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NIEHS
National Institute of
Environmental Health Sciences

2012 National Trainers' Exchange for Department of Energy (DOE) Safety and Health Trainers

Workshop Report

May 7–8, 2012

Holiday Inn Knoxville Downtown
World's Fair Park, Knoxville, TN

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Top: *Sharon Beard, NIEHS.* ***Bottom:*** *Don Ellenberger, CPWR.*

Photographs by Jim Remington, NIEHS

2012 National Trainers' Exchange for Department of Energy (DOE) Safety and Health Trainers

BACKGROUND

The National Defense Authorization Act for fiscal years 1992 and 1993 (42 USC 7274(d)) authorized the Secretary of Energy to make awards: "to provide training and education to persons who are or may be engaged in hazardous substance response or emergency response at DOE nuclear weapons facilities; and to develop response curricula for such training and education." In an effort to rapidly move to the implementation stage and to leverage program resources and a review of the National Institute for Environmental Sciences (NIEHS), the Department of Energy (DOE) entered into an agreement with NIEHS to award and administer the grants and to adapt the HAZWOPER program to meet the needs of DOE.

Initial awards under the DOE program were made in 1993, and the program continues to be funded, with the most recent funding announcement made in 2010 for a five-year funding period (FY 2010-2015). The goal of the DOE/NIEHS Worker Education and Training Program has been to provide site-specific, quality training to workers in a timely and cost-effective manner, through a partnership involving government, contractors, and labor organizations. This training assistance program is targeted for workers engaged in environmental restoration, waste treatment, and emergency response activities at sites in the DOE's nuclear weapons complex.

In efforts to establish and implement integrated safety and health training throughout DOE operating sites, the DOE Office of Health, Safety, and Security (HSS) National Training Center (NTC), NIEHS, and the Volpentest HAMMER Training and Education Center (HAMMER), teamed in 2011 to establish a model for collaborative safety training workshops across the DOE nuclear weapons complex. The workshops were conducted over a day and a half and included presentations by all stakeholders, including the government, contractors, unions, and workers. Facilitated breakout sessions provided the opportunity for participants to have detailed dialogues relative to training experiences at the site, what was working well, issues that have arisen and what barriers existed, and how improvements could be achieved. The workshops were held at Oak Ridge, Savannah River, Los Alamos, and Idaho. As a result of the workshops, a "straw-man" document was created to expand the use of collaborative safety and health training across the DOE facilities. The intent of this proposal is to initiate a dialogue across the DOE complex to foster discussion and ideas for implementation of integrated safety and health training that could minimize redundancy and enhance the quality, efficiency, and effectiveness of DOE worker training.

As part of this continuing collaboration, on May 7-8, 2012, the NIEHS Worker Education and Training Program (WETP) hosted a National Trainers' Exchange for safety and health trainers funded under its Department of Energy (DOE) Nuclear Worker Training Program in Knoxville, TN.

The Trainers' Exchange

Over 100 HAZMAT and RAD safety and health trainers responsible for training more than 35,000 workers annually who engage in environmental restoration activities at DOE nuclear weapons sites, came together to share best practices and new techniques to increase training effectiveness across the DOE Complex through a series of workshops conducted by the trainers themselves. Trainers from the eight consortia funded under the DOE Nuclear Worker Training Program attended the Trainers' Exchange. The eight grantees are:

- International Union of Operating Engineers,
- LIUNA Training and Education Fund,
- International Chemical Workers Union (ICWU),
- United Steel Workers International Union (USW),
- International Association of Firefighters,
- CPWR—The Center for Construction Research and Training,
- International Brotherhood of Teamsters, and
- Partnerships for Environmental Technical Education (PETE), a community college consortia.

An agenda of the 2 day meeting can be found in **Attachment A**.

Welcome and Purpose of the Gathering

WETP Public Health Educator Ted Outwater opened the meeting by noting the importance of the partnership between NIEHS and DOE in achieving the goal of a safer HAZMAT and RAD workforce at DOE sites. "We recognize the valuable contributions of effective trainers to this goal," he said. "NIEHS wants to encourage an ongoing dialogue, to address the persisting challenges to ensuring DOE worker safety through mechanisms such as the Trainers' Exchange."

Karen Boardman, Julie Johnston, Pete Turcic and Evan Dunne

Following Mr. Outwater, Karen Boardman, Director of the DOE National Training Center, spoke on behalf of Glenn Podonsky, DOE Chief Health, Safety and Security Officer, who is "above and beyond supportive and dedicated to ensuring that workers at DOE facilities are safe and healthy". NTC is working on various initiatives, including the portability of training. They are working on taking the HAMMER model across the DOE complex. Ms. Boardman commented on the importance of the partnership between NIEHS and DOE to achieving a goal of a safer workforce at DOE sites. Boardman acknowledged the valuable contributions of effective trainers to this goal, and encouraged an ongoing dialogue to address the persisting challenges to ensuring worker safety for all workers at DOE facilities.

Julie Johnston, Senior Nuclear Safety Specialist at Energy Solutions Performance Strategies, represented the Energy Facilities Contractors Group (EFCOG). Ms. Johnston is a curricula development expert who developed nuclear safety courses, some used by NTC. She noted the importance of having centralized courses that can be used throughout the complex and a centralized system to distribute these courses. For example, the NTC is piloting the RAD course to be used across the facilities. Active learning is also extremely important as it allows for technical topics and building of classes around the actions.

Training Collaboration Project

Evan Dunne, Project Manager at the National Training Center, and Peter Turcic, advisor to the Office of Safety Training Operations provided a summary of the Safety Collaboration Workshops and the Safety Training Collaboration Project. The workshops were a collaboration of NTC, NIEHS, HAMMER and DOE sites that focused on training efficiencies and challenges. Participants of the workshops included federal officials, contractors, union staffs. The workshops took place in 4 DOE sites: Oak Ridge, Savannah River, Los Alamos National Laboratory, and Idaho National Laboratory. Based on the discussions during the workshops, it was clear that workers were receiving appropriate hazard-based training, that there was training redundancy across sites and contractors, and that there are no standardized criteria for evaluation. NTC determined that it is necessary to enhance training quality, improve standardization of training, and make sure that training can be portable. As mentioned above, "straw man" program was developed a result of the workshops. That document can be found at (*http://hssoutreach.energy.gov/collaboration/WorkerSafetyHealthTraining.pdf*).

Building on existing partnerships and utilizing lessons learned from other sites, NTC developed and established requisite infrastructure and process for site implementation. The Training Integration Model Elements include:

- site/contractor/union buy-in and ownership;
- processes for individual site and DOE-wide standardization;
- training standardization (core/site specific); worker trainers;
- blended learning (e-learning/hands on); and
- training transportability.

The pilot programs will: document Oak Ridge reservation experience and accomplishments; conduct initial program implementation pilots of site programs and DOE-wide programs; collect information on implementation challenges and issues; and issue report & use experience to enhance process. Mr. Turcic noted that the first pilot program is the RAD worker training program, as it is a requisite training contained in 10 CFR 835. Next steps for the partnership include: NTC working with HAMMER and NIEHS in program development; pilot implementation to test concepts; and begin program operation DOE-wide by end of FY2012.

Identification of Issues

During the small group activity, participants broke out in smaller sessions to discuss their success stories and the challenges they have faced.

Chee Chang, Teamsters

Successes that the participants mentioned include:

- Y-12, ORNL and East Tennessee Technology Park (ETTP) have reciprocity of the RAD course
- The Building and Construction Trades department (BCTD) has been identifying new workers to become trainers
- HoneyWell has done away with the fire department, so the security workers are the first responders. They were able to be trained
- Teamsters have been providing training on how to secure loads at HAMMER as well as providing other training nationwide. In 1996 they implemented an injury review process for line managers to review every injury that happened to reduce cost of injuries.

Challenges include:

- Aging workforce and aging trainers
- Not being sure if the training provided by subcontractors are up to our standards
- An ongoing challenge of conducting more training at specific sites.
- Inability to get worker trainers freed to conduct the training
- If work stops, trained members are back to the union hall. However, when work starts, different workers who had not received training are hired.

Plenary Session: Best Practices for Safety Training Collaborations

Sharon Beard, NIEHS WETP, introduced the plenary session by noting the importance of harnessing the energy from all the programs and working together in order to be successful. The mantra for NIEHS training is the Minimum Criteria document. As old and new issues and concerns emerge, such as the implementation of the global harmonized systems, it is important to work together to pull together knowledge and best practices on worker safety and health training.

Lessons Learned from HAMMER

Patricia Aldridge, HAMMER

Randy Coleman, HAMTEC helps a participant put on a respirator.

Patricia Aldridge, Randy Coleman, and Robert Legard, representatives from the HAMMER Training Facility at the Hanford Site, gave a presentation that shared the lessons learned from HAMMER and highlighted innovative components of its Site-wide safety training program. The program includes standardized safety practices and procedures used by all contractors. The standardization approach has increased the transferability of trained workers across sites operated by different contractors. Moreover, the Hanford Worker Eligibility Tool, a recordkeeping software system, provides contractors with the means to verify each worker's training records and qualifications. The Tool allows Hanford and its contractors to ensure that workers receive necessary safety training, avoid unnecessary training redundancies, and delegate work tasks appropriately. HAMMER is a big proponent of worker trainers. Work trainer models are successful because the trainers live the information they are sharing. They work in the job, talk about what they do. They can relate to the students in their classes and to what they are experiencing. Worker trainers also have credibility with both fellow workers and management. In addition, because they work in the same environment as trainees, they know the jargon and terminology used on the worksite. Trainees also feel safe asking questions or raising issues of a personal nature (both in and out of class) to worker trainers. One of the challenges of using worker trainers is that they often have a hard time leaving work to teach classes, because they are model employees. However, employers also benefit with worker trainers. Worker trainers are historically more involved in the workplace. They are often stewards and leaders at the job site and are strong supports for safety and quality. The tenets of the worker trainer program are the Facility's guiding principles. They are the key elements upon which the program is built. They remind us of our target for the program. In addition, the HAMMER model embraces a hands-on and student-centered approach to training to maximize trainee stimulation and retention of training material. This student-centered approach also includes an emphasis on utilizing student feedback to evaluate training effectiveness, and revise curricula according to student needs.

Fire Department Success

Darryl Kerley, Chief of the Oak Ridge Fire Department, talked to participants about the success of emergency response training and integration with the Oak Ridge National Laboratory. He provided a brief history of the fire departments in Oak Ridge. In 1940s, there were 10 fire stations, but in the 1950s, DOE took possession of 5 fire stations. From 1960 to 2007, the fire department operated as a municipal department. In 2010, the industrial park needed a fire department, so one fire department was set up and the city of Oak Ridge staffs it. DOE provided 2 acres and $2 million to the city of Oak Ridge for a fire department. Since then, the Lab and the city of Oak Ridge have worked together during emergency drills and provided mutual aid. They continue to partner in drills together and in training. The municipal fire departments are now RAD worker trained and understand the DOE fire fighters and Incident Command language. They know that when they are at DOE facility, they are safer than municipal facilities.

Chief Darryl Kerley, Oak Ridge Fire Department

Workshops

Since a trainers' exchange is designed for trainers to share best practices and new techniques through a series of workshops conducted by the trainers themselves, the workshops are the most fundamental element of the event. The workshops allow trainers to meet and share ideas about how to create more effective and empowering training, improve training skills, and exchange best practices and techniques.

Following the welcome and plenary session, trainers attended workshops categorized into four areas: Advanced Training Technologies (for example: improving PowerPoint presentations), Instructor Development (for example: the use of small group activities and the role of evaluation), Training Challenges (for example: literacy, language barriers, and a younger workforce, and Technical Updates (for example: lockout/tagout or personal protective equipment). Nearly 20 workshops were broken into 4 workshop blocks. For the title and abstract of all the workshops, please see **Attachment B**.

Each 90 minutes workshop session was designed to be an interactive forum for the exchange of ideas. The discussions held in each workshop empowered trainers with a range of innovative tools for effective worker training and promoting workplace safety.

For instance, workshops revealed new technologies emerging from mechanisms such as SBIR grants. One tool highlighted consists of a just-in-time mobile application that offers safety checklists and other real-time decision support for workers. The tool is also useful for training exercises.

Instructor Development workshops provided up-to-date information about recent developments in training requirements and other pertinent trends and issues related to safety training at DOE sites. Trainers also participated in various skills development exercises. Significant attention was allotted to discussions and exercises related to hazard identification, systems of safety, the Hierarchy of Prevention and Control, and taking strategic preventative measures to address areas of concern.

Multiple workshops engaged trainers in dialogue about ways to improve training effectiveness through structural organization of trainings. A general consensus emerged among trainers attesting to the merits of student interactive exercises in stimulating greater levels of student learning and information retention. Other lessons learned illustrated approaches to maximize the effectiveness of PowerPoint presentations, including the Assertion Evidence approach, which relies primarily on visual evidence to support brief informational text on lecture slides. Furthermore, trainers from across the DOE Complex cited student evaluations as an essential component to assessing training effectiveness and revising curricula to meet trainee and workplace needs.

Plenary Session: Tools and Resources

Industrial Hygiene/Occupational Safety SIG

To kickoff the plenary on worker safety and health training tools and resources, Deborah McFalls, Group Manager of the Oak Ridge Associated Universities, ORISE-HCTT, presented on the Industrial Hygiene/ Occupational Safety Special Interest Group. The Industrial Hygiene/ Occupational Safety Special Interest Group is a network of S&H personnel from the DOE complex, directed by a steering committee, and managed by the Oak Ridge Institute for Science and Education. It provides resources to improve worker S&H within the DOE complex and provide a forum for discussions. It also serves as a DOE Topical Committee and maintains the DOE Technology Supported Learning Index. Participants who wish to become a member can fill out an application that is available through their website (*http://orise.orau.gov/ihos/index.htm*).

Emerging Issues in Nanotechnology

As the use of nanotechnologies is on the rise, Bruce Lippy, President of the Lippy Group, provided worker safety health tools and resources for workers who may be exposed to nanomaterials. Mr. Lippy noted that while an enormous amount of money is being invested in nanotechnologies, there is little money that goes to looking at ways to protecting workers from these materials. He provided participants with a list of resources and tools, which include:

- The NIEHS WETP document, Training Workers for Risks of Nanotechnology, which is still the only worker training guide. This report addresses the critical issue of how workers who are creating and handling nanomaterials should be trained about the hazards they face -- in laboratories, manufacturing facilities, at hazardous waste cleanup sites and during emergency responses. is still the only guide on training workers. (*http://tools.niehs.nih.gov/wetp/public/hasl_get_blob.cfm?ID=9094*)

- The GoodNanoGuide is a wiki on nanotechnology and a great tool for trainers. (*http://GoodNanoGuide.org*).
- OSHA's Nanotechnology Topic Page (*http://www.osha.gov/dsg/nanotechnology/nanotechnology.html*).
- NIOSH's Nanotechnology Page, which contains some of the best safety and health publications (*http://www.cdc.gov/niosh/topics/nanotech/default.html*).
- International Council on Nanotechnology, which is managed by Rice University's Center for Biological and Environmental Nanotechnology. Activities promote effective nanotechnology stewardship through risk assessment, research and communication. (*http://icon.rice.edu*)
- The NanoRisk Framework, created through a partnership between the Environmental Defense Fund and DuPont. It aims to identify and address potential environmental, health, and safety risks of nanotechnology. (*http://nanoriskframework.org/*).
- CB Nanotool is a control banding approach being used at the Lawrence Livermore National Laboratory (LLNL) to assess risks associated with nanotechnology operations and prescribe appropriate engineering controls (*http://controlbanding.net/*).
- Project on Emerging Nanotechnologies, which was established in April 2005 as a partnership between the Woodrow Wilson International Center for Scholars and the Pew Charitable Trusts. The Project provides policy papers and a consumer product inventory. (*http://nanotechproject.org/*)
- EPA has regulations relevant to Nanotechnology, including EPA's Pesticides Act and Nanotechnology (*http://www.epa.gov/oppt/nano/*) and EPA's Control of Nanoscale Materials under the Toxic Substances Control Act (*http://www.epa.gov/pesticides/about/intheworks/nanotechnology.htm*)
- Other Standards, such as the ASTM E2535 - 07 Standard Guide for Handling Unbound Engineered Nanoscale Particles in Occupational Settings (*http://www.astm.org/Standards/E2535.htm*) and the ISO/TR 12885:2008 Standard (*http://www.iso.org/iso/catalogue_detail?csnumber=52093*).
- The US National Nanotechnology Initiative, which serves as the central point of communication, cooperation, and collaboration for all Federal agencies engaged in nanotechnology research (*http://nano.gov*).

NIEHS WETP National Clearinghouse for Worker Safety and Health Training

Deborah Weinstock, Director of the National Clearinghouse for Worker Safety and Health Training, provided a presentation on the Clearinghouse website (*http://tools.niehs.nih.gov/wetp/index.cfm*). The National Clearinghouse is the national resource for hazardous waste worker curricula, technical reports, and weekly news on hazardous materials, waste operations and emergency response. Funded by the National Institute of Environmental Health Sciences' Worker Education and Training Program (NIEHS WETP), the Clearinghouse provides assistance for NIEHS WETP staff, program grantees, and the general public. The website has a searchable curricula catalog that hosts awardee training curricula, and it also contains emergency response training tools for a variety of disasters, including radiological, hurricane, flood, earthquake, etc.

Conclusions and Next Steps

Don Elisburg, National Clearinghouse advisor, noted that great strides have been made since NTC, HAMMER and WETP began the conversations and partnership. He also commented on the necessity to gather all the knowledge and abilities that are available in this meeting and put it to good use. Although this meeting would have benefited from more contractors, as a connection with EFCOG is important, it is important to maintain the continuity and vision in this meeting. He added that a follow-up to this meeting is essential with all those involved: DOE, contractors, unions, site managers, and trainers.

Ms. Beard noted that workers still face challenges. For instance, basic training citations are still occurring and questionable and dangerous technologies are being used. There is a need to pull together the lessons learned, the new tools, and the systems of safety from everyone.

Participants also shared what they thought about and learned from the Trainers' Exchange. Participants enjoyed several workshops, including but not limiting to topics on alternative asbestos control method, BP spill lessons learned, behavior based safety, and sense of smell. Participants also felt that the interactions and quality of presentations were outstanding. One participant noted that while the argument is always that one site is different from the other, at this trainers' exchange, they learned that everyone is concerned with the same safety and health issues. It was recommended to bring future trainers' exchanges to other DOE sites across the country to show that this type of resource is available.

In moving forward, NIEHS will continue to collaborate with HSS-NTC and HAMMER in participating in the development and implementation of the straw man program and in coordinating the activities of its awardee community. NIEHS will also continue to support HSS-NTC in the implementation of its goals to improve the health and safety of workers across the DOE nuclear weapons complex.

Jim Ridley, IAFF

Randy Coleman, HAMTEC

Bernie Mizula, Mizula, LLC leads a discussion.

2012 National Trainers' Exchange for Department of Energy (DOE) Safety and Health Trainers

AGENDA

May 7–8, 2012 | Knoxville, TN

May 7, 2012

8:00–9:00 a.m. ***Registration and Breakfast*** ..... *Lower Level, Salons A & B*

9:00–9:30 a.m. ***Welcome*** ..... *Salons C & D*

Karen Boardman, Director, National Training Center, Office of Health, Safety and Security, DOE
Julie Johnston, Sr. Nuclear Safety Specialist, EnergySolutions Performance Strategies
Joseph "Chip" Hughes, Director, NIEHS Worker Education and Training Program

9:30–10:00 a.m. ***Small Group Activity***

Ted Outwater, Public Health Educator, NIEHS Worker Education and Training Program

10:00–11:30 a.m. ***Plenary Session: Best Practices for Safety Training Collaboration***

- Standards of Training
  Sharon D. Beard, Industrial Hygienist, NIEHS Worker Education and Training Program
- HAMMER Lessons Learned
  Patricia Aldridge, Manager, Conduct of Training, HAMMER/Mission Support Alliance
  Randy Coleman, HAMTC Liaison, Hanford Atomic Metal Trades Council
  Robert Legard, Training Director, Central Washington Building Trades Council
- Summary of Safety Collaboration Meetings and the Safety Training Collaboration Project
  Evan Dunne, Project Manager, National Training Center
  Peter Turcic, Advisor, Office of Safety Training Operations
- Emergency Response Training and Integration with the DOE Sites
  Darryl Kerley, Chief, Oak Ridge Fire Department

11:30 a.m.–1:00 p.m. ***Lunch*** ..... *Salons A & B*

1:00–2:30 p.m. ***Workshop Block 1***

1. Innovation in Training ..... *Meeting Room 6*
   HAMMER/Mission Support Alliance
2. Don't Blame the Workers, Fix the Hazards!: Problems with Behavior-Based Safety/ Blame-the-Worker Approaches to Health and Safety and Tools for Focusing on Finding and Fixing Hazards ..... *Meeting Room 3*
   United Steelworkers-Tony Mazzocchi Center for Health, Safety and Environmental Education
3. Training Workers about DOE's 851 Rule: Understanding the Big Picture on Health and Safety Management ..... *Meeting Room 1*
   The Lippy Group
4. Death by PowerPoint or Not! ..... *Meeting Room 2*
   ICWUC Center for Worker Health and Safety Education
5. Systems of Safety: The BP Disaster ..... *Meeting Room 4*
   Utility Workers of America

AGENDA *continued*

2:30–3:00 p.m. ***Break***

3:00–4:30 p.m. ***Workshop Block 2***

6. A Mobile Technology for Just-in-Time Training of First Responders ..... *Meeting Room 1*
   Nicolalde R&D, LLC, and Dartmouth College
7. Making the Connection: Demonstrating the Value of Receiving Feedback from Trainees ..... *Meeting Room 2*
   LIUNA Training and Education Fund
8. Developing New DOE Programs ..... *Meeting Room 4*
   ICWUC Center for Worker Health and Safety Education
9. Hanford Site Worker Eligibility Tool ..... *Meeting Room 6*
   HAMMER/Mission Support Alliance
10. OSHA 10-Hour Construction Update, Focus Four and Heat Stress ..... *Meeting Room 3*
    Partnership for Environmental Technology Education

6:00–8:00 p.m. ***Dinner at Chesapeake's*** ..... *500 Henley Street*

May 8, 2012

7:30–8:30 a.m. ***Breakfast*** ..... *Lower Level, Salons A & B*

8:30–10:00 a.m. ***Workshop Block 3***

11. Continuing Training for Radiological Control Technicians: A Hands-on Approach ..... *Meeting Room 3*
    HAMMER/Mission Support Alliance
12. Developing New DOE Worker-Trainers ..... *Meeting Room 1*
    ICWUC Center for Worker Health and Safety Training
13. The Sense of Smell ..... *Meeting Room 2*
    IUOE National Training Fund
14. Adapting Training to Your Target Audience ..... *Meeting Room 4*
    Rail Workers Hazardous Materials Training Program
15. Overview of CPWR's New 4-Hour Hazard Communication Course ..... *Meeting Room 6*
    CPWR - Center for Construction Research and Training

10:00–10:30 a.m. ***Break***

10:30 a.m.–12:00 p.m. ***Workshop Block 4***

16. AACM at Hanford, It's Impact on Workers and on Training ..... *Meeting Room 1*
    Building and Construction Trades
17. Putting Feet on Evaluation (and Following the Footprints) ..... *Meeting Room 2*
    United Steelworkers
18. HAMMER Heat Stress Training for Trainers ..... *Meeting Room 4*
    Mizula, LLC, United Steelworkers, and HAMMER
19. A Matter of Time to Save a Life ..... *Meeting Room 6*
    IAM and ICWUC Center for Worker Health and Safety Education

12:00–1:30 p.m. ***Lunch*** ..... *Salons A & B*

1:30–2:30 p.m. ***Tools and Resources*** ..... *Salons C & D*

Deborah McFalls, Group Manager, Oak Ridge Associated Universities, ORISE· HCTT
Bruce Lippy, President, The Lippy Group
Deborah Weinstock, Director, National Clearinghouse for Worker Safety and Health Training

2:30–3:00 p.m. ***Closing/Next Steps***

WORKSHOP ABSTRACTS

BLOCK 1

Monday, May 7th 1:00 p.m.–2:30 p.m.

ATT

1. Innovation in Training

At the Hanford Nuclear Reservation in Richland, Washington, an effort has been underway for two years to standardize safety across the Site. A strong Site-wide safety program is built on standardized practices and procedures used by all contractors. Training is a critical component to the success of safety standardization. Adults learn best by being actively engaged in their training. Taking students beyond standard classroom instruction can provide experiences and information that transfers back to real-world use in the workplace. Respiratory training at the Hanford Site is an excellent example of creative training solutions to provide engaging experiences and a bit of fun in the process. With the stress of workforce reductions and increased workloads, students need training that helps relieve tension as well as teaches skills. This year's respiratory training activities are specifically designed to reduce stress on instructors and students. New technologies are being implemented to teach old topics and concepts and involve students in their learning. Respiratory protection knowledge and skills are taught through student-centered hands-on activities such as Qwizdom®, three-hole miniature golf and X-Box game activities. These are fun activities that require students to apply valuable workplace skills such as communication or airline management. Even though it is fun learning, this is training and everything has a work-related purpose.

LEAD PRESENTER:
Patricia Aldridge, *HAMMER/ Mission Support Alliance*

CO-PRESENTER:
Randy Coleman, *HAMMER/ Mission Support Alliance*

ID

2. Don't Blame the Workers, Fix the Hazards!: Problems with Behavior-Based Safety/Blame-the-Worker Approaches to Health and Safety, and Tools for Focusing on Finding and Fixing Hazards

This interactive skill-building workshop will explore problems with workplace programs that focus on worker behavior rather than hazardous conditions as the cause of workplace injury, illness and death. We will discuss various behavioral safety programs, policies and practices and delve into the impacts that these programs have, including impacts on discouraging workers from reporting job injuries and illnesses; and shifting attention away from identifying and addressing workplace hazards. This workshop will also include hands-on experience with a variety of tools that can redirect workplace health and safety focus onto identifying and addressing unsafe and unhealthy workplace conditions, tools that are examples of education for action.

LEAD PRESENTER:
John Scardella, *United Steelworkers-Tony Mazzocchi Center for Health, Safety and Environmental Education*

CO-PRESENTER:
Doug Stephens, *United Steelworkers-Tony Mazzocchi Center for Health, Safety and Environmental Education*

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3. Training Workers about DOE's 851 Rule: Understanding the Big Picture on Health and Safety Management

DOE's 10 CFR 851 Rule is arguably the most important health and safety management requirement that DOE has put in place in years. The challenge for trainers, as always, is to make regulatory training interesting and effective. OBJECTIVE: This workshop will present an overview of a one-day course developed by The Lippy Group for The National Partnership for Environmental Technology Education (PETE) on the 851 Rule, and work with participants to identify additional opportunities for making the materials more accessible and interesting to workers. STRUCTURE: the curriculum and the proposed workshop are structured for group activities that include evaluating lessons learned case studies from DOE and performing hazard assessments beyond Job Hazard Analysis. The curriculum allows participants to see how the 851 Rule is very similar to other approaches like ISM, VPP and the ANSI Z10 standard. The materials include videotaped interviews with key figures like the head of the DOE 851 program to reinforce the issues raised in the course. An online version of the curriculum will be demonstrated with a group discussion afterwards about the appropriate uses of online and instructor-led training.

LEAD PRESENTER:
Bruce Lippy, *The Lippy Group, LLC*

CO-PRESENTER:
Margaret Mellecker, *Partnership for Environmental Technology Education (PETE)*

ATT

4. Death by PowerPoint or Not!

We all have sat through power point presentations where the speaker read every word on every slide with nothing added, some of which had print so small even the first row couldn't read. Based on a survey of worker trainers from a number of the union grantees, a group of six NIEHS union grantees held a 4 day class that was aimed at better using Power Point to support worker centered values of union training efforts. The Learning Objectives included a review of a set of 2002 principles of participatory adult education (reviewed in another Trainers Exchange class), how to evaluate how electronic media can enhance the classroom experience, understanding the limits of electronic technology and keeping the focus of training on the participants, editing and designing Power Point presentations and exploring how other grantees are using electronic training technologies. The class included a mixture of basic educational goals of worker centered programs, a review of all the menu options of Power Point and 4 exercises where the trainers edit and develop Power Point presentations to center of participants' experiences and opinions. This class will review this project, divide into small groups to discuss the strengths and weaknesses of power point and discuss how best to use Power Point. This will be followed by a group discussion of each group's major views.

LEAD PRESENTER:
John Morawetz, *ICWUC Center for Worker Health and Safety Education*

ID

5. Systems of Safety: The BP Disaster

The objective is to use a proactive systems safety approach rather than a reactive approach to accident prevention and hazard control or elimination. The class will use the Small Group Activity Method, where participants will work at their tables on the facts presented to them and through their experience and knowledge focus on what Systems of Safety (SOS), were, should have been, or were not in place that would have prevented the incident. The workshop will identify the flaws in the scenario presented and target the SOS that the flaw occurred in. The value of this workshop is that workers not only work collectively on the incident investigation, identifying the failed SOS through the flaws found, but offer solutions by using the SOS method to reduce or prevent not only the probability of an accident but also the severity of one. The interaction between the tables is a value of not only learning from others but sharing knowledge and experiences, as I believe the true subject matter experts are in the workshop at the tables not in front of the room. The activity allows time for the participants to share their impressions of the activity through an evaluation at the end of exercise.

LEAD PRESENTERS:
Sean Harte and Rocco Talarico, *Utility Workers of America*

BLOCK 2 Monday, May 7th 3:00 p.m.–4:30 p.m.

ATT

6. A Mobile Technology for Just-In-Time Training of First Responders

Objective: To demonstrate a mobile training platform designed to facilitate the delivery of educational content in the classroom, operational, and just-in-time settings. The technology includes a smart checklist to provide real time decision support around objective based content or job action sheets. Technology revisions will incorporate real-time content management, the ability to add and modify content, monitor task progress, promote two-way information sharing such as text and video feeds, and utilize the capabilities of smart phones to provide location and health status of the user. Structure: This session is a technology demonstration and is open for audience feedback regarding features, capabilities, and implementation. A prototype has been developed using a Mobile Medical Unit Field Operations Guide for a set of checklist-based complex tasks. The technology is under development with a NIEHS SBIR Phase 1 grant. Discussion: In this session we will discuss the use of mobile technologies and devices as platforms for delivering educational content in multiple settings and integration of these technologies with existing training programs. The current features of the training technology include the ability to display built-in content on a projector for classroom based training, access objective based checklists and job action sheets, and monitor individual user progress. We have conducted two small focus groups to validate the functionality of the current version, and are seeking feedback and input for revisions to the technology from a larger pool of subject matter experts.

LEAD PRESENTER:
Roberto J. Nicolalde, *Nicolalde R&D, LLC, and Dartmouth College*

CO-PRESENTERS:
Michael Rea, *Nicolalde R&D, LLC;* **Jeff Spielberg**, *Nicolalde R&D, LLC*

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7. Making the Connection: Demonstrating the Value of Receiving Feedback from Trainees

The ability to elicit feedback from trainees is a powerful tool instructors need to ensure participants are learning in the class. Gathering trainee feedback is also helpful to capture evaluation and employment information required by NIEHS. During this presentation, LIUNA Training and Education Fund will demonstrate how Trainers can use this technique to do both. Utilizing a questionnaire incorporated into the 8-hour Hazardous Waste Refresher application, LIUNA Training instructors facilitate a think, pair and share activity where they gather participant feedback. The information collected is used to inform teaching and learning and to assist in preparing reports to NIEHS. Trainers attending this workshop will learn the value of eliciting feedback and leave with an example of an activity they can employ in their own refresher classes to enhance participation, gather feedback and capture vital grant reporting information.

LEAD PRESENTER:
George McCoy, *LIUNA Training and Education Fund*

CO-PRESENTER:
Gary F. Gustafson, *LIUNA Training and Education Fund*

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8. Developing New DOE Programs

The aim of this exercise is for DOE trainers from different sites and different unions to have the opportunity to exchange and discuss how they develop new DOE curriculum. The facilitator should divide everyone up so each site and each union is divided up at all the tables as much as possible. You can also ask who has experience in developing curriculum and you make sure they are at every table. Each table then discusses these questions as a group.

1. Have you developed new curriculum? If yes, for what program and describe the modules?
2. What were the major obstacles in writing this curriculum?
3. Did the curriculum get changed after you first presented it? How did it change?
4. How would you write new curriculum in the future?

The role of the facilitator is to facilitate a discussion on these questions and the discussion at each table. The major aim is for everyone to learn from each of the smaller group's responses. On a different flip chart, each question should be written at the top. The facilitator should write down one response per group. If other people want to add any comments to each response, discussion by the group as a whole should be encouraged. The facilitator should add their thoughts on each question at the end of the exercise after everyone has a chance to respond to all the responses. If there is additional time at the end of this session, the facilitator can ask the group, as a whole group exercise, to come up with the major ways that NIEHS grantees can develop new DOE curriculum.

LEAD PRESENTER:
Tom Frazee, *ICWUC Center for Worker Health and Safety Education*

CO-PRESENTER:
John Morawetz, *ICWUC Center for Worker Health and Safety Education*

ATT

9. Hanford Site Worker Eligibility Tool

Cleanup of the Hanford Site is performed by 4 prime contractors and several subcontractors working under the prime contractors. In many instances, workers from one of the prime contractors performs work for another prime contractor at their worksite. The Field Work Supervisor (FWS) responsible for the work must verify the training and qualification of all workers prior to starting work activities. This requires the FWS to know all applicable training is current as well as any medical clearances for the work are met. HAMMER/Hanford Training developed a software program, Hanford Site Worker Eligibility Tool (HSWET) which merges training and medical clearance data to provide the FWS with a single source for verifying worker training and qualification for work assignments. To implement HSWET, the Hanford Occupational Health Services provider created the electronic data base feed of medical clearance information for HSWET. The existing Training Management System provided the training input for HSWET. Using HSWET, the FWS can generate a report of qualified workers based on expected duration of work (start to finish date), training and medical clearance requirements resulting from work hazard analysis or any special qualifications for the work. The HSWET report provides a list of workers meeting the requirements for the work, as well as flagging any workers who have a work restriction. The work restriction flag allows the FWS to contact the worker's manager to determine if the restriction would preclude the worker from performing the assigned work safely.

LEAD PRESENTER:
Theodore Giltz, *HAMMER/ Mission Support Alliance*

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10. OSHA 10-Hour Construction Update, Focus Four and Heat Stress

This session will provide trainers with the most recent update on the OSHA 10 hour construction requirements; Focus Four activities: caught-in or caught-between, electrocution, falls, and struck-by; heat stress, and brownfield activities. Participants will be able to discuss the updates for OSHA 10 hour training requirements, identify hazards associated with Focus Four activities by utilizing actual photographs which the participants will assess and offer corrective actions. The presentation will also discuss how to perform a needs assessment of participants' KSAs and ways to incorporate this information into training delivery. Additionally, factors effecting heat stress, signs and symptoms of heat stress, and various brownfields activities will be discussed. Participants will engage in skills development and hazard recognition through the use of photographs and other handouts provided to assist in their own training delivery.

LEAD PRESENTER:
Ron Snyder, *Partnership for Environmental Technology Education (PETE)*

ATT

11. Continuing Training for Radiological Control Technicians: A Hands-on Approach

Due to the breadth of areas supported by a Radiological Control Technician (RCT) their skills and proficiency in specific areas deteriorate over time. Fundamental knowledge erodes due to the availability of many functions being performed by tools available to the RCT. In addition the RCT is expected to be ready to support low probability seldom occurring events such as an injured person within a radiological area. As a part of performing a two requalification cycle of training HAMMER Radiation Safety Training has implemented a goal that at least 50% of their continuing training program consists of hands-on exercises and evaluated events. Training is performed using live agent radioactive materials and integrated with organizations that the RCT would infrequently support. For example, RCTs training was developed with support from the Hanford Fire Department on doffing bunker gear after a response within a contaminated area; RCTs completed a discussion of emergency response procedures and then exercised those skills by exiting an individual with EMT support to an ambulance for transport to a medical facility, and RCTs performed an evaluated practical where typical radiological surveys were performed and documented. Fundamental radiological knowledge is reinforced through practical training. New instrument technology was used as a part of a procedure review and verification course. Radiological data from damage to the Fukushima reactor complex caused by the recent earthquake and tsunami in Japan was developed into a Fukushima Daiichi Case Study that reviewed RCT fundamental requirements from four modules of the RCT qualification course materials. HAMMER Radiation Safety Training has moved radiological training beyond a lecture and read training event to providing training As-Real-As-It-Gets.

LEAD PRESENTER:
Brian Killand, *HAMMER/ Mission Support Alliance*

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12. Developing New DOE Worker-Trainers

The aim of this exercise is for DOE trainers from different sites and different unions to have the opportunity to exchange and discuss how new DOE worker trainers are developed. The facilitator should divide everyone up so each site and each union is divided up at all the tables as much as possible. Each table will have 25 minutes to discuss the following questions followed by a group discussion.

1. How long have you trained at any DOE site?
2. Briefly describe a presentation or module where you were a participant that had a positive impact on you. Why was it positive?
3. What helped you the most in developing your training skills?
4. What was the major difficulty in developing your training skills?

The trainers at each table then discuss their answers. The role of the facilitator is to facilitate a discussion on these questions and the discussion at each table. The major aim is for everyone to learn from each of the smaller group's responses. On a different flip chart, each question should be written at the top. The facilitator should write down one response per group. If other people want to add any comments to each response, discussion by the group as a whole should be encouraged. The facilitator should add their thoughts on each question at the end of the exercise after everyone has a chance to respond to all the responses. If there is additional time at the end of this session, the facilitator can ask the group, as a whole group exercise, to come up with the major ways that NIEHS grantees can develop new DOE trainers.

LEAD PRESENTER:
Bill Hoobler, *ICWUC Center for Worker Health and Safety Education*

CO-PRESENTER:
John Morawetz, *ICWUC Center for Worker Health and Safety Education*

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13. The Sense of Smell

The Sense of Smell module is an hour to two-hour module created for HAZWOPER refreshers.

The module has been used at DOE facilities and IUOE local unions. The session presenter will deliver the presentation material and lead the participants through the sense of smell classroom exercises. The module focuses on exposures that can be detected with the sense of smell and while some are below a life-threatening threshold; others cannot be detected until a life-threatening threshold has been exceeded. Detecting chemicals with your sense of smell is the least desirable method of recognition and should be avoided, but it can also be the first warning that something is wrong. When participants have completed this module, they will be able to: Recognize the basic anatomy of the nose and how it works; Recognize the meaning of olfactory fatigue and its effect; Identify the concept of odor threshold and how it works; and, Recognize the difference between odor threshold and permissible exposure limit (PEL) and threshold limit value (TLV). Participants will receive digital copies of the presentation, exercises and media.

LEAD PRESENTER:
Robert Harrold, *IUOE National Training Fund*

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14. Adapting Training to Your Target Audience

One challenge presenters consistently face is how to focus on the needs of the students while still meeting the requirements of the presentation material. A generic one-size-fits-all program can be problematic with target audiences, time constraints and budget considerations. The DOE Modular Emergency Radiological Response Train the Trainer program presented just a problem for our group, the Railroad Workers Hazardous Materials Training Program. Our target audience is rail transportation workers and while they are often first responders at the awareness level they do not necessarily respond to medical, clean up or administrative duties. Our students needed the basics contained in the MERRTT program which required the development of a shorter, focused program. This module will address the process our group used to create the Rail MERRTT program and acquire the necessary approval to make our presentations. During the session we will discuss:

- Determination of needs of your target audience through class feedback
- Evaluation of presentation material as it relates to the target audience
- Designing the presentation and its modifications using Instructional System Design
- Problems and solutions associated with the creation of the presentation
- Review process for the new presentation

LEAD PRESENTER:
Kevin Smith, *Rail Workers Hazardous Material Training Program*

15. Overview of CPWR'S New 4-Hour Hazard Communication Course

Mizula, LLC produced a 4-hour course on Hazard Communication Training in accordance with 29 CFR1910.1200 for CPWR. Don Ellenberger will conduct a training with this material, developed using the Assertion Evidence structure, in which a sentence headline states the main assertion of the slide. That headline assertion is then supported not by the typical bullet list, but by visual evidence: photos, drawings, diagrams, graphs, etc. Assertion Evidence fosters a more interactive classroom environment over the use of standard PowerPoint format. Introductory research has shown students scored higher on tests when Assertion Evidence format was used compared to standard PowerPoint format. Along with the PowerPoint presentation, the course includes a participant manual and an instructor guide. Several interactive group activities are included, all contributing to the completion of the various course objectives. Elements of this training to be presented in the workshop include classroom and time management strategies, lecture, questioning and debriefing tactics, assessing successful completion of the learning objectives, and guiding the group activities. The legal aspects of Hazard Communication training will be explored, including employer obligations under this standard. Issues of Hazard Communication training for multi-employer sites and mobile work populations will be explored. Trainers attending this workshop will complete some portion of the course activities in small group format along with a short debrief. Course sections include an overview of the standard, training requirements, chemicals and toxicology, health effects, measurement, exposure limits, hazard communication methods, controls, spill response, and a brief section on the GHS and REACH.

LEAD PRESENTER:
Don Ellenberger, *CPWR - The Center for Construction Research and Training*

BLOCK 4 Tuesday, May 8th 10:30 a.m.–12:00 p.m.

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16. AACM at Hanford, Its Impact on Workers and on Training

Mr. Legard of the Building Trades and Mr. Moore, a worker instructor, will describe the recent implementation of Alternative Asbestos Control Methods (AACM) implemented by a prime Hanford contractor in the demolition of asbestos-contaminated buildings on site. EPA's role in initially agreeing to this practice and the subsequent involvement of DOE will be examined. Emphasis will be placed on how this issue was handled in class at Hanford, where workers expressed significant alarm about this practice, and the dilemma this posed to instructors. An update of the current status will be provided.

LEAD PRESENTER:
Robert Legard, *Building and Construction Trades*

CO-PRESENTER:
Mike Moore, *CPWR - The Center for Construction Research and Training/ Insulators Local 120*

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17. Putting Feet on Evaluation (and Following the Footprints)

Preventing injuries and illnesses in an industrial setting demands that companies provide a workplace that is free of recognized hazards. To get there we must train our workforce to identify hazards and near-misses, to understand how to report those hazards/ near misses, to resist the counter forces they might face, and finally, to keep track of how well the company does in eliminating those reported hazards/ near-misses. The USW TMC has launched a new initiative in its annual HAZWOPER refresher training that solicits trainees to join with their local leaders and co-workers in preventing injuries and exposures by increasing the reporting process.

LEAD PRESENTER:
Misty Jones, *United Steelworkers*

CO-PRESENTER:
Billy Edington, *United Steelworkers- Tony Mazzocchi Center for Health, Safety and Environmental Education*

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18. HAMMER Heat Stress Training for Trainers

Being too warm while working is not just uncomfortable, it is dangerous. Too much heat can cause serious health effects, and death. According to OSHA, every year, thousands of workers become sick from occupational heat exposure with some of those illnesses ending in fatalities. In many cases, heat related illness is not included in requisite injury recordkeeping for a variety of reasons. In addition, excessive heat makes workers less productive and more likely to make mistakes, including errors that can cause injuries and fatalities. For many DOE workers, the threat of heat stress is very real. Jobs may require outside work, work that is around hot work processes, highly physically demanding work and/or the use of full body PPE; these factors can greatly increase a workers susceptibility to heat stress. In 2011 the Volpentest HAMMER Training and Education Center worked with Mizula, LLC to create a 4-hour heat stress course geared toward DOE Worker Trainers and health and safety professionals so that they may be better equipped to empower workers with an understanding of heat stress and how to prevent it. Both HAMMER and the United Steelworkers understand the continued need for worker understanding of heat stress. These materials are available to DOE Worker Trainers through HAMMER. The workshop will focus on a review of the HAMMER 4 Hour Heat Stress Course including a presentation of heat stress related case studies, applicable standards, what heat strain and heat stress is, work environment evaluation and work environment controls. Trainers attending this workshop will leave with a refreshed understanding of the issues of heat stress, how to incorporate the HAMMER 4 Hour course into their training programs and how to use the materials effectively in their training.

LEAD PRESENTER:
Bernard Mizula, *Mizula, LLC/United Steelworkers - Volpentest HAMMER Training and Education Center*

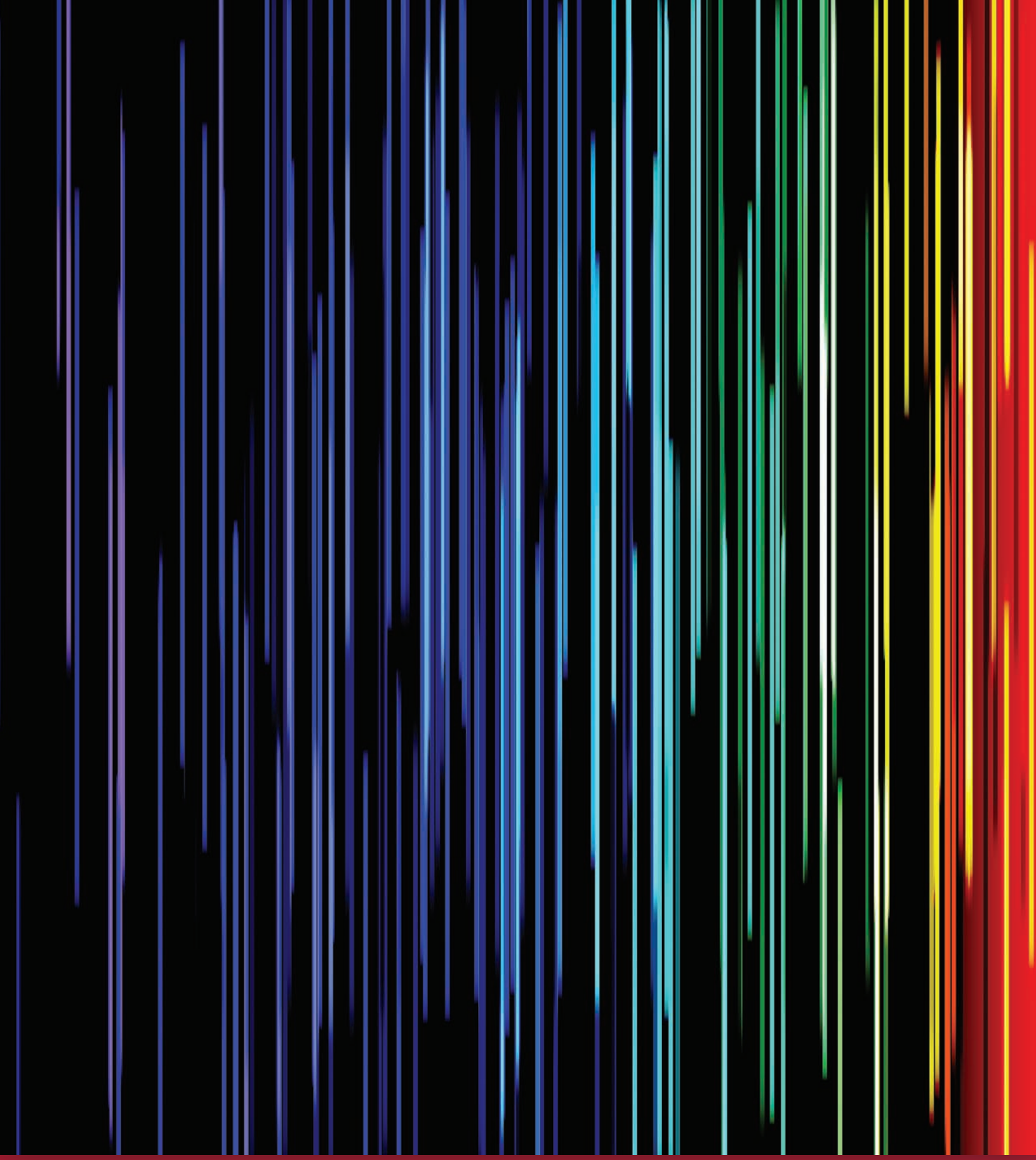
19. A Matter of Time to Save a Life

This is an overview of a training plan from IAM/IBEW worker trainers at the HAMMER DOE facility on technology advancements and their usefulness in emergency response.

1. Review the history of information resource delivery from hand written books, printing press, telegraph, telephone, television, computer, Internet to Instant Messaging. Demonstration of current Tablet and Smart phone applications and resources. Using tablet technology students will see available information resources and access techniques through instructor guided, hands on activity. The instructor will show some available websites for HAZWOPER information (OSHA, NIOSH, DOT, NFPA, Chemical Protective Clothing websites).
2. Scenario Tables will be given one of three work or emergency scenarios to research all with the same chemical of concern. Each table will be divided with 3 students researching from printed resources and 2 students will use the I-PAD tablet resource. Each table can see their Hammer scenario's video saved on I-PAD tablet (at HAMMER students use a prop to see their scenario's conditions and location). Students will be asked for PEL, TLV, IDLH, vapor pressure, vapor density, incompatibles, personal protective equipment needed and working plan. The instructor will show the full class each scenario one at a time and ask for information from students using printed resources and those using the I-pads. Discussion will include the importance of chemical information, product information from manufacturers on PPE and CPC and possible changes in chemical information from effectiveness of resources. Instructor will tie the importance of time and information when planning a job to keep workers safe and still getting work done effectively.

LEAD PRESENTER:
Pat Goble, *IAM and ICWUC Center for Worker Health and Safety Education*

CO-PRESENTER:
Bill Hoobler, *ICWUC Center for Worker Health and Safety Education*



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