterization, environmental fate and transport, analytical methods, and remediation is growing rapidly. The PFAS Team has successfully established a central clearinghouse that presents this information to fill the gap in the broad technical understanding necessary for informed and expedited decisions by regulators and policy makers. The Team has already published a series of seven fact sheets and will also create a comprehensive and in-depth technical and regulatory guidance document, which will provide links to pertinent scientific literature, stakeholder points of view, technical challenges, and uncertainties.