

<b>THIS PROPOSAL IS BASED AND HAS CONSIDERED THE ITRC TRAINING PROGRAM POLICIES AND PROCEDURE APPROVED</b>
<b>ITRC MULTI-DAY CLASSROOM TRAINING PROJECT PROPOSAL: VAPOR INTRUSION MULTI-DAY CLASSROOM TRAINING</b>
<b>TITLE OF TECH/REG:</b> Vapor Intrusion Pathway: A Practical Guideline
<b>PROPOSAL DATE:</b> <u>May 30, 2007</u> [ <i>Proposals are due to ITRC Program Administrator by June 1 each year</i> ]
<b>PROPOSAL CONTACTS:</b> John Boyer, ITRC Co-Leader Vapor Intrusion Team, 609-984-9751, <a href="mailto:john.boyer@dep.state.nj.us">john.boyer@dep.state.nj.us</a> Michael Smith, Training Program Liaison, 802-241-3879, <a href="mailto:michael.b.smith@state.vt.us">michael.b.smith@state.vt.us</a> Steve R. Hill, Team PA, 208-442-4383 <a href="mailto:srhill1@mindspring.com">srhill1@mindspring.com</a> Mary Yelken, Training Program PA, 402 325-9615, <a href="mailto:myelken@earthlink.net">myelken@earthlink.net</a>
<b>PROBLEM STATEMENT</b> (why is this project necessary? Include any indication of market need)
<p>Degradation of the indoor air quality causes a great deal of fear and anxiety among building occupants, business and other property owners. In a residential community, concerns over vapor intrusion are often magnified “hot button” issues. Many state and federal agencies know little about the scope of the vapor intrusion problem or how to solve it. Results from the May 2006 ITRC Training Program Customer Service Survey indicated that classroom training, focused on the topic of vapor intrusion sites, was at the highest priority level when compared to other types of sites. In addition, results from the August 2006 ITRC State Engagement Program State Priorities and Emerging Issues Survey indicated that vapor intrusion issues were in the top four of state issues that could benefit from ITRC efforts.</p> <p>More recent indications are that the vapor intrusion topic is ready for additional training. The first two public classes of the Vapor Intrusion Internet-based training course resulted in the highest number of participants for any previous ITRC course (March 15, 2007 = 435 participants; May 8, 2007 = 451 participants) as well as significant waiting lists for each. Also, the dry run of the Vapor Intrusion course was the best attended by states ever, more than doubling the average dry run attendance. The next most popular ITRC public training offerings were a natural attenuation class in December 2000 with 350 participants and Direct Push Well class in April of 2006 with 346 participants. In addition, participants have provided feedback indicating a need for a more in-depth curriculum for Vapor Intrusion. From a state regulator: “We need more technical specifics and guidance. Please provide more case studies and lessons learned.” From a consultant: “I hope the ITRC will work with its members and develop some more "how to put it into practice" sessions regarding vapor intrusion in the future.” Also, when participants were asked “Would a classroom training course on this topic be valuable to your organization?” 75% of those responding indicated interest in classroom training. This is a 25% higher response when compared to the overall response to that question for other ITRC training topics. Currently there is no vapor intrusion classroom training available.</p>

Vapor intrusion has the real potential to change the focus of most regulatory programs. While contaminated groundwater is typically the biggest concern for regulatory agencies, it has been thought to be relatively easy to eliminate this route of exposure by preventing people from drinking the water (e.g. hook properties to city water, install water treatment). In these cases, the ground water contamination was often left in place because the people weren't drinking it. Vapor intrusion was never considered until just recently. In other situations, sites were closed with low level VOC contamination (below the accepted MCLs) at concentrations that are now considered a risk from vapor intrusion. Vapor intrusion represents a threat that had previously been unnoticed and not incorporated into the original risk evaluation of a contaminated site. The vapor intrusion pathway may lead to countless closed, mitigated or non priority sites suddenly requiring prompt or emergency action.

Vapor intrusion is a significant environmental and health issue for regulators, industry leaders and communities. Historically, exposure pathways have been assessed using "exterior" investigative tools to characterize and delineate contamination, thereby making it less intrusive to assess the exposure pathway (i.e., not disturbing local building occupants). Vapors in a building on the other hand are more difficult to characterize, contain, eliminate or prevent. The investigation of vapor intrusion can include the collection of environmental samples inside or immediately outside a structure. These investigative measures of the source and the pathway most often impact, at the very least inconvenience, the occupants.

Many, if not most states, have only a cursory understanding of the scale and scope of the vapor intrusion pathway. State programs, as always, have few resources to apply to new environmental issues like vapor intrusion. Simply understanding the scope and scale of the problem is often overwhelming and many agencies are still in reactive and emergency situations, giving little time to strategically evaluate and plan for the investigation and remediation of the statewide vapor intrusion problem.

Since the investigative methods and tools vary from traditional environmental investigations, training and guidance are essential to take better advantage of the lean resources available to states. The ITRC guidance on vapor intrusion is available but classroom training is required to fully meet the urgent needs of the state regulatory community.

#### **SOLUTION / IMPACT** (how will the project impact the environmental marketplace?)

The ITRC guidance provides an understanding of the factors and methodologies that may be most appropriate to assess and remediate the vapor intrusion pathway. The proposed ITRC classroom training will deliver a practical educational forum to address the needs of the environmental community regarding vapor intrusion issues.

Since state and federal agencies differ about the approaches acceptable for screening a site from further consideration, the Vapor Intrusion Team's ITRC guidance offers the tools without prescribing specific investigative strategies. Use of the guidance can simplify and accelerate the learning curve amongst states and thereby reduce the backlog of sites within a state. The classroom training will add clarity, in an educational venue, to the details of investigating, characterizing and mitigating a vapor intrusion problem, or establishing a screening method to eliminate suspect sites from the backlog, while still protecting human health and the environment. The ITRC guidance and the associated training will not only reduce the learning curve for states unfamiliar with the VI issue

but can reduce the resources required to investigate and mitigate sites.

To date EPA guidance has been limited to the initial screening phase, whereas the ITRC guidance and proposed training incorporates remedial investigation and mitigation phases of the project. All federal agencies that manage facilities providing housing, business, or other work facilities will benefit from the guidance as well as the private sector.

A classroom training based on the concepts included in the ITRC “Vapor Intrusion Pathway: A Practical Guideline” plus the approaches described in the “Vapor Intrusion Pathway: Investigative Approaches For Typical Scenarios,” will provide a curriculum on the practical application of various investigative and mitigation techniques for vapor intrusion sites. This classroom training will cause the industry to optimize resources and protect residents from further exposure. The training will also teach the necessary methodologies for characterizing, screening and mitigation of VI sites.

**BASIS OF TRAINING**

The basis of the proposed VI classroom-style training is the Vapor Intrusion Team’s Technical and Regulatory Guidance Document “Vapor Intrusion Pathway: A Practical Guide” (VI-1, January 2007); the companion document “The Vapor Intrusion Pathway: Investigative Approaches for Various Scenarios” (VI-1A, January 2007), a hypothetical site description document; and the associated two hour Internet-based Training “Vapor Intrusion Pathway: A Practical Guide” (January 2007).

**SUCCESS MEASURES (How you determine the project impact to the market place)**

1. Listed below are potential success measure options to be considered pending budget availability
  - a. Student evaluation of each classroom training course offering
  - b. Student response following training participation (example 3 – 12 months) to evaluate the impact or change to the student’s organization and sites resulting from the training
  - c. Document, through communication with POCs, students, and team members, any measurable increased use of the guidance. This includes the relative rate or total number of states who concur with the guidance before and after attending the class
  - d. Documentation of how many states are using or referencing the ITRC guidance in their state guidance
  - e. Evaluate whether the backlog of sites in ITRC states been reduced and how much is attributable to the ITRC guidance, the IBT and Classroom training.
  - f. Measure an increased awareness of the importance of VI sites in the states. This could be reflected in an increased rate of funding per state to a Vapor Intrusion program or simply increased state personnel committed to VI in states to reduce bottleneck in small programs
  - g. Reduce the investigation and mitigation requirements of sites within the state programs
  - h. Document and evaluate the states ability to address VI sites

**SUMMARY OF DELIVERABLES (primary project outputs)**

1. Incorporation of the classroom training strategy into the Implementation Strategy of the project.
2. Strategic approach to deliver the class adequately throughout the US
3. A multi-day classroom training curriculum, objectives, course outline, training approach, and student oriented problem sets.
4. Student evaluation summary of Dry Run
5. ITRC Training Program evaluation of Dry Run
6. Partnership and sponsorship agreement(s) as appropriate for this training

7. Host state agreements as appropriate to implement training strategy
8. Cumulative student statistic and evaluation summary by course
9. Continuing Education Credits (or related) on a course by course basis as available and required in the regional setting.
10. Identification of lessons learned and successes

### **PROJECT SCHEDULE**

#### **Year 1 Development**

- Preparation and testing (i.e., dry run) of the classroom curriculum based on Vapor Intrusion Team products
- Preparation for public offering

#### **Year 2, 3 and 4 Delivery** (based on a total of 10 courses with maximum of 200 students per class)

- Classroom training delivery, evaluation, and updates
- Collection and summary of success according to success measures

#### **Year 5 Evaluation**

- Evaluation and modification as necessary of Tech Reg guidance and corresponding classroom training curriculum to stay up-to-date with current research and developments. (Depending on degree of modification that may be required the team may be reconvened - see project life cycle guidance).

### **TARGET AUDIENCE**

1. State/Federal Regulators and Practitioners
  - a. States that are still identifying the problem or the magnitude of the problem
  - b. Environmental professionals that need a basic understanding of investigative tools and should have at least 2 year's experience in the industry
2. Federal agencies who manage properties (e.g., DOE, DoD, DOI, OMB and DOA)
3. Secondly, local community stakeholders will become more aware of the actual risk without the exposure emotion and the sensitivities residents experience during investigations.

### **TRAINING DELIVERY STRATEGY**

1. Target regional delivery locations based on potential student population, ITRC host states or USEPA Regions.
  - a. Negotiate host state agreements according to ITRC Training Program Policies and templates
  - b. Consider locating events or conferences in close association with vapor intrusion issues and negotiate partnership agreements to hold class in conjunction with event. (Negotiate partnership agreements with event sponsor according to ITRC training program policies and templates.
  - c. Solicit sponsorships to hold class at specified locations, for specific students, etc (See ITRC Training Policies and templates.)
2. Target student number is approximately 2000 over 10 courses nationwide
  - a. Establish a percentage of course student population intended to be regulators, practitioners, etc
3. Develop marketing and advertising strategy based on selected delivery locations.

**TRAINING PERSONNEL REQUIRED**

**Instructors**

- States
  - John Boyer, NJ (Original Team leader)
- Federal agencies
  - (TBD from original Team)
- Industry
  - (TBD from original Team)
- Academia
  - (TBD from Original Team)
- Others
  - (TBD from Original team)

**ITRC Program Support**

- Technical Team Program Advisor during development and testing of the course and overall implementation evaluation.
- Classroom Training Program Support for strategy development, quality assurance, course planning and delivery, and success evaluation
- Outreach Support maintains training website, utilizes existing advertisement opportunities, ships documents to training venues and related programmatic support
- State Engagement provides quality assurance and testing (identify state students for dry run testing)
- ITRC/ECOS management support provides classroom training venue coordination and contract implementation.

**Potential Funding Sources and Strategy (list potential funding sources including organization, contacts, potential amount, when funding is expected to be available)**

Name	Organization	Telephone	E-mail
Henry Schuver	USEPA OSW	703-308-8656	<a href="mailto:Schuver.Henry@epamail.epa.gov">Schuver.Henry@epamail.epa.gov</a> – possibly \$25,000
Greg Taylor	Raytheon		

FINANCIAL RESOURCES												
Year	TRAVEL <sup>(1)</sup>			CONTRACT SUPPORT <sup>(2)</sup>		MATERIALS & FACILITIES		POTENTIAL REVENUE		TOTALS	TOTAL COSTS w/ REVENUE	
	Instructor	Proctor	State Regulator	Team PA (labor & travel)	Training Program (labor & travel) <sup>(3)</sup>	Materials, Printing, Calls <sup>(4)</sup>	Facilities & Catering <sup>(5)</sup>	Revenue for 25% paying customers (200 class size) <sup>(6,7)</sup>	Revenue for 50% paying customers (200 class size) <sup>(6,7)</sup>	PROJECT TOTALS	Total Cost if 25% paying customers <sup>(6,7)</sup>	Total Cost if 50% paying customers <sup>(6,7)</sup>
Year 1 Curriculum Development & Testing (including Dry Run)	12,000 <sup>(8)</sup>	2,400 <sup>(9)</sup>	12,000 <sup>(10)</sup>	65,000	41,000	9,000	2,000	0	0	143,400	143,400	143,400
Year 2,3,4 Public Classes (ten) <sup>(11)</sup>	48,000	24,000	60,000	0	350,000	78,000	200,000	500,000 (R)	1,000,000 (R)	760,000	260,000	240,000 (R)
Per Public Class	4,800 <sup>(12)</sup>	2,400 <sup>(13)</sup>	6,000 <sup>(14)</sup>	0	35,000	7,800	20,000	50,000 (R)	100,000 (R)	76,000	26,000	24,000 (R)
For Year 2 - (3 classes)	14,400	7,200	18,000	0	105,000	23,400	60,000	150,000 (R)	300,000 (R)	228,000	78,000	72,000 (R)
For Year 3 - (4 classes)	19,200	9,600	24,000	0	140,000	31,200	80,000	200,000 (R)	400,000 (R)	304,000	104,000	96,000 (R)
For Year 4 - (3 classes)	14,400	7,200	18,000	0	105,000	23,400	60,000	150,000 (R)	300,000 (R)	228,000	78,000	72,000 (R)
2011 Evaluation & Update Guidance and Classroom Training Curriculum	12,000	0	0	25,000	10,000	15,000	0	0	0	62,000	62,000	62,000
<b>TOTALS</b>	<b>72,000</b>	<b>26,400</b>	<b>72,000</b>	<b>90,000</b>	<b>401,000</b>	<b>102,000</b>	<b>202,000</b>	<b>500,000 (R)</b>	<b>1,000,000 (R)</b>	<b>965,400</b>	<b>465,400</b>	<b>34,600 (R)</b>

**Notes:**

- <sup>(1)</sup> Based on ECOS/ITRC assumption of \$1200 average per trip (ECOS, 2007)
  - <sup>(2)</sup> Outreach Program support beyond what is already a part of their general outreach activities. Additional resources to be determined.
  - <sup>(3)</sup> See ITRC Training Program Strategy (Aug. 2006) for list of classroom training development and delivery support functions
  - <sup>(4)</sup> Assumes ITRC guidance document provided on CD and course booklet provided to each participant (materials for the dry run are included).
  - <sup>(5)</sup> Based on ITRC/ECOS facilities and catering cost projections; Includes breaks and one reception for attendees; these are only estimations and costs are likely to vary significantly by location. It is preferred that meals (i.e., breakfasts and lunches) be provided to the participants to create additional networking opportunities and to increase the opportunities for invited speakers. There may be potential to solicit additional funds from sponsors and/or IAP members.
  - <sup>(6)</sup> Highlights potential revenue projections based on either 25% or 50% paying customers. The amount of paying customer registration space will be impacted by the number of promised IAP complimentary training spaces and sponsor slots required. Revenues would be spread over a 3 year period and would not become available until the first public offering likely more than a year after development begins so these revenues should not be counted on to support this classroom training effort until year 3 (2<sup>nd</sup> year of public offerings), requiring ITRC to make a full commitment for development and initial delivery.
  - <sup>(7)</sup> Revenues have not been reduced to account for credit card transactions (in range of 3% depending on how the transactions occur and who does them)
  - <sup>(8)</sup> Based on 5 instructors for 2 meetings; 4 principle instructors and 1 alternate during development (one meeting being the dry run).
  - <sup>(9)</sup> Based on 2 proctors – these two would serve as proctors for the first public offering
  - <sup>(10)</sup> Based on 10 state regulator travel scholarships for dry run (if additional state regulators are needed for the dry run, and regulators from the region can not be recruited at no cost to the ITRC, then additional travel scholarships may be needed.)
  - <sup>(11)</sup> Includes projection of 200 participants per class for 10 classes (2 days, e.g., a typical timeline schedule would be begin Tuesday at 8:00 a.m. and end Wednesday at 5:00 p.m.), an approximate per person ITRC cost of \$500 for development and delivery. It should be noted, however, that ITRC members provide much of the development costs in-kind. Revenues generated from paying customers will help offset total cost of course development and delivery but will only be realized after public offerings begin so it will be important for ITRC to budget accordingly to ensure adequate resources for planning, development, and initial deliveries.
  - <sup>(12)</sup> Based on 4 instructors per public class
  - <sup>(13)</sup> 2 proctors per public class (regional team members will be used to defray these costs when possible).
  - <sup>(14)</sup> Based on 5 state regulator travel scholarships per public delivery (training is free for state regulators and training will be offered regionally, therefore, scholarships may not be necessary). There may be times when additional state travel scholarships may be needed to help ensure maximum state attendance in specific training classes.
- (R) Highlights values that represent revenue or situations where the income generated exceeds the expenses.