



Innovative Environmental Technologies and Approaches

ITRC's 2010 Classroom and Internet-based Training

The Interstate Technology and Regulatory Council (ITRC) is a state-led coalition working together with federal partners, industry, academia, and stakeholders to achieve regulatory acceptance of environmental technologies. ITRC is your training partner providing training on key environmental topics. ITRC offers classroom-style training as well as Internet-based training. ITRC's multi-day classroom training events include hands-on problem solving to engage the students with real world and site applications. Multi-day classroom training is often provided in conjunction with an ITRC member state. ITRC also offers shorter classroom training events often in conjunction with existing meetings or conferences. Internet-based training allows participants to attend from their own office or conference room with no down time or cost for travel. Internet-based training classes are sponsored by ITRC in conjunction with EPA through their CLU-IN website (www.clu-in.org) with no cost for the participant.

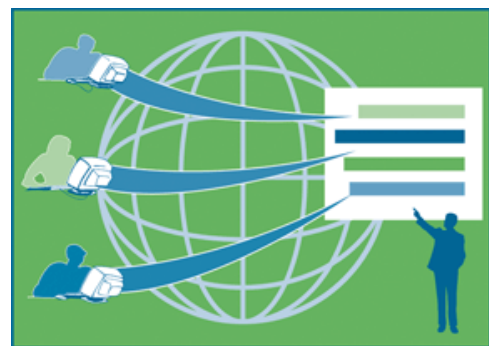
Vapor Intrusion 2-day Classroom Training -

Led by internationally recognized experts, this 2-day ITRC classroom training will enable you to learn the latest strategies to conduct site screening and investigations; determine what tools are appropriate to collect quality data and evaluate the results; apply multiple lines of evidence to ensure quality decision-making; build solutions for VI issues through understanding of mitigation options; and network with environmental professionals dealing with this interdisciplinary and complex pathway. Interactive learning with hands-on exhibits, classroom exercises, and frequent Q&A sessions will reinforce these course objectives and contribute to a practical understanding of this difficult pathway. In 2010-2011, the training course will be offered at locations across the United States. For more information, see <http://www.itrcweb.org/crt.asp>



Internet-based Training -

ITRC's Internet-based training courses are unique forums for the exchange of technical and regulatory information for environmental technologies and approaches. In conjunction with U.S. EPA's Technology Innovation and Field Services Division (TIFSD), ITRC delivers training courses via the Internet to reach a geographically dispersed audience of regulators, consultants, and other members of the environmental community. The training classes last approximately two hours, cover technical and regulatory information specific to environmental technologies and innovative approaches, and are supported by consensus-based ITRC guidance documents. Registration opens at www.itrcweb.org (or directly at www.clu-in.org/live/) four to six weeks before the class.



Cost: Sponsored by ITRC and EPA with no cost for the participant

Registration: www.clu-in.org/live/

Associated guidance documents: Available from www.itrcweb.org

Archives of existing Internet-based training courses available from <http://clu.in.org/live/archive.cfm#itrc>

If you have questions, call us at (402) 201-2419 or send an e-mail to training@itrcweb.org.

Decontamination and Decommissioning of Radiologically-Contaminated Facilities

The decontamination and decommissioning (D&D) of radiologically-contaminated facilities presents numerous challenges. Many tasks are involved, each of which requires adherence to a complex array of federal and state regulations and policies, attention to health and safety issues for workers and the public, monitoring and management of schedules and costs, and interaction with a potentially large number of stakeholders who have an interest in the present activities and future plans for sites undergoing D&D. At the present time, approximately 90 commercial power reactors, 250 research reactors, 100 mines, 5 reprocessing facilities, and 14 fuel fabrication plants have been retired from operation, with some having been fully dismantled. In addition, the largest environmental cleanup projects ever undertaken are in progress or have recently been completed at several large DOE facilities in the nuclear weapons complex. Technologies developed for the D&D portions of these cleanups are part of the lessons learned from these projects. This training introduces regulators, cleanup contractors, site owners/operators, and technology providers to ITRC's Technical/Regulatory Guidance, **Decontamination and Decommissioning of Radiologically-Contaminated Facilities (RAD-5, 2008)**, created by ITRC's Radionuclides Team.



Internet-based Training Class Date:

March 4, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

The training class webpage (<http://www.clu-in.org/conf/itrc/radsdd/>) includes additional information including instructor bios and links to additional resources.

Internet-based Training Course Archive for Additional Courses:

The ITRC Radionuclides Team developed three additional training courses that are available in the Internet-based training archives. You can listen/view slides of a previous offering at the links listed below or view all archive courses available at <http://clu.in.org/live/archive.cfm?sort=title#itrc> (courses in the archive are listed alphabetically).

- **Radiation Risk Assessment - Updates and Tools**
http://www.clu-in.org/conf/itrc/rads_051507/
- **Radiation Site Cleanup - CERCLA Requirements and Guidance**
http://www.clu-in.org/conf/itrc/radscleanup_060507/
- **Radiation Real-Time: Real-Time Measurement of Radionuclides in Soil**
http://www.clu-in.org/conf/itrc/radsrealtime_102808/

Enhanced Attenuation of Chlorinated Organics (EACO): A Site Management Tool

Many sites with chlorinated organic contamination in groundwater have gone through extensive remedial evaluations and actions. After years of operating high energy processes, their effectiveness has begun to diminish without remedial objectives being met. Other effective remedial alternatives can be applied; however, there are difficulties transitioning these sites from these high energy systems to other low energy remedial alternatives and eventually to Monitored Natural Attenuation (MNA).

This training on the ITRC Technical and Regulatory Guide for **Enhanced Attenuation: Chlorinated Organics (EACO-1, 2008)** describes the transition (the bridge) between aggressive remedial actions and MNA and vice versa. Enhanced attenuation (EA) is the application of technologies that minimize energy input and are sustainable in order to reduce contaminant loading and/or increase the attenuation capacity of a contaminated plume to progress sites towards established remedial objectives. Contaminant loading and attenuation capacity are fundamental to sound decisions for remediation of groundwater contamination. This training explains how a decision framework which, when followed, allows for a smooth transition between more aggressive remedial technologies to sustainable remedial alternatives and eventually to Monitored Natural Attenuation. This training will demonstrate how this decision framework allows regulators and practitioners to integrate Enhanced Attenuation into the remedial decision process.

As our experience and knowledge grows around the implementation of MNA, the EA process will be considered an important management tool for optimizing site remedies and moving sites to final completion. This approach is consistent with the current regulatory environment and can be accommodated within a broad range of regulatory programs such as CERCLA and State dry cleaner regulations. This new framework and decision process will accelerate the environmental clean-up progress on a national scale and reduce overall costs, while still providing protection to human health and the environment.



Internet-based Training Class Dates:

February 11, 2010 (Thursday) 11:00 a.m. - 1:00 p.m. EASTERN TIME

June 29, 2010 (Tuesday) 2:00 p.m. - 4:00 p.m. EASTERN TIME

October 21, 2010 (Thursday) 11:00 a.m. - 1:00 p.m. EASTERN TIME

The training class webpage (<http://www.clu-in.org/conf/itrc/eaco/>) includes additional information including instructor bios and links to additional resources.

Classroom Short Course:

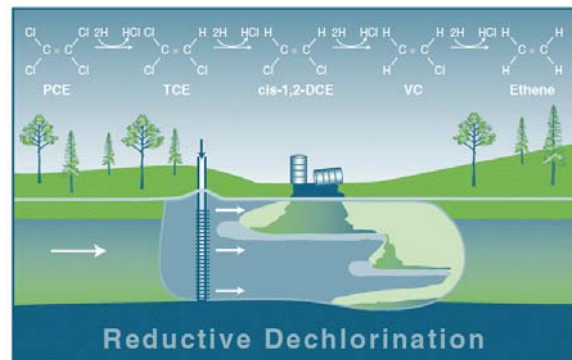
The ITRC Enhanced Attenuation of Chlorinated Organics Team will also offer this training course in person at the Seventh International Conference on Remediation of Chlorinated and Recalcitrant Compounds (Battelle Conference), May 24-27, 2010 in Monterey, California. The course will be part of an overall ITRC short course that also includes the course from the ITRC Bioremediation of DNAPLs Team. For more information, please visit <http://www.battelle.org/conferences/chlorinated/>

Course dates may change. Visit www.itrcweb.org for additional information and schedule updates.

In Situ Bioremediation of Chlorinated Ethene – DNAPL Source Zones

Treatment of dissolved-phase chlorinated ethenes in groundwater using in situ bioremediation (ISB) is an established technology; however, its use for DNAPL source zones is an emerging application. This training course supports the ITRC Technical and Regulatory Guidance document **In Situ Bioremediation of Chlorinated Ethene: DNAPL Source Zones (BioDNAPL-3, 2008)**. This document provides the regulatory community, stakeholders, and practitioners with the general steps practitioners and regulators can use to objectively assess, monitor, and optimize ISB treatment of DNAPL source zones. The objective is to provide adequate technology background for the user to understand the general and key aspects of ISB for treatment of chlorinated ethene DNAPL source zones. It is not intended to be a step-by-step instruction manual for remedial design, but describes technology-specific considerations for application of ISB of DNAPL source zones.

Two goals of any DNAPL source treatment technology are to 1) reduce the mass of contaminants within the source area and 2) prevent migration of contaminants above unacceptable levels. The enhanced ISB technology reduces source mass and controls flux through the enhanced dissolution and desorption of DNAPL constituents into the aqueous phase, and subsequent microbially mediated degradation processes. Although enhanced ISB of DNAPL source zones has been demonstrated in the field at a few chlorinated solvent sites, expectations for rapid depletion of the source zone must be realistic. This training and guidance provide detailed requirements necessary to support the realistic determination of goals for ISB of a DNAPL source zone.



Internet-based Training Class Dates:

February 9, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

June 22, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

September 30, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

November 9, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

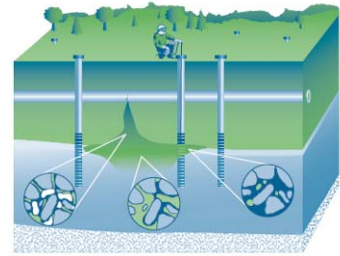
The training class webpage (<http://www.clu-in.org/conf/itrc/bioDNAPL/>) includes additional information including instructor bios and links to additional resources.

Classroom Short Course:

The ITRC Bioremediation of DNAPLs Team will also offer this training course in person at the Seventh International Conference on Remediation of Chlorinated and Recalcitrant Compounds (Battelle Conference), May 24-27, 2010 in Monterey, California. The course will be part of an overall ITRC short course that also includes the course from the ITRC Enhanced Attenuation of Chlorinated Organics Team. For more information, please visit <http://www.battelle.org/conferences/chlorinated/>

Light Non-Aqueous Phase Liquids (LNAPLs)

Light non-aqueous phase liquids (LNAPLs) are organic liquids such as gasoline, diesel, and other petroleum hydrocarbon products that are immiscible with water and less dense than water. Understanding LNAPLs is important because they are present in the subsurface at thousands of remediation sites across the country and are often the sole reason why a site remains “open.” The spectrum of sites where LNAPL assessment and remediation efforts may take place include petroleum manufacturing and handling facilities such as refineries, bulk product terminals, gas stations, airports and military bases. LNAPLs in the subsurface can be a complex problem to address, and frequently prevent or delay regulatory closure (no further action) of remediation projects. This training course is relevant for all levels of state and federal regulators, environmental consultants, and technically-inclined site owners and public stakeholders. The training course is divided into three parts:



LNAPL Training Part 1: An Improved Understanding of LNAPL Behavior in the Subsurface - State of Science vs. State of Practice Part 1 explains how LNAPLs behave in the subsurface and examines what controls their behavior. Part 1 also explains what LNAPL data can tell you about the LNAPL and site conditions. Relevant and practical examples are used to illustrate key concepts.

Internet-based Training Class Dates:

March 9, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

May 6, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

August 3, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

December 9, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

LNAPL Training Part 2: LNAPL Characterization and Recoverability – Improved Analysis - Do you know where the LNAPL is and can you recover it? Part 2 addresses LNAPL characterization and site conceptual model development as well as LNAPL recovery evaluation and remedial considerations. Specifically, Part 2 discusses key LNAPL and site data, when and why those data may be important, and how to get those data. Part 2 also discusses how to evaluate LNAPL recoverability.

Internet-based Training Class Dates:

March 11, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

May 13, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

August 10, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

December 14, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

LNAPL Training Part 3: Evaluating LNAPL Remedial Technologies for Achieving Project Goals

Part 3 uses the LNAPL conceptual site model (LCSM) approach to identify the LNAPL concerns or risks and set proper LNAPL remedial objectives and technology-specific remediation goals and performance metrics. The training course also provides an overview of the LNAPL remedial technology selection framework. The framework uses a series of tools to screen the seventeen remedial technologies addressed in the ITRC Technical and Regulatory Guidance document, **Evaluating LNAPL Remedial Technologies for Achieving Project Goals (LNAPL-2, 2009)** based on site and LNAPL conditions and other important factors.

Internet-based Training Class Dates:

March 16, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

May 20, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

August 17, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

October 14, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

December 16, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

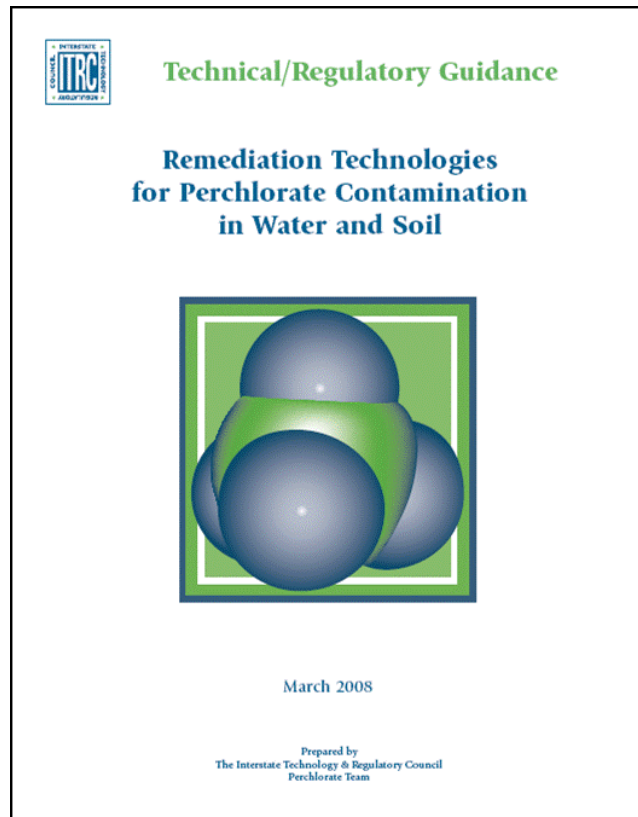
The training class webpage (<http://www.clu-in.org/conf/itrc/iuLNAPL/>) includes additional information including instructor bios and links to additional resources.

Course dates may change. Visit www.itrcweb.org for additional information and schedule updates.

Perchlorate Remediation Technologies

Perchlorate contamination exists in water and soil, and occurs widely throughout the United States. Public awareness and concern regarding perchlorate has increased in recent years. Perchlorate occurrence in drinking water and food supplies is a human health concern because it can interfere with iodide uptake by the thyroid gland and result in decreased thyroid hormone production. The ITRC Perchlorate Team was formed in 2004 to address technical issues associated with perchlorate. Many technologies are available to remediate perchlorate contamination, but only a few are commonly used.

This training introduces state regulators, environmental consultants, site owners, and community stakeholders to **Remediation Technologies for Perchlorate Contamination in Water and Soil (PERC-2, 2008)**, created by ITRC's Perchlorate Team to assist reviewers in assessing the adequacy of perchlorate remediation projects. This course gives the student a background in the available remediation technologies to treat perchlorate contamination, discusses emerging technologies, and presents case studies of applications.



Internet-based Training Class Date:

January 14, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

The training class webpage (<http://www.cluin.org/conf/itrc/perremtech/>) includes additional information including instructor bios and links to additional resources.

Internet-based Training Course Archive for Perchlorate Overview Course:

The ITRC Perchlorate Team developed an additional training course: Perchlorate: Overview of Issues, Status, and Remedial Options. You can listen/view slides of an archive of this course at http://www.clu-in.org/conf/itrc/perchlorate_011508/ or view all archives courses available at <http://clu-in.org/live/archive.cfm?sort=title#itrc> (courses are listed alphabetically).

Course dates may change. Visit www.itrcweb.org for additional information and schedule updates.

Performance-based Environmental Management

Performance-based environmental management (PBEM) is a strategic, goal-oriented methodology that is implemented through effective planning and decision logic to reach a desired end state of site cleanup. The goal of PBEM is to be protective of human health and the environment while efficiently implementing appropriate streamlined cleanup processes. The major components of PBEM include: systematic planning; effective communications; agreement of a land use risk strategy; current conceptual site model; decision logic analysis; remediation process optimization (RPO); ARAR analysis; exit strategy development; and performance-based contracting including environmental insurance.



This ITRC training course, developed by the ITRC Remediation Process Optimization (RPO) Team, presents an overview of what PBEM is, explains how and when to implement it, and describes the issues that regulators are concerned about throughout PBEM's implementation. Case studies will be presented to illustrate successful PBEM projects. The course is valuable not only because PBEM is being proposed and implemented at many federal and private sites throughout the country, but also because PBEM provides an opportunity to enhance all site remediation. This training is geared to those in the environmental remediation field including Federal, state and local government officials; owners or operators of sites, and consultants.

The training materials are based on the ITRC RPO Team's Technical Regulatory Guidance Document: **Improving Environmental Site Remediation Through Performance-Based Environmental Management (RPO-7, 2007)**.

Internet-based Training Class Date:

January 26, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

The training class webpage (<http://www.cluin.org/conf/itrc/pbem/>) includes additional information including instructor bios and links to additional resources.

Internet-based Training Course Archive for Additional Courses:

The ITRC Remediation Process Optimization Team developed two additional training courses that are available in the Internet-based training archives. You can listen/view slides of a previous offering at the links listed below or view all archive courses available at

<http://clu-in.org/live/archive.cfm?sort=title#itrc> (courses in the archive are listed alphabetically).

- **What is Remediation Process Optimization and How Can It Help Me Identify Opportunities for Enhanced and More Efficient Site Remediation?**
http://www.clu-in.org/conf/itrc/rpo_092804/
- **Remediation Process Optimization Advanced Training**
http://www.clu-in.org/conf/itrc/rpofs_081607/

Classroom Short Course:

The ITRC Remediation Process Optimization Team will also offer a training course in person at the Seventh International Conference on Remediation of Chlorinated and Recalcitrant Compounds (Battelle Conference), May 24-27, 2010 in Monterey, California. For more information, please visit

<http://www.battelle.org/conferences/chlorinated/>

Course dates may change. Visit www.itrcweb.org for additional information and schedule updates.

Phytotechnologies

Phytotechnologies is a set of technologies using plants to remediate or contain contaminants in soil, groundwater, surface water, or sediments. These technologies have become attractive alternatives to conventional cleanup technologies due to relatively low capital costs and the inherently aesthetic nature of planted sites.

This training familiarizes participants with ITRC's **Phytotechnologies Technical and Regulatory Guidance and Decision Trees (PHYTO-3, 2009)**. This document provides guidance for regulators who evaluate and make informed decisions on phytotechnology work plans and practitioners who have to evaluate any number of remedial alternatives at a given site. This document updates and replaces Phytoremediation Decision Tree (PHYTO-1, 1999) and Phytotechnology Technical and Regulatory Guidance Document (PHYTO-2, 2001). It has merged the concepts of both documents into a single document. This guidance includes new, and more importantly, practical information on the process and protocol for selecting and applying various phytotechnologies as remedial alternatives.



This guidance contains decision trees:

- Remedy Selection Decision Tree
- Groundwater Decision Tree
- Soil/Sediment Decision Tree
- Riparian Zone Decision Tree

This course will be most useful if students download the guidance document and follow the discussion with the Decision Trees available.

Internet-based Training Class Dates:

February 25, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

June 15, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

September 16, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

November 16, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

The training class webpage (<http://www.clu-in.org/conf/itrc/phyto2/>) includes additional information including instructor bios and links to additional resources.

Classroom Short Course:

The ITRC Phyto Team will also offer this training course in person at the Seventh International Conference on Remediation of Chlorinated and Recalcitrant Compounds (Battelle Conference), May 24-27, 2010 in Monterey, California. For more information, please visit <http://www.battelle.org/conferences/chlorinated/>

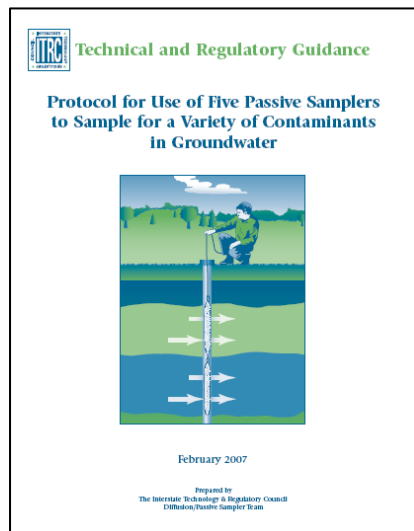
Course dates may change. Visit www.itrcweb.org for additional information and schedule updates.

Protocol for Use of Five Passive Samplers

All groundwater samplers or sampling methodologies attempt to collect a well-water sample which is representative of the groundwater adjacent to the well. The ITRC Passive Sampler Team has defined a passive groundwater sampler as one that is able to acquire a sample from a discrete position in a well without active media transport induced by pumping or purge techniques. Passive sampling is synonymous with no-purge sampling and can be used as a substitute or replacement for any current groundwater sampling technology. Passive samplers have been used in every state in the U.S. and in many other countries. Passive samplers are relatively easy to use; eliminate purge-water production (therefore, there is little or no disposal cost); reduce field sampling variability resulting in highly reproducible data; decrease field labor and project management costs for long-term monitoring; allow rapid field sample collection; sample discrete intervals in a well; are practical for use where access is difficult or discretion is desirable; can be deployed in series to provide a vertical contaminant profile; and have virtually no depth limit.



This training supports the understanding and use of the ITRC **Protocol for Use of Five Passive Samplers to Sample for a Variety of Contaminants in Groundwater (DSP-5, 2007)**. The five technologies included in this document include diffusion samplers (Regenerated Cellulose Dialysis Membrane Sampler and Rigid Porous Polyethylene Sampler), equilibrated grab samplers (Snap™ and HydraSleeve™ Sampler); and an accumulation sampler (GORE™ Module). The training starts with information common to all five samplers then focuses on each sampler as instructors describe the sampler and explain how it works; discuss deployment and retrieval of the sampler; highlight advantages and limitations; and present results of data comparison studies.



Internet-based Training Class Date:

May 18, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

The training class webpage (<http://clu-in.org/conf/itrc/passsamp/>) includes additional information including instructor bios and links to additional resources.

Risk Assessment and Risk Management

In 2010, ITRC offers two Internet-based training courses from the ITRC Risk Assessment Resources Team:

- Determination and Application of Risk-Based Values
- Use of Risk Assessment in Management of Contaminated Sites



Determination and Application of Risk-Based Values

Assessment of human health risks posed by exposure to hazardous substances is a vital component to the process of remediation of contaminated sites. Risk-based screening values are developed and used in both planning and conducting site remediation. This training course is designed for site managers and others involved in making remedial decisions to help them better understand the risk assessment / risk management process. This training course describes the development and application of risk-based screening values. The first module provides a review of key risk assessment concepts related to risk management. It also introduces the **Electronic Risk Resource Sheet** developed by the ITRC Risk Assessment Resources Team. The second module focuses on the process by which risk-based levels are derived in different states. This module introduces the document, **Examination of Risk-Based Screening Values and Approaches of Selected States (RISK-1, 2005)**, developed by the ITRC Risk Assessment Resources Team. The third module examines the application of risk assessment to remediation operations in two case studies providing examples of how risk assessment has actually been implemented, based upon research and case studies conducted by the ITRC Risk Assessment Resources Team. This training course describes a number of the reasons behind variations in risk-based screening values and their use in risk management. Overall, the training course enhances the transparency and understanding of risk assessment and its use in remediation.

Internet-based Training Class Date:

April 8, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

The training class webpage (<http://www.clu-in.org/conf/itrc/risk/>) includes additional information including instructor bios and links to additional resources.

Use of Risk Assessment in Management of Contaminated Sites

The ITRC Risk Assessment Resources Team developed a document titled **Use of Risk Assessment in Management of Contaminated Sites (RISK-2, 2008)**. This Internet-based training is taken from the RISK-2 document and highlights variation of risk-based site management and how to improve the use of risk assessment for making better risk management decisions. This training course looks at how various risk-based approaches and criteria are applied in various states and programs throughout the processes of screening, characterization, and management of contaminated sites. The document and training course are intended for risk assessors and project managers involved with the characterization, remediation, and/or re-use of sites. This training course explains:

- Variation in risk assessment parameters/approaches in various states and their influence on risk management
- Insights into the use of risk assessment in risk management process through use of specific case study examples
- An improved process of using risk assessment in risk management

Internet-based Training Class Dates:

January 12, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

April 27, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

July 20, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

October 19, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

The training class webpage (<http://www.clu-in.org/conf/itrc/risk2/>) includes additional information including instructor bios and links to additional resources.

Unexploded Ordnance

In 2010, ITRC offers two Internet-based training courses from the ITRC Unexploded Ordnance (UXO) Team:

- Survey of Munitions Response Technologies
- Quality Consideration for Munitions Response



Survey of Munitions Response (MR) Technologies

This training course is intended for an intermediate-to-advanced audience and assumes an understanding of technologies and phases of munitions response. This training introduces state regulators, environmental consultants, site owners, and community stakeholders to **Survey of Munitions Response Technologies (UXO-4, 2006)**, created by the ITRC's UXO Team in partnership with the Strategic Environmental Research and Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP). This training course focuses on the major take-home conclusions of the document and provides an understanding of the performance capabilities of available technologies under real-world site conditions.

Internet-based Training Class Date:

April 15, 2010 (Thursday) 11:00 a.m. - 1:00 p.m. EASTERN TIME

The training class webpage (<http://www.clu-in.org/conf/itrc/uxost/>) includes additional information including instructor bios and links to additional resources.

Quality Consideration for Munitions Response

This training introduces state regulators, environmental consultants, site owners, and community stakeholders to **Quality Considerations for Munitions Response Projects (UXO-5, 2008)**, created by the ITRC's Unexploded Ordnance Team. In this document, quality is defined as "conformance to requirements." To manage quality, the quality requirements of the project must first be understood. Requirements must be precisely stated and clearly understood by everyone involved. A plan is then put in place to meet those requirements. This training course is intended for an intermediate audience and assumes a basic understanding of specialized processes associated with MR projects. Background information on some of the topics can be found in Munitions Response Historical Records Review (UXO-2, 2003), Geophysical Prove-Outs for Munitions Response Projects (UXO-3, 2004), Survey of Munitions Response Technologies (UXO-4, 2006) and their associated Internet-based training courses.

Internet-based Training Class Dates:

January 28, 2010 (Thursday) 11:00 a.m. - 1:15 p.m. EASTERN TIME

April 13, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

July 27, 2010 (Tuesday) 2:00 p.m. - 4:15 p.m. EASTERN TIME

The training class webpage (<http://www.clu-in.org/conf/itrc/uxoq/>) includes additional information including instructor bios and links to additional resources.

Internet-based Training Course Archive for Additional Courses:

The ITRC UXO Team developed three additional training courses that are available in the Internet-based training archives. You can listen/view slides of a previous offering at the links listed below or view all archive courses available at <http://clu.in.org/live/archive.cfm?sort=title#itrc> (courses in the archive are listed alphabetically).

- **Site Investigation and Remediation for Munitions Response Projects**
http://www.clu-in.org/conf/itrc/uxosisr_013007/
- **Munitions Response Historical Record Review**
http://www.clu-in.org/conf/itrc/mrhrr_062204/
- **Geophysical Prove-Outs for Munitions Response Projects**
http://www.clu-in.org/conf/itrc/gpo_012505/

Course dates may change. Visit www.itrcweb.org for additional information and schedule updates.

Vapor Intrusion Pathway: A Practical Guideline

Vapor Intrusion is the migration of volatile chemicals from the subsurface into overlying buildings. Volatile chemicals may include volatile organic compounds, select semi-volatile organic compounds, and some inorganic analytes, such as elemental mercury and hydrogen sulfide. Degradation of the indoor air quality causes a great deal of fear and anxiety among building occupants, business, and other property owners. Vapor intrusion has become a significant environmental issue for regulators, industry leaders, and concerned residents. Vapor intrusion requires three components: the source, an inhabited building, and a pathway from the source to the inhabitants.



The ITRC Vapor Intrusion Team was composed of representatives from 19 states environmental agencies, 12 environmental companies, and four federal agencies (including EPA). This team developed the ITRC Technical and Regulatory Guidance document **Vapor Intrusion Pathway: A Practical Guideline (VI-1, 2007)**, companion document **Vapor Intrusion Pathway: Investigative Approaches for Typical Scenarios (VI-1A, 2007)**, an Internet-based training course, and a 2-day classroom training course to be used by regulatory agencies and practitioners alike.

Led by internationally recognized experts, the 2-day ITRC classroom training will enable you to learn the latest strategies to conduct site screening and investigations; determine what tools are appropriate to collect quality data and evaluate the results; apply multiple lines of evidence to ensure quality decision-making; build solutions for VI issues through understanding of mitigation options; and network with environmental professionals dealing with this interdisciplinary and complex pathway. Interactive learning with hands-on exhibits, classroom exercises, and frequent Q&A sessions will reinforce these course objectives and contribute to a practical understanding of this difficult pathway. In 2010-2011, the training course will be offered at locations across the United States. For more information, see <http://www.itrcweb.org/crt.asp>

2-day Vapor Intrusion Training Course:

The ITRC Vapor Intrusion Team will offer this 2-day training course at three locations in 2010:

- March 22-23, 2010 – Norfolk, Virginia hosted by Virginia Department of Environmental Quality
- July 12-13, 2010 – Boston, Massachusetts (area) in cooperation with Massachusetts Department of Environmental Protection
- October 4-5, 2010 – Atlanta, Georgia hosted by Georgia Environmental Protection Division

Internet-based Training Course Archives:

The ITRC Vapor Intrusion Team developed a 2-hour Internet-based training courses that is available in the Internet-based training archives. You can listen/view slides of a previous offering at http://www.clu-in.org/conf/itrc/vipathway_042908/ or view all archive courses available at <http://clu-in.org/live/archive.cfm?sort=title#itrc> (courses in the archive are listed alphabetically).