



Environmental
Professionals of
Iowa

2010 ITRC TRAINING

LNAPL Part 3:

Evaluating LNAPL Remedial Technologies for Achieving Project Goals

Hosted by Environmental Professionals of Iowa at the following locations

Eastern Iowa

University of Iowa Research Park
Bioventures Center
2500 Crosspark Road
Coralville, IA 52241-3212

Hostess: Julie Oriano, Stanley Consultants
(see attached map)

Central Iowa

Iowa Association of Municipal Utilities training facilities
1735 NE 70th Avenue
Ankeny, Iowa 50021-9353

Hostess: Kay Eekhoff, EPI Program Chair
(see attached map)

Western Iowa

IDNR Field Office #4
1401 Sunnyside Lane
Atlantic, Iowa 50022

Host: Dan Stipe, IDNR Field Office #4
(see attached map)

Cost: \$5 per person with snacks and beverages provided

Presentation approved by IDNR for 2.5 CEUs

Register online at <http://www.epiowa.org/html/calendar.html>

Agenda

Thursday, March 18

9:30 – 10:00 AM

Check in

10:00 – 12:15 PM

ITRC Webinar: LNAPL 3

12:15

Sign-up for CEUs

As in previous presentations, presenters will take questions during the last portion of the presentation.



Environmental
Professionals of
Iowa



Course Overview as provided by ITRC

Over the past few decades, a spectrum of LNAPL remedial technologies have developed that range from conventional pumping or hydraulic recovery systems that address the mobile LNAPL fraction, to a variety of innovative, aggressive, and experimental technologies that address the mobile and residual LNAPL fractions, as well as volatile and soluble LNAPL fractions. Thus, many different LNAPL remedial technologies with differing site and LNAPL applicabilities and capabilities are available to remediate LNAPL releases. This can make selection of a remedial technology daunting and inefficient. To foster informed remedial technology selection and appropriate technology application, the LNAPLs Team developed the ITRC Technical and Regulatory Guidance document, Evaluating LNAPL Remedial Technologies for Achieving Project Goals (LNAPL-2, to be published in 2009). This document addresses seventeen LNAPL remedial technologies and provides a framework to streamline remedial technology evaluation and selection.

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, to be published in 2009) based on site and LNAPL conditions and other important factors.

LNAPL Training Part 1 and **LNAPL Training 2** are recommended pre-requisites for this Part 3 training course. Both presentations are archived at the following location:

LNAPL 1 http://www.clu-in.org/conf/itrc/iuLNAPL_030309/

LNAPL 2 http://www.clu-in.org/conf/itrc/LNAPLcr_062309/

A link to the archived LNAPL 3 presentation will be provided at the end of the presentation.



Environmental
Professionals of
Iowa

Presenter Biographical Information

The team leads for the ITRC LNAPL 3 training are:

Lily Barkau, Environmental Project Manager with the Hazardous Waste Permitting and Corrective Action section of the State of Wyoming Department of Environmental Quality (WY DEQ) in Cheyenne.

Lily Barkau has worked at the WY DEQ since 2006. She reviews complex permit applications for technical adequacy; evaluates complicated environmental monitoring systems and data, determining whether releases of contaminants to the environment have occurred; reviews complicated site investigation work plans and reports; and takes actions to address releases to the environment. Previously, she worked for 5 years as a geologist/project manager at Earth Tech in Englewood, Colorado and has worked as a geologist for ThermoRetec, Tetra Tech EMI, and Barkau Engineering. She has been a member of the ITRC LNAPL team since the team started in 2007. Lily earned a bachelor's degree in geology from Wichita State University in Wichita, Kansas in 1998 and a master's degree in Environmental Science & Engineering from Colorado School of Mines in Golden, Colorado in 2004.

Pamela S. Trowbridge, P.G., PA DEP Geologist

Pamela Trowbridge is a Licensed Professional Geologist with the Pennsylvania Department of Environmental Protection (PA DEP) in Harrisburg. She has worked for the PA DEP since 1993. She has experience in regulation, guidance, policy, and procedure development and is working on developing guidance and procedures for addressing separate phase liquids in soils and groundwater. She assists sites underdevelopment through the Brownfield Action Team, a process that expedites the permitting process and the Land Recycling cleanup process, and provides technical assistance and input to Departmental permits for these sites. Pamela conducts training seminars of basic program information in the Land Recycling Program to consultants and the regulated community and provides training to DEP staff on new procedures and technical issues. Pamela has been the co-leader for the ITRC LNAPL Team since the team formed in 2007. She earned a bachelor's degree in earth sciences from Pennsylvania State University in University Park, Pennsylvania in 1992 and is a Licensed Professional Geologist in Pennsylvania.



Environmental
Professionals of
Iowa

A couple of reminders:

- Iowa Groundwater Professionals need to be sure to sign the attendance sheet at the end of the presentation in order to receive your 2.5 contact hours for attending the ITRC training.
- Those individuals, other than Iowa Groundwater Professionals, wishing to obtain contact hours for other associations/certifications are urged to provide a copy of the agenda and a copy of the slides to the appropriate governing agency for their review.
- We appreciate your feedback and ask that you email any comments, questions, or suggestions to moderator@epiowa.org or contact one of the EPI Board members.
- EPI is always looking for people interested in taking a more active role in the organization. You may contact any EPI Board member if have any questions or would like additional information.



Environmental
Professionals of
Iowa

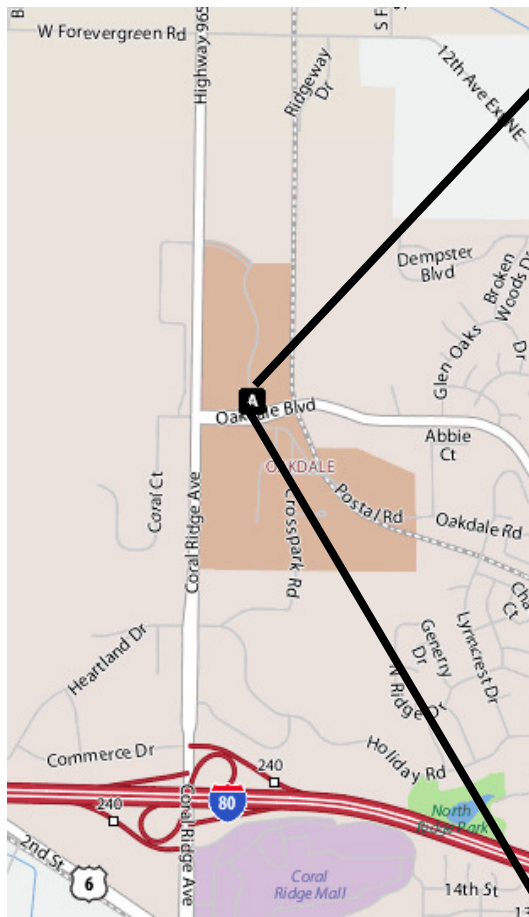


Eastern Iowa Location:

Directions to the University of Iowa Bioventures Center

To reach the University of Iowa Bioventures Center from the Interstate 80 exit at Exit 240 heading north on 27th Avenue/Coral Ridge Avenue/IA-965. Turn right at Oakdale Boulevard. Turn left onto Crosspark Road. Destination will be on the left.

To reach University of Iowa Bioventures Center from the north, head south on IA-965 toward Community Drive. Turn left at Oakdale Boulevard. Turn left onto Crosspark Road. Destination will be on the left.





Environmental
Professionals of
Iowa

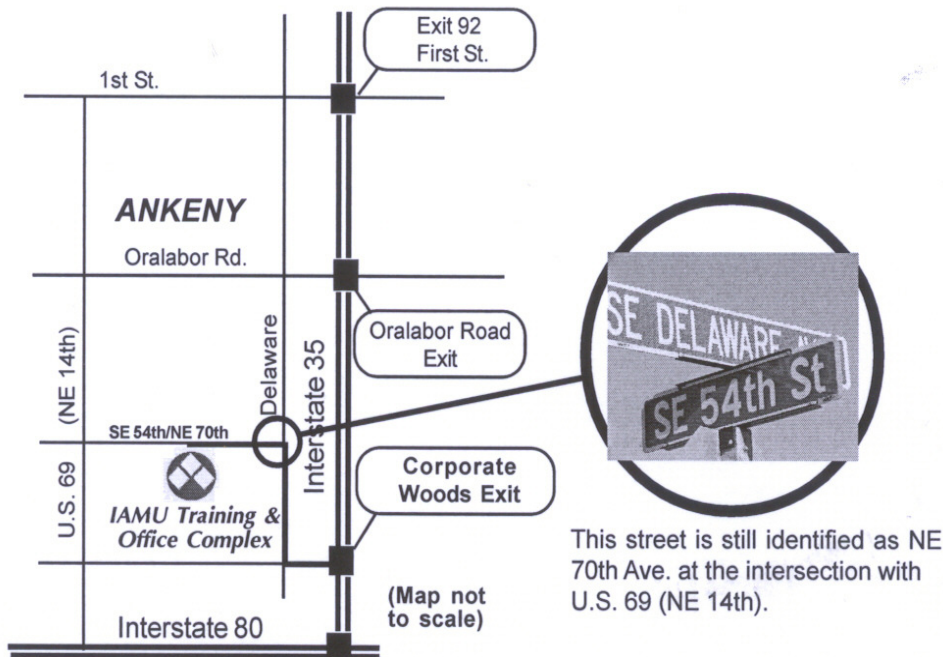


Central Iowa Location

Directions to IAMU Training and Office Complex, provided by IAMU.org

To get to IAMU, take the Corporate Woods Drive exit from I-35 (Exit 89). Turn west onto Corporate Woods Drive and continue to the four-way stop at Delaware Avenue. Turn right (north) on Delaware and continue to SE 54th Street. You will see a large warehouse on your left. (IMPORTANT NOTE: SE 54th Street is the same street as NE 70th Avenue, but there is no sign for NE 70th Avenue on Delaware Avenue.) Turn left (west) on SE 54th Street. Proceed about ½ mile on SE 54th Street/NE 70th Avenue until you see a large IAMU sign on your left that marks our driveway. Follow the driveway to the other side (south) of the IAMU office building for parking.

Map to IAMU





Environmental
Professionals of
Iowa



Western Iowa Location

Directions to Field Office #4

Off Highway 6 (7th Street) on the west side of Atlantic, turn south at the 'Extreme Clean' car wash. Take first right onto Sunnyside Lane (behind car wash). Go south to top of hill. DNR office is in last building on right, just past the nursing home.

