

MULTI-DAY CLASSROOM TRAINING PROPOSAL:

LNAPL Assessment, Management Goals, Recoverability Evaluation and Remedial Technology Selection

PROPOSAL DATE: March 9, 2009

Proposal Contact:

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Eligibility Submission Requirements:

(1) Requirement Met: Yes, the anticipated completion date is December 31, 2009 (posted to ITRC web site).

(2) Requirement Met: Yes, the consultation with Michael Smith was held March 4, 2009

Statement of Need (What is the market for this course?)

Light nonaqueous phase liquid (LNAPL)-impacted sites are a significant environmental issue at many remediation sites throughout the nation. In addition to common misperceptions of risks that LNAPLs potentially pose, LNAPLs themselves are not well understood by many environmental professionals. Many of the existing LNAPL management regulations and policies, and LNAPL assessment and remediation practices have lagged behind the science, frustrating remedial progress and case closure, and exhausting the finite resources available to address them. New paradigms for LNAPL assessment, remediation, and management need to be encouraged. A key step is to foster better understanding of LNAPL behavior, assessment, recoverability, and remedial technology alternatives and strategies for technology deployment.

The LNAPLs Team began Internet Based Training (IBT) on March 3, 2009 for the Part 1 training and on March 5, 2009 for the Part 2 training. During the question and answer periods for the sessions and in the on-line CLU-In feedback, the audience expressed appreciation for the training, over 90% of the responses indicated the training is valuable, and they indicated that there is a need for more LNAPL training. Specifically, sixty percent (12/20) of the persons who provided on-line feedback following the Part 1 IBT indicated there would be value in classroom training on the subject. Thirty-five percent of the respondents recommended the classroom training be 2 days or more in duration.

LNAPLs pose a variety of regulatory and technical issues for which states are looking for ITRC support. The ITRC State POC summary report of current priority and emerging issues submitted Fall 2008 indicates LNAPLs and petroleum hydrocarbon-related issues are of particular priority to the states of Arkansas (Priorities #1, #4), Indiana (Priority #2), Wyoming (Priorities #2, #4)), South Carolina (Priority #3), Massachusetts (Priority #4), Kansas (Priorities #6, #7), Alaska (Priority #7), New Jersey (Priority #7), and Oregon (Priority #7). Some of the states are looking specifically for a better understanding of LNAPL behavior, fate and transport, and risks, threats to soil and water resources from LNAPLs and on-shore and off-shore oil and gas production. Others are seeking to understand how to account for LNAPLs in setting cleanup goals, accelerating remedial timeframes, and developing strategies for area-wide management approaches at operating refineries. This proposed training will be timely and beneficial in addressing state needs.

Basis of Training Course Curriculum (what will provide the course content?)

The basis of the training course curriculum will primarily be the developing LNAPLs Team Technical and Regulatory Guidance Document. Material, however, will also be drawn from the other ITRC LNAPLs Team products: the Technical and Regulatory Guidance Document IBT training (to be developed 2009), the current LNAPLs Part 1 and 2 IBT courses, the Natural Source Zone Depletion Technical Overview Document (to ITRC for adoption March 2009), and the State Survey. These will also be augmented with information from the former EPA Remediation Technology Development Forum NAPLS Cleanup Alliance and from research and site experience of the team members.

Targeted Students (who will participate in the training classes?)

The primary audience for this proposed CT-MULTI is the *decision makers*: the State, Federal, and local regulators who manage contamination sites; and site owners, including the Department of Defense and Department of Energy, and various state agencies who are themselves owners/operators. Regulators in the various hazardous waste, Superfund, and leaking underground storage tanks, and voluntary cleanup programs apply the regulatory framework which in many respects dictates site activities and LNAPL management requirements. With a better understanding of the science, LNAPL regulations and policies will be implemented more effectively and for clearer purposes. Ideally, a better understanding of LNAPLs will eventually lead to better crafted LNAPL regulations and policies that better reflect LNAPL behavior and better match requirements with risks. The site owners must comply with the regulations and interface with regulators. A good understanding of LNAPLs will help them ensure the appropriate site actions will be conducted.

The secondary audience is the implementers: the environmental consulting community. Similarly, a better understanding of the science of LNAPLs will facilitate better LNAPL assessments and site characterizations, and better evaluation, selection, and implementation of LNAPL remedial alternatives.

Impact (how will this training course result in more effective environmental decision making?)

In general, the training will promote better understanding of the LNAPL science and help the state of the practice to catch up to the state of the science. The training will enhance communication between regulators, consultants, and site owners/operators. It will help to dispel LNAPL misperceptions and provide a more consistent framework of LNAPL understanding and help each better communicate with the other. Specifically, the training will better equip regulators to:

- understand subsurface LNAPL behavior,
- know the LNAPL fundamentals needed to more insightfully collect, analyze, interpret and understand LNAPL data, and to understand the limitations of the LNAPL data and analysis,
- be informed of current and emerging LNAPL assessment and recovery evaluation tools and strategies,
- have a technical context in which to evaluate and understand key LNAPL risks, and a knowledge of the minimum and critical data needs for LNAPL evaluations and remedial technology selection, and
- apply the LNAPL Technical and Regulatory Guidance Document to the evaluation of the different LNAPL remedial technology alternatives.

These in turn will help regulators implement or develop effective LNAPL management regulations and policies, better evaluate LNAPL assessment and remediation plans and reports, formulate appropriate and reasonable site directives, or better develop scopes of work to assess state and federal fund-lead sites.

The training will help the environmental consulting community. The training will help them to develop better LNAPL assessment and remediation approaches and plans or reports for state review. The training will introduce them to tools that can be applied to their projects to help them assess LNAPL sites and to technically evaluate the different remedial technologies in the context of LNAPL management goals. The training will better equip the environmental consulting community to better communicate with the regulator, their client, and the public.

The training will enable site owners and operators to have a better understanding of what efforts are likely warranted to adequately assess LNAPL conditions at their site. Further the classroom training will

train them in the practical application of the Technical and Regulatory Guidance Document, allowing them to more independently and objectively evaluate LNAPL remediation recommendations proposed to them by their consultants or contractors.

The training will be structured to introduce concepts in a systematic way that builds throughout the course. Concepts and practical application will be reinforced through a series of relevant and inter-related case examples, problem exercises and practice applications. The trainers will be experts who can directly address the class participant's questions, comments, and debate regarding information presented in the LNAPL training course subject. The course will be focused on enforcing practical application so the class participants can take the training back to their offices and apply what they have learned.

Project Schedule

Spring Meeting 2009: Initial formal discussions with LNAPL team members regarding planning for the classroom training – conference call. Ideas will be solicited for training objectives, content, and methods.

July 2009 – LNAPLs Team conference call to further discuss Classroom Training. The Technical and Regulatory Guidance document will be in ITRC review and the associated IBT training will be far enough developed to help focus the classroom training.

Fall Meeting 2009: Initial scoping of the classroom training objectives, content, and methods. Volunteers for the training team will be solicited and formed. The LNAPLs Training Team will be comprised of the LNAPLs Team Leaders, the instructors, and other interested LNAPL team members (others than instructors will be needed to help formulate the curriculum). Announcement of the course and short presentation made at a general session to advertise course and seek host state sponsorship.

December 2009: LNAPLs Training Team and instructors confirmed.

January–March 2010: Develop initial draft of training curriculum, including training slides, problems sets, and example problems. Communication with the ITRC Training liaison will be frequent.

April–June 2010: Training team to meet at the 2010 Spring Meeting to review the training curriculum and practice the training – testing the content, method of delivery, practicality, flow, and length of course, and to evaluate the instructors, etc. The ITRC training liaison will be encouraged to attend. Also, host states and federal government sponsors will be sought at the meeting. Target training schedule and target training venues will be proposed. Ideally, 3 CT-MULTI courses will be offered per year, with one course per year targeting Eastern US, Mid Continent, and Western US.

July–September 2010: Training material finalized and submitted to the ITRC Training liaison for preparation of the dry run. Venues selected and reservations made.

Oct–December 2010: Dry run, course amendments and finalization based on Dry Run feedback. Curriculum submitted for final ITRC approval and quality review. Course advertisement and registration opened.

2011 – 2013 – CT-MULTI offered ideally as three courses per year, with one course per year targeting Eastern US, Mid Continent, and Western US.

Training Personnel Required

Potential Instructor/Proctor Needs

Team Leaders: Tripp Fischer (Delaware) and Pam Trowbridge (Pennsylvania)

Tripp and Pam are the leaders of the ITRC LNAPLs Team. They have expertly set the vision for the team, have fostered a team identity amongst the team members, and have kept the team focused, organized, productive – all traits of good leadership. They both lead by example and contribute to the development of team products as much or more than any team member.

Tripp Fischer: Tripp is a manager with the Delaware Department of Natural Resources and Environmental Control. Tripp possesses consulting and regulatory experience that have provided abundant opportunities in planning and conducting site and LNAPL characterization programs, and evaluating remedial technologies and designing and deploying remediation systems at contamination sites. Additionally, he has experience providing professional training and teaches courses at a local community college. Previously, he served on the ASTM Subcommittee that developed: *Standard Guide for Development of Conceptual Site Models and Remediation Strategies for Light Nonaqueous-Phase Liquids Released to the Subsurface (ASTM E 2531-06)*. His expertise is recognized by his peers and because of such expertise he was specifically recommended by IAP members to lead the LNAPLs Team.

Pam Trowbridge: Pam has extensive regulatory experience in various regulatory programs at Pennsylvania Department of Environmental Protection. She has extensive experience providing regulatory oversight to LNAPL-impacted sites. She also has extensive public speaking experience as well as experience in developing training course for the PADEP that are given to fellow regulators and to private sector environmental professionals. She was integrally involved in the development of the current Part 1 and 2 IBT courses and is the state trainer for the Part 2 course and is the backup state trainer for the Part 1 IBT course.

Proposed Instructors:

In addition to the Pam and Tripp, the LNAPLs Team has multiple IAP Members (e.g., Sanjay Garg, Shell Global Solutions -- Mark Adamski, BP -- Tim Smith, Chevron -- Ian Hers, Golder and Associates -- Derek Tomlinson, ERM – Dave Cushman, Conestoga Rovers) who likely would be willing to serve as instructors. The IAP members are recognized for their LNAPL expertise and all have extensive experience in developing training courses and serving as instructors. No decision has been made yet as to whom the four instructors would be, but we realize at least one must be a state regulator. All proposed instructors will meet eligibility requirements as set for the in the ITRC Training Manual.

Up to two proctors are anticipated to be needed to facilitate the “hands-on” nature of the course. The proctors will assist in distributing problem sets and classroom management. The proctors could be other LNAPLs Team members, such as IAP Members not able to serve as instructors. A rotating proctor duty could be established.

Proposed In-Kind/Direct Project Funding

The availability of in-kind/direct project funding is unknown at this time. We do know that enhancing the understanding of LNAPLs and improving LNAPL management paradigms is a priority amongst the IAP membership, including the American Petroleum Institute, which to date has been instrumental in coordinating funding for the LNAPLs Team. It is readily conceivable that the US EPA and state regulatory agencies would be willing to provide in-kind support – such as providing training room accommodations, copying and providing course curriculum and advertising the courses – in return for offering the course in their Region or state.

Related Courses and Competition:

At this time there are no known standing courses that would compete with this proposed training. Professional papers are presented at the various conferences and seminars held across the country, experts within industry and environmental consulting firms offer training for their firms or their stakeholders, but there is no national training program like that proposed herein. There is a potential

that the ASTM may develop and offer an LNAPL course, but if that happens the ASTM and ITRC efforts could be coordinated so as to compliment rather than compete with one another. In addition to Tripp Fischer's ITRC LNAPLs Team responsibilities, he is also a standing ASTM Committee Officer, and as such, he is in an optimum position to ensure a complimentary effort between the two organizations.