

**BEST PRACTICES FOR WORKER TRAINING:  
OVER A DECADE OF CAPACITY BUILDING,  
INNOVATION, CONSENSUS, AND PROGRESS.**

**NIEHS/OSHA Joint Grantee Workshop:  
Best Practices for Worker Training.**

**April 17-19, 2001  
Chicago, IL**

**Workshop Report**

## **Acknowledgments**

Thanks to NIEHS staff Joseph Hughes and Sharon Beard and OSHA staff Hank Payne, Ron Mouw and Ernest Thompson for their support and assistance in planning and conducting the Best Practices Workshop.

Thanks to our colleagues at the NIEHS Clearinghouse, especially to Michael Baker and Nancy Gillis for their hard work and support in putting the pieces of the workshop together.

Our special thanks to all of the participating NIEHS awardees and OSHA grantees who gave so willingly of their time and knowledge for this workshop.

Thanks to Ruth Ruttenberg and Alex Ruttenberg for their diligence in compiling the comprehensive Best Practices document which was used as a roadmap for this workshop.

Finally, a note of thanks to the many, many individuals who provided the participation and insight during the ten years of activity that has made possible the development of these Best Practices in worker training.

Donald Elisburg  
John Moran

May, 2001

## **I. Executive Summary:**

The OSHA outreach training grant program was established in 1978 as the New Directions Grants Program. Over the intervening years, the OSHA training grants program has changed in both title and emphasis and is known today as the Susan Harwood Training Grant Program. In addition, training in the broad sectors of Construction and General Industry standards has been provided by the OSHA Office of Training and Education (OTE). In the early 1990's, OSHA expanded that program to create the OSHA Training Institute Education Centers to better serve the growing interest in such training from the private sector. The OSHA training grantees and Education Centers represent a national training resource to all levels of government, private employers, workers, and consultants.

The NIEHS established the Hazardous Waste Worker training grant program in 1987 based upon the Congressional mandate embodied within the Superfund Amendment and Reauthorization Act of 1987. The primary focus is the training of workers engaged in hazardous waste clean-up, treatment/storage/disposal of hazardous materials and wastes, and emergency response to hazardous materials incidents. The program currently includes training in support of the EPA Superfund program, the Department of Energy environmental remediation programs, the EPA Brownfields Minority Worker program, and broader Minority and Multi-cultural Worker training program initiatives.

The first joint gathering of the OSHA-OTE and NIEHS Training Grant Administrative offices and staff and their training grantees was held on April 17-19, 2001 in Chicago, IL. The meeting was in the format of a workshop focused upon the "best practices" in worker training that have been developed and evaluated over the life of the respective training grant programs. The foundation for the workshop was a recent NIEHS "best practices" document, as the NIEHS program has been more narrowly focused on a specific workplace category, HAZWOPER, unlike the diverse training provided by the OSHA grantees.

Four NIEHS best practices categories were identified:

- "Core Concerns"
- "Partnerships"
- "Skills Enhancement"
- "Advanced Training Technologies."

Individual concurrent "Mini-Symposia" addressed each of the four categories. In each Mini-Symposia, five best practices topics specific to each of the categories were presented, explored, and discussed. The "best practices" were refined, expanded, and

extended based upon the input from the participants in each session. These additional dimensions were presented to all of the workshop participants for information, comment, and discussion in a closing plenary session facilitated by presentations by the Mini-Symposia co-chair persons.

A concluding session explored the potential interest in and opportunities for future collaboration, coordination, mentoring, and the like between the OSHA and NIEHS grantees. Major interest centered on the sharing of information and decisions with specific regard to advanced training technology applications. It was further agreed that a second joint meeting among the OSHA and NIEHS grantees in two years had merit as a means to continue and extend the dialogue developed during this first joint workshop.

This Workshop Report includes perspectives on each of the best practices mini-symposia categories, perspectives on each of the five best practices presented in each mini-symposia, and summaries of each such presentation. In addition, summaries of the closing plenary sessions that provided reports from the mini-symposia co-chairs and discussions of the next steps in advancing collaboration and dialogue among the grantees are included. Further, a serious effort was made to include presentation materials, key documents and reports, which serve as the basis for the best practices and the workshop, and links to related resource materials and sources. These are included in the extensive appendix that accompanies the Report.

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### **III. Introduction:**

This Best Practices Workshop Report represents the culmination of more than ten years of technical workshop activities aimed at developing an identifiable series of building blocks for worker training in environmental remediation.<sup>1</sup>

Beginning with the “Minimum Criteria for Worker Health and Safety Training for Hazardous Waste Operations and Emergency Response” (NIEHS, Report of National Technical Workshop on March 22-23,1990), the NIEHS WETP program has developed, through the national technical workshop process, a series of consensus guideline documents designed to reflect the best approaches to worker training. As has been pointed out in many of these workshop reports, there is no simple way to success, but there are a number of approaches, if properly utilized, that will define the correct training matrix for specific organizations.

This Report is the product of the Workshop held on April 17-19, in Chicago, Illinois. The Workshop was sponsored jointly by NIEHS WETP and OSHA OTE. For NIEHS WETP it was an opportunity to review the Best Practice approach with its core group of awardees and to obtain a fresh approach by testing the Best Practices on awardees of different safety and health training grant activities, not exclusively HAZWOPER. For OSHA OTE it was an opportunity to provide the OSHA Educational Centers and Harwood Grantees with the experiences of the NIEHS grantees.

The end result of the combined/joint workshop is the represented list of Best Practices discussed in the Report. As Ruth Ruttenberg observed in her presentation about the Best Practices Document that served as one of the resources for this workshop, there are hundreds of Best Practices that have been instituted by the NIEHS awardees and probably as many by the OSHA Centers.

The Workshop activity centered on some 20 Best Practices across four categories to explore, e.g. Core Values, Partnerships, Skill Enhancements and Advanced Training Technologies.

The Workshop Report concludes that these Best Practices have universality and can be adapted to any training situation. These Best Practices should not be viewed as prescriptive. They are a guideline and a roadmap to bringing the effort to develop and apply a system of training to what otherwise is frequently a back of the envelope approach to worker safety and health training activities. They represent a consensus approach from the Workshop participants.

## **IV. The Workshop:**

### **1. Introduction to the Workshop:**

This Workshop represents the first joint meeting of the NIEHS and OSHA funded training grant awardees. The focus of the Workshop was on best practices in worker training as experienced and developed by the grantee organizations under the prevailing guidance of the NIEHS and OSHA grant administration offices. The workshop was organized into four mini-seminar concurrent breakout sessions. These breakout sessions focused on four of the primary categories of the best practices: “Core Concerns,” “Partnerships,” “Skill Enhancements,” and “Use of Advanced Training Technologies.” Within each mini-seminar, there were five sub-category presentations by individuals experienced in the subject.<sup>2</sup>

### **2. Opening Plenary Session:**

An opening plenary session set the stage for the mini-seminars. Keynote addresses by Henry Payne, OSHA, Director of the OSHA Directorate of Federal-State Operations, and Anne Sassaman, NIEHS, Director, Division of Extramural Research and Training, provided the institutional perspective with regard to worker training. A subsequent panel presentation with Ruth Ruttenberg, Ruttenberg & Associates; Ronald Mouw, Deputy Director, OTE; Marianne Brown, UCLA; and James Warren, Laborers-AGC, provided the overview, background, and program history of the NIEHS and OSHA training grants programs, with emphasis on the development and emergence of best practices.

Panel I: An Introduction to NIEHS and OSHA Training Grant Programs.

Mr. Joseph Hughes, Administrator of the NIEHS-WETP, and Dr. Hank Payne, Director of the OSHA Training and Education Institute welcomed participants to the first joint NIEHS-OSHA Workshop on Best Practices in Worker Training.

Anne Sassaman, Director of the NIEHS Division of Extramural Research and Training, provided an overview of the NIEHS Worker Education and Training Program. The Program was statutorily established by Congress in the Superfund Amendment and Reauthorization Act of 1986, Section 126(g). Section 126(g) required that a program be created to support curricula development and model training delivery to worker populations engaged in hazardous waste cleanup, RCRA/TSD facilities, and emergency response. The Program was launched in 1987 and currently provides grant resources to 17 non-profit organizations at 80 universities, labor-based safety programs, and other institutions. The program currently encompasses the Hazardous Waste Worker Training Program, the DOE Nuclear Cleanup Training, and the Brownfields and Minority Worker Training Programs.

Challenges facing the Program include the promotion and continued advancement of best practices in training, expansion of training to new sectors, and continuing evaluations of the grant programs for the purposes of assuring continued quality and effectiveness. It was noted that prevention is the program hallmark. Goals for future achievement included sharing of the model programs and best practices both public and private sectors, establishment of national safety and health training benchmarks, and continuing efforts for the integration of safety and health in the workplaces.

Dr. Payne presented the OSHA keynote presentation for Paula White, Director, OSHA Directorate of Federal-State Operations who was unable to attend because of last minute urgent matters. OSHA is about safety and health and training as the first line of defense against safety and health hazards. Training requirements are embodied within many of the OSHA standards and regulations. Such requirements are minimum requirements, however. In addition, OSHA supports many voluntary programs including the VPP (Voluntary Protection Program), the Susan Harwood Grants Program, Outreach training programs, and the OSHA Training Institute Education Centers. In 1991 more than 218,000 persons have been trained under the OSHA grants program.

OSHA is moving into new technologies and approaches to reach workers. Computer-based, web-based, and live video training programs are currently being developed. Recently, several initiatives have been launched including e-cats, SMACNA CD-ROM training, and broadcast of OTE Course 226 (Confined Spaces) for the US Air Force worldwide, with the participation of the State of New Mexico and Veterans Administration. OTE is also developing technical courses for web delivery, posting course outlines on the web, posting grantee developed materials on the web, and incorporating technology enabled training in grant programs.

Michael Baker, Director, NIEHS Clearinghouse, provided an introduction to the workshop agenda and described the role and activities of the NIEHS National Clearinghouse. The Clearinghouse supports the WETP training grant program by serving as a central communication and information link with the grantees and by providing a digital library of curricula and related data, logistics and support for workshops, dissemination of technical information to the grantees, and in the conduct of research of relevance to the Program.

#### Panel II: Overview, Background and Program History.

The second half of the opening plenary session was devoted to providing an overview, background, and program history of the NIEHS and OSHA training grants programs and an introduction to “Best Practices.”

#### **Introduction to the “Best Practices.”**

The NIEHS-WETP contracted with Ruth Ruttenberg and Associates, Inc. to develop a comprehensive document detailing the “best practices” that have been developed and proven successful by all of the NIEHS grantees over the past 13 years of the grant

Program. Dr. Ruttenberg has been associated with the Program for over ten years, having been the previous Director of the NIEHS WETP Clearinghouse. The resulting document, “On the Cutting Edge: Best Practices of the Worker Education and Training Program, National Institute of Environmental Health Sciences,” is included with this Report.<sup>3</sup>

Dr. Ruttenberg introduced the “best practices” for purposes of the workshop in a presentation entitled “Best Practices: How We Got Here.”<sup>4</sup> In the presentation, she examined a number of specific “best practices” in detail and provided a description of the process that led to the “best practice” and the application and outcomes. Specific “best practices” examples developed were:

- Peer Training
- Trainers exchange
- Environmental Justice and Jobs
- Advanced Training Technology
- Strawman documents (the National Technical Workshop approach developed by NIEHS)
- Technology Safety Data Sheets (Developed in the Remembering the Worker- New Technology Workshops.<sup>5</sup> )

Based upon an analysis of the “Best Practices” document, Donald Elisburg, NIEHS Clearinghouse consultant, proposed four broad “best practices” categories. Within each category, five specific “best practices” were identified. The proposed approach was reviewed, discussed, revised, and approved by the Executive Planning Committee for the Workshop. These “best practices” served as the basis for the Workshop.

The “best practices” categories and the specific best practices identified within each category were:

**Core Concerns:**

- Development of a comprehensive consensus training and curriculum guideline applicable to all NIEHS grantees that meets or exceeds OSHA 29 CFR 1910.120 training requirements (Minimum Criteria Guideline.)
- Applying Minimum Criteria Guidelines specific to hands-on, skill development, evaluation/assessment, and peer instructors in training curriculum development.
- Development of methods for training experienced workers as peer instructors and supporting such instructors in the field.
- Keeping abreast of ongoing interpretive guidance and policy defining “certification”, “instructor qualifications”, and “successful completion” of HAZWOPER training by OSHA.

- Conducting independent quality assurance reviews and evaluations of grantee training programs.

**Partnerships:**

- Development of large multi-state academic consortia to provide HAZWOPER training.
- Development and implementation of methods to provide training support at the local community level to reach unemployed/underemployed minorities.
- Development and implementation of methods to reach and train potential HAZWOPER workers for whom English is not their native language.
- Development and implementation of approaches to meeting employers HAZWOPER training needs.
- Development of funded relationships with other Federal/State/Local Agencies that can benefit from HAZWOPER training provided by NIEHS grantees.

**Skill Enhancements:**

- Development of approaches and methods to aid workers for whom learning, motivational, or attitudinal difficulties are barriers to successful HAZWOPER training.
- Development of methods and approaches to utilizing HAZWOPER training as an element in career path development.
- Development of approaches to gain acceptance of successful HAZWOPER training as an entry qualification to union apprenticeships programs.
- Development of approaches to aid HAZWOPER trained workers in gaining employment in non-union work environments.
- Development of an integrated data system to meet trainee, training organization, employer, and WETP needs and requirements.

**ATT:**

- Gaining a comprehensive and current understanding of advanced training technologies and the potential application of such technologies in the WETP grants program.

- Staying abreast of emerging OSHA interpretations and policies with regard to the acceptability of advanced training technologies in meeting OSHA HAZWOPER Training requirements.
- Developing methods and approaches to apply ATT as an aid to instructors.
- Considering and assuring that the application of ATT by WETP grantees does not compromise the WETP “core values” and “minimum criteria.”
- Sharing of experiences and lessons learned during ATT development and application by individual grantees among all of the grantees.
- Development of a WETP ATT Guidance policy.

### **Background and History of the OSHA and NIEHS training grant programs.**

The background and development history of the OSHA Training grants programs (Ron Mouw), the NIEHS-WETP grants program, as viewed from the perspective of the academic community (Marianne Brown), and the WETP grants program as viewed by labor training organizations (James Warren) were discussed during the opening Panel.

#### **OSHA:**

The OSHA outreach training grant programs were established in 1978 as the New Directions Grants Program. Targeted Training Program Grants replaced the New Directions Program in 1990. Aspects of the Training Grants programs changed somewhat as well with a shift in emphasis toward targeting of specific topics and reducing awards from multi-year to a single year, among other changes. The Susan Harwood Training Grant Program replaced the Targeted Training Program in 1997. The major change was related to the awards being made for one year with annual renewal provisions. Training grant awards are made to safety and health organizations, employer associations, educational institutions, labor organizations, and other non-profit organizations.

The initial outreach training programs were established in the early 1970's. Focus was on both construction and general industry. Courses were conducted by the OSHA Training Institute. This program expanded significantly in the early 1990's with the establishment of the OSHA Training Institute Education Centers. These Centers provide the OTE construction and general industry training programs to audiences that cannot be reached by the OSHA Training Institute due to excessive demand and the need to place training of compliance staff as the first priority. The intent of the Education Centers program is that each OSHA region would be served by at least one Center. There has been a very significant growth in the number of individuals trained in these courses since the Centers were established.

## **NIEHS:**

The NIEHS Hazardous Waste Worker Training Grant program supports a wide range of grantees and diverse grantee organizations. The intent of the program, as established in the SARA legislation, is to provide a national cadre of appropriately trained workers to engage in the often highly hazardous work regulated by the OSHA Hazardous Waste Operations and Emergency Response standard. The training target audiences have been reached through training grants awarded to labor training organizations, with existing training/apprenticeship programs serving workers in crafts employed in HAZWOPER work, and to academic consortiums that have been formed to effectively reach workers and others involved in HAZWOPER work that are not included in the labor training target audiences. More recently, the Program has expanded to reach minority, unemployed and under-employed inner city, and multi-cultural workers.

The presentations that follow address the two primary divisions within the NIEHS Training Grants Program: Academic Consortia and Labor Training Organizations.

### **Academic Consortia:**

Maryanne Brown addressed the university perspective regarding the Worker Education and Training Program. The WETP has been a joint effort between universities, unions and community-based organizations. However, distinctions between university, union, and community-based grantees are difficult to draw as they are all linked together as partners, both within consortia and outside various consortia. The National Institute of Environmental Health Sciences and their staff, over the past nearly 14 years, have helped to foster these connections among all who are working in the area of worker health and safety.

The University Programs in the NIEHS-WETP are:

- DePaul University.
- The Community College Consortium for Health and Safety Training at Kirkwood College.
- The Midwest Consortium at the University of Cincinnati.
- The University of Alabama at Birmingham.
- The California-Arizona Consortium at UCLA-LOSH.
- The New Jersey/New York Consortium at the University of Medicine and Dentistry at Rutgers University.
- The New England Consortium at the University of Massachusetts/Lowell
- Xavier University in New Orleans, Louisiana.

Input was requested from among these consortia in preparation of this presentation. Based upon this information, six specific areas were addressed:

1. The wide range of workers and community members who have been reached.

2. The connections that have been made with US environmental justice efforts.
3. The new models for training workers that have been refined.
4. The ways collaboration has developed across programs.
5. The core support that has allowed expanding the programs.
6. The new initiatives that have been generated in the area of evaluation of such programs.

### Workers and Community Members Who Have Been Reached

One of the most important accomplishments has been reaching new groups from: Guam to Alaska, from Maine to Florida. This includes workers in a variety of unions, in environmental consulting services, law enforcement personnel, Native American tribal leaders, African American and Spanish-speaking workers living near Superfund sites, and Alaskan Natives, to name just a few of the groups.

Some of the consortia are involved in minority worker training – training low-income youth from communities of color, many of whom then go on to get jobs in the hazardous waste field. Others go on for further training, education and degrees.

Other universities are involved in Brownfields Minority Worker Training Programs that provide training to residents living near Brownfields sites so that they can work on those sites. This is training with a legacy, where graduates are able to find jobs or better paying jobs than those they previously held.

### Connections with Environmental Justice Efforts

Through the UCLA Training Program there have been many connections with US environmental justice efforts. Many of the grantees attended the environmental justice conference held in Washington DC in February 1994, when President Clinton signed the Executive Order on Environmental Justice. Dr. Kenneth Olden, the Director of NIEHS, has strongly supported efforts to put environmental justice on the federal agenda. Congressman Louis Stokes was instrumental in seeing that the minority worker training program was funded in 1995. Through the UCLA program HAZWOPER courses, Spanish-speaking workers at many different sites where hazardous materials are handled in the Southwest, the Southeast, and the Midwest have been reached.

Another example of such programs is the Xavier University Program, which conducts all its classes on environmental justice in communities such as the East Baton Rouge Parish and in Shreveport, Louisiana.

In the South Pacific, workers in Guam, Saipan, American Samoa and Hawaii have attended the UCLA first responder classes. The program has reached Native Americans in Nevada, Arizona, New Mexico, North Dakota and Alaska. At the National Trainer's Exchange in 1997, Railroad worker BJ Griego talk about using the Navajo language in the training he did with Navajo railway workers. He went on to connect with the Southwest Network for Environmental and Economic Justice to do training with them – one of many examples of cross training among programs.

### New Models for Training

The staff at NIEHS has brought the grantees together at technical workshops where important issues in the hazardous waste and worker training fields were debated. Early on NIEHS convened two technical workshops where a minimum criteria document for training hazardous waste workers was developed. NIEHS brought together the various stakeholders: labor representatives, employers, governmental agency representatives, academicians, and private consultants. Everybody worked together to develop the criteria, which were adopted by OSHA as Appendix E of 1910.120, the HAZWOPER Standard. While that Appendix has never become mandatory, the grantees all strive to comply with these criteria and all are in compliance.

Curriculum has been developed, based on the Appendix E and Accreditation Standard guidelines, and many companies and public agencies are now using them. Additional subjects linked to and supportive of the HAZWOPER standard, ranging from modules or classes on: Toxic Use Reduction, Medical Management of Worker Contamination, Cleanup of Clandestine Drug Labs, Hazardous Materials Readiness for Y2K, and others have been developed as well.

### Collaboration Across Programs

Within the awardee network, curricula and evaluation approaches have been shared. The UCLA program has incorporated learner-centered, problem-solving, participatory-based learning methods. Credit for this emphasis was given to PACE (Paper, Allied-Industrial, Chemical and Energy Workers International Union) and Les Leopold at the New York-based Labor Institute for their early guidance. This learner-centered, problem-solving approach was introduced at the first technical workshop on curriculum development in winter, 1988. Gradually, all of the grantees have developed more learner-centered education. For specific examples, the UCLA Consortium adapted the risk chart method the International Chemical Workers Union developed and applied that in their impact evaluation scheme. Others have used the "Toxic Jeopardy" game UCLA developed and created new questions and ways to do the game as a review of key points at their classes.

NIEHS also sponsored Technical Workshops over the years on relevant subjects:

- In 1996: Occupational Hazards of Cleanup Technologies;
- In 1998: Guidelines for Training in Support of Workplace Safety and Health Programs;
- In 1999: Advanced Training Technologies: Lessons Learned.

Something that really helped all of the grantees were the three National Trainer Exchanges in Baltimore's Maritime Academy in the Fall 1994, Manhattan Beach in 1997 and back at the Maritime Academy in 2000. These provided great opportunities where people bring a lot of ideas to share. These experiences help with instructor burn out as ideas on how to teach old subjects in new ways emerge.

Awardees over the years have worked together and learned from each other. For example, there has been a lot of cross training among grantees. A few examples were put forth. The University of Alabama at Birmingham has served as the primary training and curriculum contractor for a minority worker training program and they also provided training for a Brownfields tribal grantee. LOHP at Berkeley has provided technical assistance on developing training classes and materials for workers with limited literacy for a number of unions. LOSH produced a Spanish-language curriculum for the Carpenters' Union. There's been collaboration between the Chemical Workers and the Railroad Workers Unions. The New England Consortium collaborated with SEIU/AFSCME/PACE to learn more about how to effectively do small group activity based training.

Those who developed training using Advanced Training Technologies/Distance Learning, such as the United Auto Workers Union and the International Association of Fire Fighters, shared their lesson plans with university consortia who then adapted their curricula for their training populations. The Midwest Consortium has converted two exercises to CD ROM technology: "Trouble in the Trench" for its 40-hour course and SWIMS for industrial first on the scene courses. They also have put on their website a step-by-step exercise using Toxic Release Inventory data.

However, some university consortia are still very skeptical about such technology. The New England Consortium, for example, responded that their distance learning involves having a truck and traveling throughout New England doing training; this is their form of distance learning. They say, "The technology of asphalt highways and larger-body motor vehicles has enabled us to reach a much broader set of workers who otherwise would lack access to high quality training."

### Core Support Which Allowed the Programs to Expand

Core support from NIEHS has allowed grantees to have a greater occupational health and safety presence in their regions. For example, at UCLA-LOSH they had two staff members before receiving the WETP grant. Since the grant, they have received grants from OSHA, NIOSH and other sources, which have allowed them to address other health and safety issues through worker training and become involved in health and safety policy initiatives. Another example is the New England Consortium. Umass Lowell was just starting their Work Environment Program in 1987 when this grant program started. This grant helped them establish a working training reputation so that they could receive other such grants.

Some university programs have also been able to leverage money from their own universities as a result of establishing a well-received program under this grant.

#### Evaluation: Assessing Impact

In 1996 NIEHS held a Technical Workshop on “Measuring and Evaluating the Outcomes of Training.” The next year they issued a “Resource Guide for Evaluating Worker Training,” a document that included many of the tools/approaches used in evaluating training programs. The importance of program evaluation has consistently been stressed by NIEHS. Also, the Minimum Criteria Document developed by all of the grantees in 1996 NIEHS workshop addressed the importance of evaluation.

In 1999, NIEHS was forward thinking when they funded the Self-Sufficiency Research and Evaluation Project (SREPP) when three unions and New Perspectives Consulting Group developed a system to involve worker trainers in developing the evaluation approach for these programs. This worker trainer involvement in evaluation runs counter to what most universities would propose since they traditionally have assumed their faculty should do such evaluation. However, the Technical Workshop and breakout sessions where Tobi Lippin and Tom McQuiston shared this approach has piqued the interest of some university folks such that, for example, the University of Michigan is now using this approach.

The university programs have contributed to the occupational safety and health literature with numerous publications emanating from this work as well. For example:

- From the University of Michigan: “Using Grant Based Training as a Vehicle for Lasting Change: Strengthening the Role of Health and Safety Activists.”
- From the University of Medicine and Dentistry in New Jersey: “Worker Health and Safety Training: Assessing Impact Among Responders.”
- From the University of Cincinnati: “Worker Training: Race and Gender Issues.”
- From the University of Massachusetts at Lowell: “Health and Safety Training: Listening to Workers’ Voices.”
- From the University of California at Los Angeles: “Action on Worksite Health and Safety Problems: a Follow-up Survey of Workers.”

The conclusion is that NIEHS provides many opportunities such as the Technical Workshops, awardees’ meetings, National Trainers’ Exchanges, which allow the grantees to interact, to learn from each other, and to carry on work together across the miles.<sup>6</sup>

#### **Labor Training Organizations:**

James Warren, Laborers’-AGC, provided a comprehensive historical perspective of the WETP Hazardous Waste Worker Training Program, a description of the current Union Programs and Partnerships specific to each of the participating unions, a perspective on

why unions became involved in the program, the impact that the program has had on workers, and how unions and their programs have changed as a consequence of participation in the WETP grants program.

The excellent historical perspective of the WETP grants program provided a basis upon which to exhibit the launch and growth of the program:

- 1987-Initial Awards.
- 1992-Supplemental Awards.
- 1993-DOE Awards (Through NIEHS-WETP)
- 1995-Minority Worker Training Program Awards.
- 1996-Super JTI Awards.
- 1998-Brownfields Awards.
- 2000-Current Awards.

Current awardees by Program are:

- EPA-Hazardous Waste Worker Training Program: 17 with 80 participating organizations.
- DOE: 8 Awardees.
- EPA-Minority Worker Training Program: 5 Awardees.
- EPA-Brownfields Minority Worker Training Program: 5 Awardees.

Some of the reasons why labor organizations became involved in the Program were noted as among the following:

- Strong recognition of the need for safety and health training for the emerging clean-up workforce.
- Concern about hazardous materials exposures among the existing workforce.
- Desire to reach sectors within the union that didn't have access to training funds.
- The impact on workers has been very evident and were described as:
  - training of hundreds of thousands of workers provided.
  - employment opportunities in safer and healthy conditions have expanded.
  - basic life skills, literacy skills, and job skills to compete in a changing labor market have been developed.

The concluding section of Mr. Warren's presentation provided a vivid view of how the WETP grants program has been a positive vehicle for change and innovation among many of the funded labor training organizations. For example,

- IUOE initiated the Train-the-Trainer model used to bring together local instructors from across the nation for the first time.
- SEIU trained over 10,000 members which aided in these workers taking greater control over their safety and health and enabling them to work with management to improve overall safety on their workplaces.
- L-AGC expanded instructor refresher training to a comprehensive Instructor Development Program.
- Several labor training organizations have developed unique approaches to meeting their training objectives utilizing advanced training technologies.

Mr. Warren's presentation was comprehensive and provided a great deal of detailed information and perspective on the history of the WETP grants program as viewed by labor. Readers are encouraged to review the Power Point presentation supporting Mr. Warren's presentation.<sup>7</sup>

### **3. Mini-Symposium Introduction and Charge to Workshop Participants:**

Donald Elisburg gave the concluding presentation in the opening plenary. The perspectives for each of the four mini-symposia were presented. This was followed by guidance to the workshop participants with regard to the conduct of the mini-symposiums, a process very familiar to the NIEHS grantees but foreign to most of the OSHA participants.

Four principle "best practices" categories emerged during an analysis of the "Best Practices" document developed by NIEHS.<sup>8</sup> Further analysis of that document led to the identification of five specific "best practices" within each of the four categories. For each of the specific "best practices", presentations were elicited from among the NIEHS and OSHA grantees who had experience in the particular best practice. The following reflects the titles of the presentations that comprised the mini-symposiums for each of the four best practices categories.

#### **I. Core Program Concerns:**

- Minimum Training Program and Curriculum Criteria.
- Model Curricula.
- Peer Training/Instructor Development.
- OSHA Certification/Successful Training Completion.
- Quality Assurance/Training Evaluation.

## II. Partnerships:

- Academic Consortia.
- Community Outreach.
- Multi-cultural Workers.
- Employer Partnerships.
- Multi-Agency Participation.

## III. Skill Enhancements:

- Instrumental Enrichment.
- Career Path Development.
- Apprenticeship Programs.
- Job-Life Skills.
- Trainee Tracking.

## IV. Advanced Training Technology:

- Web-based Training Issues.
- OSHA Perspective on Worker Training in a Digital World.
- Smart Classrooms.
- Hands-on Issues.
- ATT Lessons Learned.
- The NIEHS ATT Guidance Policy.

The Workshop approach was organized such that two “mini-symposia”, each of three hours duration, were conducted for each of the four “best practices” categories. These mini-symposia were conducted concurrently, with workshop participants assigned to specific mini-symposia, one in the morning and one in the afternoon.

Each mini-symposia was facilitated by Co-chair persons. A presentation on each of the five best practices in each mini-symposium was made by an individual representing either a NIEHS or OSHA grantee organization with relevant experience in the presentation topic. Discussion was encouraged from among the session participants following each presentation. The discussion and dialogue among the participants served to provide a basis for extending the scope of the best practices and identifying additional best practices, in addition to the important objective of validating the identified “best practices.”

A summary of each mini-symposia was developed by the respective Co-chairs and presented to the workshop participants in the closing plenary session. This provided a means for all participants to gain a fuller understanding of the workshop as a whole.

The process for completing a final report on the workshop was briefly described. Shortly after the conclusion of the workshop, a workshop report was prepared based upon the workshop presentations, discussion points from the participants, the mini-symposia Co-chairs summary reports and discussion during the closing plenary, and suggestions/recommendations that arose during the closing plenary with regard to future joint interactions among the NIEHS and OSHA grantees.

## **V. Symposium I: Core Concerns.**

Co-Chairs

*Judy Jarrell (OSHA/Director, Continuing Medical Education, Univ. of Cincinnati College of Medicine)*

*David Treanor (NIEHS/UOE Hazmat Program)*

The NIEHS Worker Training Grant Program has been established in accordance with the legislative mandates in the Superfund Amendment and Reauthorization Act (SARA) of 1986. The intent of the legislation was to provide a cadre of properly trained workers to engage in the national effort associated with hazardous waste clean up, treatment/storage/disposal, and emergency response. The Act also required that OSHA (and EPA for those workers not within OSHA jurisdiction) develop and promulgate standards for the protection of workers engaged in such activities and, in addition, establish standards with respect to the training requirements established within the worker protection standards. OSHA promulgated the worker protection standards at 29 CFR 1910.120 entitled “Hazardous Waste Operations and Emergency Response.” EPA likewise promulgated an identical standard at 40 CFR 311 applicable to public workers not under OSHA jurisdiction. In accordance with SARA, OSHA promulgated a Notice of Proposed Rulemaking specific to the training programs required in the 29 CFR 1910.120 standard. This was embodied within 29 CFR 1910.121. To this day, OSHA has not advanced the proposed rule to a final standard.

The NIEHS Worker Training Grant Program was launched in 1987. The intent was to apply the training program requirements established in the OSHA training criteria standards under the final rule emerging from the rulemaking process under 29 CFR 1910.121. As it became apparent that this rule would not become a final rule for some period of time, NIEHS undertook efforts to develop criteria applicable to the training grant programs being awarded pursuant to the SARA legislation. NIEHS approached this matter by conducting a National Technical Consensus Workshop for all of the NIEHS Worker Training Program grantees and selected external participants representing the diverse stakeholders in the hazardous waste arena. The workshop, the first of many such consensus workshops, produced a “Minimum Criteria” guideline document that was applicable to the training providers and the training curricula developed under the NIEHS Training Grants Program. The “Minimum Criteria” guidance was subsequently adopted by OSHA as a non-mandatory guidance to the 29 CFR 1910.120 standard as Appendix E.

The grantees have reached consensus on a number of additional factors, termed “core values,” that have served as additional criteria governing the training programs and curriculum. These include emphasis on hands-on training owing to the skills requirements unique to hazardous waste operations and emergency response work, utilization of experienced peer trainers and instructors, and compliance with the training requirements established within the OSHA 29 CFR 1910.120 standards.

The NIEHS Training Grants Program has had an ongoing additional activity associated with quality control and evaluation of the grantees training curricula and programs. Experienced, independent, external experts, on a periodic basis, conduct this aspect of the NIEHS Program.

### **NIEHS Minimum Criteria**

*Richard Dwyer (NIEHS/NY-NJ Consortium)*

**Best practice: A comprehensive consensus training and curriculum guideline applicable to all NIEHS grantees that meets or exceeds OSHA 29 CFR 1910.120 training requirements.**

In January 1990, OSHA held hearings on a proposed regulation to establish training standards for HAZWOPER training required by 29 CFR 1910.120. The proposed standard, 29 CFR 1910.121, was never adopted and as a result legal education standards regulating RCRA/TSD, emergency response, and hazardous waste site training never materialized. Later in that year, NIEHS sponsored the first of many National Technical Consensus Workshops.<sup>9</sup> The WETP grantees gathered in Washington, D.C. and developed a consensus document providing Minimum Training Criteria Guidelines for all of the grantees conducting training under 29 CFR 1910.120. Today this Minimum Criteria is incorporated in 1910.120 as non-mandatory Appendix E “Training Curriculum Guidelines.” This Guideline was updated based upon three years of experience in another Technical Workshop in March 1994 that brought together the grantees to revisit and refine the Minimum Criteria. A report, “Interpretive Guidance to the Minimum Criteria,” was subsequently issued that reflected these experiences and refinements. Additional Technical Workshops addressed issues embodied within the Minimum Criteria that were of specific importance to the grantees. The subsequent reports are entitled: “Resource Guide for Evaluating Worker Safety and Health Training” (4/1997) and “Minimum Criteria for Hazardous Materials Train-the-Trainer Programs” (12/1997)<sup>10</sup>.

Dr. Dwyer framed the presentation in terms of the worker training issues that began arising in the early days of the grants program due to the wide range in instructional perspectives and practices among the grantees represented by construction unions, industrial unions, and academia. This served as the stimulus for the effort embodied within the workshop approach that brought all of the grantees together to develop a solution through a consensus process. The result was the Minimum Criteria. Dr. Dwyer’s presentation analyzed the critical training guidelines from the Minimum Criteria

Document. Issues such as participatory training techniques, hands-on instruction, training evaluation, different student-faculty ratios depending on the type of instruction, and quality assurance were specifically addressed.<sup>11</sup>

## **Model Curricula Development**

*Craig Slatin (NIEHS/Dept. of Health and Clinical Sciences, Univ. of Massachusetts Lowell)*

*Best practices:*            **Application of Minimum Criteria guidelines specific to hands-on, skill development, evaluation/assessment, and peer instructors in training curriculum development.**

Following an opening discussion about the NIEHS Minimum Criteria for Worker Health and Safety Training at Hazardous Waste Operations and Emergency Response, this presentation reviewed the sections on minimum generic training curriculum guidelines, aspects of the core criteria, and principles of adult education. Elements from the NIEHS Interpretive Guidance Document, which was largely incorporated into non-mandatory Appendix E of the OSHA standard, 29 CFR 1910.120, were discussed. Although the 1910.120 standard was the focus of this discussion, many of these criteria are transferable to training regarding other work environments. Critical areas discussed included: adherence to worker training principles and characteristics of excellence; incorporation of hands-on activities; skill development; and evaluation/assessment. The presentation used the example of the 24-hour Emergency Responder H&S training curricula developed by the New England Consortium. The curriculum development process, its successes and obstacles, was reviewed. “Lessons Learned” from this experience were presented as recommendations for curriculum development by other organizations.

Specific elements within the “best practices” title of this session that Dr. Slatin addressed and discussed included course materials, hands-on training aspects, trainer-trainee ratios, specific trainer-trainee ratios during hands-on training, proficiency assessment, characteristics of excellence, and the application of principles of adult education. These elements were subsequently described in terms of a specific example training program development process. Lessons learned in the curriculum development process included:

- Curriculum development requires time and commitment.
- Input and participation of the instructional staff is important.
- Pilot evaluations are necessary.
- Curriculum must be expansive enough to support workplace-specific training.<sup>12</sup>

## **Peer Training & Instructor Development**

*Les Leopold (NIEHS/OSHA/PACE)*

*Best practices:*            **Methods for training experienced workers as peer instructors and methods developed to support such instructors in the field.**

This presentation reviews the origins, evolution and current practice of peer training within the PACE-OCAW WETP program. The basic elements in the training of trainers and the trainer support program were described. The main challenges peer trainers face in the field and explorations underway to help peer trainers meet these challenges were also a point of focus. An examination of attempts to help peer trainers understand and use a framework based upon “systems of safety” was discussed. Lessons learned in tackling the key issues of peer training were shared.

While the value and effectiveness of experienced workers as trainers has been well recognized within the union apprenticeship programs for over a hundred years, the application of this principle to hazwoper training was challenging. Les Leopold described the PACE solution for “turning workers into peer instructors” as involving the following:

- Conduct of workshops to teach workers how to develop curricula.
- Establish teams for curricula development, evaluation format development, and the like.
- Facilitate an approach to aid worker trainers in thinking in terms of “Systems of Safety,” which focuses on “what” rather than “why.” Take the training into the workplace based upon the premise that training alone does not lead to prevention. The corporate community, as a whole, is the instrument of prevention.<sup>13</sup>

### **Certification/Successful Completion for OSHA requirements**

*Ernest Thompson, (OSHA/Program Coordinator, Office of Training and Education)*

*Best practices:*            **Ongoing interpretive guidance and policy defining “certification,” “instructor qualifications,” and “successful completion” of Hazwoper training.**

This presentation provided an overview of the OSHA training requirements for hazardous waste operations as found in 29 CFR 1910.120. Certification issues, instructor qualifications and what successful completion of training entails were addressed.

Mr. Thompson addressed this topic through a detailed description of the current OSHA requirements embodied within 29 CFR 1910.120 in terms of the elements of the training provisions within that standard. He specifically addressed initial training, training content, trainer qualifications, training certification, refresher training, and equivalent training. Specific elements framing the compliance aspects of each of these subjects were presented as well as a number of policy interpretations that have emerged since the rule became final in 1990, such as basis for the need to re-take the 40 hour training in the absence of appropriate refresher training.

Sources of additional information were cited as well. These included: OSHA policy and interpretations (available through the OSHA Web site), Appendix E (Training Curriculum Guidelines) to 29 CFR 1910.120, the OSHA proposed training certification

rule at 29 CFR 1910.121 (proposed in 1990, not issued as a final rule), and the OSHA Training Guidelines.

Note that the OSHA letters of interpretation specific to the 29 CFR 1910.120 Appendix E Guidelines, which are based in large part on the NIEHS-WETP Minimum Criteria, state that compliance with the Appendix E guidelines would meet or exceed the training requirements in 29 CFR 1910.120.<sup>14</sup>

## **Quality Assurance & Training Evaluation**

*Thomas McQuiston & Tobi Lippin (NIEHS/PACE)*

*Best practices:*           **Independent quality assurance review and evaluation of grantee programs.**

The NIEHS Worker Education and Training Program (WETP) and its awardees have worked for over a decade to build cooperative models that involve both funders and awardees in developing and implementing programs for quality assurance and evaluation. These efforts have established minimum criteria, while at the same time provide awardees with the latitude to tailor their evaluations to meet their own information needs. The evaluations that have resulted from these efforts have provided abundant evidence of program achievements across a broad scope of programs, course, measures and trainee populations. This cooperative relationship has also fostered important innovations in evaluation practice among awardees. Initiated at the NIEHS WETP technical workshop in 1996, awardees developed an evaluation handbook edited and published by the George Meany Center. This handbook is both a document of prior evaluation efforts as well as a guide for new initiatives. The NIEHS WETP has spawned the Self-sufficiency Research and Evaluation Project, a multi-program initiative that has sought to develop a model for collaborative evaluations involving workers, staff and external evaluators.

This session proceeded in two parts. First, it briefly presented the background and history of evaluation efforts within the NIEHS WETP. It then addressed possibilities for new directions in evaluation that focus on the strategic uses of participatory forms of evaluation that integrate program planning, development of understanding about how programs work, and how findings can lead to program improvement.

Three foundations were identified upon which the quality assurance and evaluation program is based:

- The Minimum Criteria guideline document (Appendix E to 29 CFR 1910.120.)
- Requirements within the cooperative agreements (The NIEHS grants are cooperative agreements.)
- Individual awardee evaluations.

The Minimum Criteria guideline includes suggested program quality control criteria. These criteria focus on:

- The training plan.
- Training program management.
- Facilities and resources.
- Quality control and evaluation plan.
- Students.
- The institutional environment and administrative support.

The NIEHS WETP provides the guiding language for quality control and evaluation in the cooperative agreement and, in addition, establishes a Review Panel composed of outside experts and NIEHS staff to conduct independent reviews of the grantees programs. The grantees have the lead responsibility for quality control and internal evaluation and do so based upon their own specific evaluation systems guided by the terms of the cooperative agreement, the Minimum Criteria, and the Resource Guide for Evaluating Worker Training. It is recognized that each grantees quality assurance and evaluation program will differ in specifics depending on the student target audience, the awardees program culture, and other unique aspects of the individual programs. The intent of the quality assurance and evaluation program is not only to assure compliance with the terms of the cooperative agreement (accountability) but also to improve training programs, identify needs for additional training, improve training for the target audiences based on student feedback, maintain instructional staff competencies, and many others.

The Self-Sufficiency Research and Evaluation Project (SREP) is a participatory evaluation model designed to have multi-organizational collaborative utility. AFSCME, PACE, and the UAW are currently partners in applying and advancing the model. The primary intent of SREP is “Worker-Led, Team-Based Evaluation.” The value of the SREP approach rests in shifting the evaluation process from the traditional approach, which typically occurs once at some program end point and results in formal reporting, to a participatory approach that is on-going, interactive, collaborative, and has both formal and informal output products. While the intent of the evaluative process is program improvement, the SREP model has the advantage of an ongoing relationship with the training program, which aids in improved understanding of the program and implementing improvements in an ongoing manner.

Additional significant and useful details of these two dimensions of quality assurance/evaluation are included in the extensive power point presentation materials on this topic.<sup>15</sup>

## VI. Symposium II: Partnerships.

### Co-Chairs

*Teresea Madden-Thompson (OSHA Southwest Education Center)*

*Janis Heple (NIEHS/UC DAVIS)*

The intent of the NIEHS Worker Training Grant Program is to provide training that is national in scope to workers engaged in the highly hazardous and often unique aspects of the work involved in hazardous waste operations and emergency response. The Program funds training grants to a variety of entities, in order to assure comprehensive coverage and availability of such training. These include labor organizations representing the primary crafts involved in hazardous waste operations and emergency response and academic consortia organized to meet the needs of the non-affiliated “universal” worker.

The NIEHS Training Grant Program has fostered extensive collaboration and cooperation among the grantees over the past 13 years of the Program as well. This has been achieved largely through the extensive number of consensus workshops that have focused on topics of relevance to all of the grantees. In addition, the Program and the grantees have developed additional partnerships to foster training program outreach and acceptance. Additional efforts have been devoted to reaching additional worker populations, developing interactions with communities involved in or impacted by hazardous waste activities, and have extended the reach of the Program through formal relationships with other agencies, which provide additional resources to facilitate Program expansion.

Unique challenges have fostered development and refinement of unique solutions among the diverse grantee entities yet all have built such solutions on the foundation of the “core values” including the “minimum criteria.”

This session focused on the diverse best practice aspects within the Training Grant Program in identifying, developing, maintaining, and nurturing partnerships, which are critical to the success of all of the training efforts.

### Consortia Arrangements

*Carol Rice, Ph.D (NIEHS/CIH)*

*Best practices:*            **Development, funding, management, maintenance and delivery of complex Hazwoper training programs by large multi-state academic consortia.**

The Midwest Consortium for Hazardous Waste Worker Training is one of the original groups funded by NIEHS in 1987. The motivation for forming a group in the mid-west

region resulted from an evaluation of regional needs, strengths in worker training in a multi-state area, and the recommendations from the funding agency to form a consortia. Approximately 20% of the U.S. workforce is in the region, including workers in all jobs included in 29 CFR 1910.120. Substantial experience in worker training existed at university and union-affiliated labor training groups, several of which had been funded through the New Directions program at OSHA. Additional technical expertise could be found in academic units with a commitment to public health principles. Rather than compete, organizations from six states met in 1986 and forged a plan to address the training needs of site workers, employees at treatment, storage and disposal facilities and emergency responders.

Initial organizational challenges included: setting up a structure, determining responsibilities, resolving funding priorities, and identifying how to trouble shoot on a daily basis. Open lines of communication proved to be one of the most important components of success. A bi-weekly newsletter was initiated for program directors; a monthly newsletter was developed for trainers. Quarterly meetings of program directors and committees fostered a closer working relationship and an annual trainer meeting allowed the essential core members of the group to exchange ideas and improve skills. Special topical meetings were on issues that included trainer burnout and marketing. Throughout the 13 years of the organization, there have been a number of memberships changes, two of which resulted in national organizations receiving direct funding. Others have included new states, and three changes of training center location within one state. Shrinking real dollars of funding have resulted in changes in procedures to monitor training delivery. Long-range planning was used in Year 11 to reassess the commitment to the process and determine core goals for the future. This appeared to energize the groups and focus future activities. The new challenge is to balance the results of striving toward self-sufficiency that has resulted in more diversified training capabilities of the groups with the mission of delivering the NIEHS program. A major lesson-learned: Stay focused, but be flexible.<sup>16</sup>

## **Community Outreach**

*Mark Holdbrooks (NIEHS/ Dir. Of Programs for the NJ/NY Environmental Worker Training Consortium - UMDNJ)*

*Best practices:*            **Methods created and implemented in providing training support at the community level.**

This presentation reviewed specific experiences associated with the development of effective community outreach programs that provide training support at the community level. Emphasis was on the description of approaches utilized with an analysis of hindrances and barriers and the best approaches to overcoming them. Consequential successful outcomes and benefits were articulated.

The target training population for this grant program is inner-city unemployed/underemployed minorities. The grantee recognized that in order to

effectively reach that target audience and achieve positive post-training outcomes required that the community become involved as a partner in the program. The grantee, however, had the burden of developing that community relationship. The program, therefore, involved a number of community outreach activities leading to the development and nurturing of an effective community based organizations partnership. Following the outreach effort, a community based recruitment activity was undertaken to reach prospective trainees. As these perspective trainees often lacked skills or experience in the construction crafts and may not have a GED or diploma, unique approaches were developed to counsel, mentor, screen, evaluate, and develop a commitment to the training program and the opportunities such could provide to the individuals future. Upon successful completion of training, assistance in job placement was undertaken. It was noted that while it is often difficult in the large east coast cities to get into the building trades unions, the graduates of this program have been among the first accepted where openings arise.<sup>17</sup>

### **Training & Outreach to Multi-cultural Populations (Hispanic and others)**

*Betty Szudy (OSHA/Coordinator—Hazardous Waste Worker Training Project, Labor Occupational Health Program/California Arizona Consortium)*

*Best practices:*           **Identification of learning difficulties based upon language barriers and developing solutions to overcome those barriers.**

Latinos risk life and limb to work in unsafe U.S. factories and face a higher job-injury risk. Yet immigrant workers often have less training than other workers because it is not available in their native language. There is increasing interest among NIEHS and OSHA grantees in developing effective outreach and training programs in languages other than English. Over the past ten years, the Labor Occupational Health Program at UC Berkeley has developed an effective outreach and training program targeted towards Spanish-speaking workers. This presentation focused on how these programs were developed, what worked, challenges that were faced, and the lessons learned.

The Labor Occupational Health Program (LOHP) at UC Berkeley is a member of the California Arizona Consortium, an NIEHS grantee. In 1990, the LOHP received supplemental funding from NIEHS to develop Spanish language outreach, training, and materials. In approaching these objectives, LOHP focused on three specific objectives: Health and Safety Knowledge and Skills, Outreach to promote the program and reach workers, and approaches to impact the workplace/policy. As these objectives were pursued, important knowledge emerged. For example:

#### 1. Increasing Health and Safety Knowledge:

- Development of training in another language takes time and a major commitment.

- Involving workers/target audience is critical in the key steps of needs assessment and easy to read materials and visuals.
- Trainers and participatory training methods must be culturally appropriate.

## 2. Outreach:

- The outreach strategy needs to be comprehensive including the media, letters, trade associations, unions, and community organizations among others.
- Since the target population works primarily in unorganized industries it is required that outreach efforts employ other than traditional approaches.
- Targeting employers and developing partnerships with them is a key element in the success of the program.

## 3. Impacting the workplace:

- Spanish speaking worker trainers have effectively impacted the workplace.
- Development of linkages and partnerships with community-based organizations serving Latinos, unions, and organizing campaigns is key.

Major lessons learned in the development of this unique, challenging, and effective program are the need to continually evaluate and learn from the program as it develops and to maintain a willingness to try many different approaches and strategies.<sup>18</sup>

## **Employer Partnerships**

*Don Ellenberger (NIEHS/Training Manager, The Center to Protect Workers' Rights)*

*Best practices:*            **Approaches to meeting employer training needs.**

The Center to Protect Workers' Rights, CPWR, is the research and development institute of the Building and Construction Trades Department, the construction unions in the AFL-CIO. CPWR works with 11 of the unions to provide safety and health training for construction workers who are active at DOE and Superfund sites, as well as trainers, and some managers and site technical staff. The primary financial support is provided by NIEHS, which uses EPA and DOE funding. But key support also comes from employers and century-old joint-apprenticeship training committees in the form of funding and in-kind support, such as the use of training facilities. More than 400 hands-on courses are taught yearly. The program faces obstacles unique to construction, such as the mobility of the labor force and the cyclical nature of employment. It thus can be difficult to locate potential trainees and the follow-up with them. Workers may be reluctant to take time for training during boom times and may not have employer support for training at other times. Nonetheless, close cooperation with the employers through the joint apprenticeship

programs has enabled CPWR to maintain interest and participation in the training and to help ensure that construction workers involved in hazard abatement across the U.S. have received top-quality safety and health training.

While the Building Trades Unions have had a long relationship with employers through their apprenticeship programs, emergence of the environmental remediation sector has created challenges for the traditional union-employer training relationship. Hazwoper training must be successfully completed before a worker can begin work. This training is of relatively long duration and very specific to tasks that are largely unique in construction. Hazwoper training must be provided to all of the crafts engaged in a remediation job. And, employers need crafts from many local unions that are already hazwoper certified. The CPWR has met these challenges through improved targeting and meeting of actual industry/employer needs, development of train-the-trainer programs, maintaining emphasis and support of peer instructors who can effectively bridge the experienced craft person to hazwoper work building upon the craft skills, and developing training partnerships within the Building Trades Department.<sup>19</sup>

### **Joint Funding with other Agencies: Superfund, JTI, Brownfields and DOE**

*Myra Blakely (EPA Brownfields Program)*

*Richard Brancato (DOE)*

*Marian Flum (University of Massachusetts-Lowell, Brownfield Minority Worker Training Program)*

*Best practices:*            **Meeting multi-agency and targeted worker populations' hazwoper training needs through a single training grant administration entity, approaches used to build local job training initiatives, and examples of additional leveraged funding from other entities.**

The EPA Brownfields Job Training and Development Pilot Program, initiated in 1998, was established as a way of ensuring that local communities share in the short and long term benefits of Brownfields cleanup and redevelopment efforts. To date, EPA has awarded 37 pilots which are providing training in the handling and removal of hazardous substances related to the implementation of alternative or innovative treatment technologies. The pilot program encourages building partnerships with public and private entities to provide resources to leverage the grant. Activities supported by these partners include: recruitment, case management, day care, transportation, counseling, placement and follow-up of newly employed trainees. The pilots, administered by non-profit universities, community colleges, cities, counties and federally recognized Indian Tribes, have leveraged funds through foundations, other federal, state and local governments and the private sector. This presentation provided information on how to develop sustainable, local job training initiatives through partnership building.

The DOE Office of Environmental Management provides resources to the NIEHS WETP to award and administer worker training grants specific to DOE environmental remediation needs. NIEHS-DOE grantees provide HAZWOPER training at nearly all of the DOE field sites. This presentation discussed the partnering between DOE and NIEHS on the DOE hazardous waste worker training program. The discussion focused on the interaction between the two agencies and what levels of interaction are needed between the DOE field offices, DOE contractors and the grantees.

A specific activity undertaken by one of the DOE-funded grantees, the IUOE, was a survey and analysis of a questionnaire sent to 1392 individuals who had successfully completed HAZWOPER training provided by the IUOE at DOE sites/facilities. The special study was supported under a supplemental award through NIEHS-WETP. That survey report, "Integrated Safety Management Survey Results" was issued on December 22, 2000. It provided a perspective on the recently implemented Integrated Safety Management System (ISM) as viewed from the worker level. The survey results provided input of importance to the Office of Environmental Management, the prime remediation management entity within DOE, as the ISM implementation effort transitioned to the maintenance phase. The survey indicated, for example, that while over 90% of those responding to the survey had been trained in and were knowledgeable about ISM, a far smaller percentage had received training or actually utilized hazard assessment tools/instruments, hazard assessment being the key working-level implementation requirement within ISM.

Laborers-AGC's Brownfield Minority Worker Training Program owes its success to building strong partnerships with the University of Massachusetts Lowell who manages the program and its strong partnerships with community-based organizations and city agencies in Lowell and Boston. These relationships, based on a strong sense of commitment from all parties, a basis of equity, and a determination by the University to break down barriers of mistrust and misunderstanding have led to new projects and new funding with program partners. The Environmental Justice on Brownfield Sites (Environmental J.O.B.S.) program includes partnerships with the Coalition for a Better Acre (CBA), a community development corporation based in Lowell's poorest community, the Cambodian Mutual Assistance Association, Lowell Adult Education, and Jobs for Youth-Boston. Through continuing dialogue and a willingness to develop and change, the program has added new components and improved the quality of services over its two-and-a-half year history.

Through these partnerships, new opportunities for funding have emerged, which have provided needed funds for program improvement. Many of the funding opportunities would not have been available to the university alone. Based on the success of the program, community partners have been able to gain more funding and expand their own services. Better ties with the City government have been developed, and more funding for the program and for CBA has been gained.

This program has developed a wide range of diverse partnerships that have been linked to a common focus by the program. These include program partnerships and partnerships

with communities; local, state and federal governments; and labor. While many of these partnerships have evidenced new opportunities for funding, less tangible yet important benefits have emerged including program graduates becoming more involved in their community, the University being better able to contribute to the community, and local governments and communities becoming more aware of and involved in environmental issues and related needs and concerns.<sup>20</sup>

## **VII. Symposium III: Skill Enhancements.**

Co-Chairs

*Tom Broderick (OSHA/CSC)*

*Sharon Beard (NIEHS/ Industrial Hygienist)*

The NIEHS Training Grant Program addresses two primary training audiences: those workers with existing craft or job skills and those with no current relevant job skills. The former are represented by construction crafts such as operators and laborers, chemical plant operators, and full and part time fire fighters. Inner-city minority workers, for example, who may seek work at Brownfields projects, represent the latter.

As the Program has continued to develop and mature, emphasis has expanded to address issues associated with the development of hazardous waste work as a career path rather than simply a job. Long range skills development options, acceptance and integration of hazardous waste training as an element of specialized skills careers such as environmental technician, and entry into apprenticeship programs based upon successful completion of NIEHS grantee training are but a few examples.

### **Instrumental Enrichment Integrated With Hazwoper Training**

*James Kinard (NIEHS/DePaul University)*

*Jack Huenefeld (NIEHS/Director, Environmental Health and Safety, DePaul University)*

*Best practices:*           **Integration of a dynamic educational model with hazwoper training requirements.**

Feuerstein's Instrumental Enrichment (FIE) is a dynamic cognitive education program that helps all individuals correct learning difficulties, construct higher-order thinking processes and build intrinsic motivation regardless of previous barriers or perceived limitations. It was developed by the education psychologist Professor Reuven Feuerstein, who defines human intelligence as a dynamic process of structural cognitive modifiability that is promoted by the same dynamic that transmits culture from one generation to another. This dynamic is called Mediated Learning Experience (MLE) and it drives the FIE process.

The Office of Applied Innovations (OAI) at DePaul University has developed an environmental remediation technician training model that integrates FIE with HAZWOPER training. This integrated training model enhances the quality of mathematical-scientific thinking and conceptual development in all trainees. In addition, FIE can bring about motivational and attitudinal changes in the trainee's approach to reality. This presentation outlined the features of this integrated paradigm; the challenges addressed during its development and delivery; its efficacy as a model for integrating life skills, critical thinking, and HAZWOPER training; lessons learned; and, recommendations for dissemination.

Positive outcomes have been identified. Validation with respect to the lasting impact of FIE is being conducted through pre and post-testing and performance tracking. There are presently several studies underway and a national publication of the data is planned. Dissemination approaches that are viewed as the most efficient are through HAZWOPER instructional personnel who have additional training in FIE or FIE and MLE. Additional information on this innovative program can be obtained from the author at [jKinard@wppost.depaul.edu](mailto:JKinard@wppost.depaul.edu) or (312) 362-6044.

HAZWOPER training is intense and complex requiring the students demonstrate both competencies and proficiencies. This can be a challenge for even experienced construction workers. Students that are poorly motivated, have poor learning habits or abilities, and little or no experience face enormous barriers to successful completion of HAZWOPER training. This unique and innovative program addresses these barriers at the outset by integrating critical thinking, life skills, and HAZWOPER training. Successes to date indicate that successful completion of HAZWOPER can be achieved and, more importantly the successful students have developed abilities and attitudes of major importance to their future. An important dimension to extending the technique is the instructional staff who must be trained in both HAZWOPER and FIE or FIE/MLE.<sup>21</sup>

## **Career Path Development**

*Donna Gross McDaniel, (Program Administrator, Laborers-AGC Education and Training Fund)*

*Best practices:*            **Hazwoper training as an element in career path development.**

The Laborers-AGC's experiences and lessons learned with the Minority Worker and Brownfields Minority Worker programs allowed them to improve their programs and formulate best practices for overall program success and, more importantly, for individual participant success in choosing a career path that works best for them. The Construction Craft Laborer (CCL) work is divided into three categories: 1) Heavy/Highway and Utility Construction, 2) Building Construction, and 3) Environmental Remediation. Each category involves a myriad of jobs and tasks. The variety of work tasks often leads to informal links to other skilled construction crafts such as the Operating Engineer, links to higher education which allows movement to safety

professions and construction management, and movement to construction architecture, engineering and company ownership. Other possible career paths include construction equipment and materials manufacturing, labor union leadership or industry training and education.

This session focused on career path development for the construction worker with the vast array of employers and opportunities available in the Construction Industry. The discussion centered on the Construction Craft Laborer, the Laborers CCL Apprenticeship Program, links to higher education and how these career path options relate to the Laborers-AGC MWTP and BMWTP.

Best Practices/Challenges with respect to this MWTP and BMWTP program included:

- Recruiting for the apprenticeship program (meeting the entry requirements.)
- Joint involvement of the Local Union, Training Fund, and the CBO needed in recruitment and screening.
- Need to pattern the program to simulate the industry (“Virtual Workplace.”)
- Need to plan job skills training to compliment actual jobs in the local area.
- Need to sell the program by emphasizing that Laborers are the “gateway” to all areas of construction.
- Lifelong learning and continuous training.<sup>22</sup>

## **Apprenticeship Programs**

*Kizetta Vaughn (NIEHS/Director, Specialized Training Programs, The Center to Protect Workers’ Rights)(Ms. Vaughn was unable to attend the Workshop, but her presentation is summarized for the Report and included in the Appendix)<sup>23</sup>*

*Best practices:*           **Hazwoper training as entry qualifications to union apprenticeship programs for minority workers.**

This presentation addressed the question “Why is apprenticeship an important component of the minority worker training programs” with a focus on best practices. Is a “master of one trade” rather than a “jack of all trades” a good thing? Apprenticeships have been the construction industry’s cornerstone of career development and the gateway into employment for graduates of the Minority Worker Training Programs (MWT). The union apprenticeships have enabled many of the MWT and BMWT program participants to launch long-term careers in the craft trades. The presentation described how the mastering of one trade via apprenticeship has created a ladder of opportunity for the programs’ graduates.

The Center to Protect Workers Rights works with the 15 construction unions comprising the Building and Construction Trades Department of the AFL-CIO with respect to the Brownfields Minority Worker Training (BMWT) program and the Minority Worker Training (MWT) program. BMWT programs are active in four major urban cities while four MWT programs are active in four additional major urban cities. Emphasis is centered on preparing minority workers to enter apprenticeship programs. There have been 89 graduates of the MWT program of which 54 have been placed in jobs and 46 have successfully entered an apprenticeship program. With respect to the BMWT, 154 have graduated, 154 placed in jobs, and 93 accepted into apprenticeship programs.

In developing this successful program, several lessons have been learned and protocols developed to aid in interfacing and interacting with the local unions, union training funds, and contractors who may employ the program graduates, particularly those engaged in hazardous waste remediation work.

The suggested “protocols” for working with local unions, which is based upon an understanding of local union job placement practices, is comprehensive and includes:

- Develop informational package defining a mission statement, areas of expertise and service delivery areas.
- Determine what unions to approach (outreach to the local building and construction trades council is recommended).
- Send a letter to the local union president or executive secretary requesting a meeting to discuss the program, approaches to working together, and the opportunities associated with working together to create local environmental restoration jobs.
- Establish regularly scheduled dates to meet to maintain rapport and provide progress reports.
- Follow the union hierarchy and always be cognizant of the unions work jurisdiction.

Lessons learned in the development of this program include:

- Have the union representative at the table early in the program.
- Have contractors at the table early.
- Interact with contractors engaged in remediation work who participate in apprenticeship programs. If they do not, introduce the union.

## **Job Skills and Life Skills**

*James Kojo Livingston, (NIEHS/Xavier University)*

*Best practices:*           **Job placement approaches for hazwoper trained workers in the non-union environment.**

The presentation focused on job readiness and job placement efforts associated with job opportunities in a right-to-work state. The presentation provided a clear description of right-to-work legislation and its impact on job availability. It also provided an overview of how our job placement efforts have had to be modified to interact with non-union contractors and non-union work in the environmental remediation arena.

The focus of this program is job placement after successful completion of training. Placement efforts have included a number of diverse activities including cold calls on employers, personal contacts, mass mailing campaigns, and collaboration with agencies and organizations. Placements have been quite successful using these approaches with 75-85% placement achievement. Additional activities have been developed and applied to maintain those successfully placed in jobs. These include an intervention effort to assist graduates with legal or other crisis situations that arise and a tracking program to maintain contact with the graduates. Presently the program is maintaining contact with over 80% of graduates. Results indicate that once placed, graduates are retained although not necessarily with the same employer. The program has developed effective job placement methods specifically tailored to the “right-to-work” construction job environment. The challenges associated with that environment which had to be addressed and overcome included lower pay scales, no apprenticeship programs, fewer jobs, jobs without benefits, and job longevity issues.<sup>24</sup>

## **Trainee and Graduate Tracking**

*Cindy Herleikson, (NIEHS/L-AGC)*

*Best practices:*           **Development and integration of complex databases to meet the needs of both the NIEHS WETP, the training provider, employers, and the trainees in a complex national remediation industry sector.**

Grantees under the NIEHS Worker Education and Training Program are required to report several types of data. Included are such items as the number and types of courses conducted; how many workers attended the courses and their home state, age, race, and gender; and the hazardous waste sites where these workers have been employed. To simplify the data compilation and reporting task, Laborers-AGC is in the process of developing an integrated database. Data from sites across the country, the International Brotherhood of Teamsters, and from existing databases, will be batch fed into the new database for analysis and reporting. In addition, job site search capabilities will enable

easy identification of where trainees worked and will automatically classify the sites according to NIEHS criteria. Data acquisition methods and examples from the database were presented and described.

The L-AGC training target audience is a diverse group including laborers who will or may work on one or more hazardous waste site or DOE remediation sites, contractor personnel, site supervisors, DOE personnel, state employees, and minority youth. Data that is acquired includes course data, trainee statistics, trainee hazardous waste employment, and job type or classification, which is integrated with existing data such as course statistics, job locations, and trainee statistics among others. This data is acquired from trainee applications, individual training funds reimbursement requests, surveys conducted during refresher training, and from government databases.

Data compilation occurs in three main sets: Course and trainee statistics (using TRAC, combined TRAC, and NIEHS database), employment history (core and refresher course databases), and name/type of job sites (internet research as needed.) Excel spreadsheets are utilized for all three sets and for quality control.

Problems with the current data system were enumerated as:

- Is time consuming and labor intensive.
- Data redundancy and opportunities for error.
- Not yet integrated.
- There are multiple job sites represented in each class as well as for individual trainees.
- Site identification is often a problem, thus the Internet research effort.
- Specific hazardous waste sites may have multiple classifications.

These problems are being addressed through:

- Development of an integrated database.
- Utilization of on-line capabilities-Laborers LEARN.
- Using TRAC data.
- Automating data batch feeds.
- Site maintenance.

- IBT uploads.
- System reports.

The NIEHS Grant Administration System Integrated Database requires input from the individual grantees but also serves as a database useful in developing more robust databases that focus on trainee tracking, for example.

Substantial additional detail and examples of data forms and the like are contained in the Power Point presentation.<sup>25</sup>

### **VIII. Symposium IV: Use of Advanced Training Technologies.**

Co-Chairs

*Scott MacKay (OSHA/Director, University of Washington, Region X, OTI Education Center)*

*Scott Solomon (NIEHS/Director, International Association of Fire Fighters)*

The NIEHS WETP has been actively involved for more than two years in the Advanced Training Technologies (ATT) arena with respect to the utilization of such technologies by the worker training grantees under the provisions of their individual training grants. The grantees represent an enormous diversity of training providers serving unique, geographically dispersed national training target audiences. In addition, the grantees organization encompasses labor organizations, multiple labor organization partnerships, academic institution consortia, unique minority training providers, and training in support of targeted federal projects such as Brownfields.

Recognizing this diversity and the challenge associated with developing an ATT program applicable to the all of the grantees, the NIEHS WETP undertook an ATT awareness and guidance development effort in several stages starting with an initial ATT workshop during the annual meeting of the grantees in April 1999.<sup>26</sup> Subsequent stages included supplemental grant awards to several grantees to develop ATT approaches specific to their training program needs, conduct of a lessons learned workshop with those grantees to gain a detailed perspective on the challenges faced and met and the successes that emerged during the supplemental award project period. Subsequently, an NIEHS ATT Guidance document<sup>27</sup> was issued that provided that framework for the NIEHS supported application of ATT methods by all of the grantees. During the last annual grantees meeting in October 2000, another ATT workshop was conducted that focused on the advancement of the key elements of the Guidance with emphasis on development of mentoring, collaborative, and technical support aspects as a means to advance the ATT program within the WETP.<sup>28</sup>

One of the key drivers in the development of the NIEHS ATT Guidance has been the training requirements established within the OSHA Hazardous Waste Operations and Emergency Response standard and subsequent policy interpretations issued by OSHA with specific respect to the utilization of ATT in hazardous waste training. As an approach to fully addressing this matter, OSHA personnel, including Dr. Henry Payne the Director of the OSHA Training Institute, have been participants in the NIEHS ATT Guidance development process through participation in the ATT-specific workshops.

This session addressed the key aspects associated with the NIEHS-WETP ATT program. It was introduced through a Keynote address by Dr. Henry Payne.

### **Distance Learning Overview**

*Henry Payne, (OSHA/Director, Office of Training and Education)*

Dr. Payne addressed three aspects of distance learning in setting the stage for the Advanced Training Technology Session:

- Definition of distance learning.
- Technologies utilized for distance learning.
- Distance learning issues.

Distance Learning was defined as “Structured learning events in which the instructor and the learner are separated in time and/or space, and communication between them is facilitated by some form or forms of technology.”

Many distance learning technologies, both synchronous and asynchronous, were identified and the strengths and weaknesses of each described. The details, by technology, are included in the Power Point presentation that supported Dr. Payne’s presentation.<sup>29</sup> In addressing the issue of which technology is “best,” it was suggested that it depended upon the specific application, prior technology investments, and the ability to develop and support the technology. In concluding, Dr. Payne stated that distance learning is not a panacea, that there is not a “best” technology, that mixed technology approaches are generally preferred to a single technology, and the application should determine the technology.

### **Using Advanced Training Technology to Meet OSHA Requirements.**

*MaryAnn Garrahan, (OSHA/Team Leader, US Dept. of Labor)*

190 OSHA standards require training. The requirements specific to training vary, however, with 15 addressing certification, 10 addressing trainer qualifications, and 7 identifying structure or format. Potential concerns about CBT (Computer Based Training) include “generic vs. Site-Specific,” “Interaction with the Trainer”, “No Hands-on Experience,” and “Training Hour Requirements.” Examination of each of these concerns specific to HAZWOPER training requirements evidences other standards with like

aspects. For example, “Site Specific Elements” are included within the HAZWOPER, Bloodborne Pathogens, and Powered Industrial Trucks standards. OSHA has issued additional guidance and statements regarding training requirements, which address these CBT concerns. Letters of Interpretation, while not policy but clarification of policy or procedure, have addressed the HAZWOPER CBT issue as well as other standards with like CBT concerns.

OSHA experiences from testing 2 8-hour HAZWOPER refresher course led to the observations that:

- refresher information can be thorough, concise, and up-to-date.
- trainer accessibility and skills assessment is not always consistent.
- training duration may fall far short of that required.
- website connection instability can occur.
- accuracy and completeness of information can not be assumed.
- generic training, not hands-on training, is provided.

In summary, OSHA stated that CBT may not fully satisfy all health and safety training requirements, acknowledged that the regulatory language regarding training is limited, and that the Agency is open to new approaches as the ultimate purpose is the protection of workers. The Power Point presentation utilized in this presentation is provided in Appendix XI.10. Included therewith is the “On-line HAZWOPER Resources” handout provided by OSHA that includes information links on regulations & compliance, OSHA Directives, OSHA publications, and the EPA/Labor Task Force.

Note that the OSHA position with regard to CBT is essentially unchanged since the NIEHS ATT Workshops in 1999 and 2000 and that the NIEHS-WETP ATT Guidance is consistent with the current OSHA position on CBT.<sup>30</sup>

### **Smart Classrooms**

*Michael Glassic, (Laborers-AGC)*

This presentation addressed the development and application of the “smart classroom” by the Laborers-AGC. The presentation covered the elements that comprise the “smart classroom,” the process for development and application, limitations, the role of the instructional staff, and the technology selection decision process. The basis for the L-AGC efforts in developing the Smart Classroom technology is the application of the next generation of technologies that are user-friendly and more productive for the instructor and the learner. The technologies reviewed included the LCD Projector, LCD Graphics Tablet, the Digital Whiteboard, and the Multimedia Computer, plus the software to effectively link these elements.

The “Smart Classroom” being developed by L-AGC is primarily focused on the identification and integration of advanced training technologies to aid the instructor in achieving an enhanced learning experience environment. The training program and the

instructional staff, not the technology, are the drivers. L-AGC development, integration/interfacing, and application of advanced technologies to create the “smart classroom” (while in full compliance with the WETP core values, minimum criteria guidelines, and ATT Guidance) is a state-of-the-art achievement. L-AGC provided a CD that exhibits many of the dimensions of the “smart classroom.” The contents of that CD are included with this Report.<sup>31</sup>

## **Hands on Issues**

*Doug Feil, (OSHA/NIEHS/HMTRI Community College Consortium: CCCHST)*

The CCCHST Hazwoper-on-the-Web program consists of 24 hours of web based training and 16 hours of classroom/hands-on training. The course is based upon the CCCHST’s traditional 40-hour HAZWOPER course. The training target audience includes community job training partners, community college students, and engineering students.

An NIEHS WETP “core value” is the commitment to hands-on skills training as an element of hazardous waste training. This unique program has developed a program with a mix of Computer Based Training (CBT) and instructor-led hands-on training termed “Hazwoper-on-the-Web.” A number of lessons learned and resulting best practices have emerged from the process involved in the development and launch of the program. These were reviewed and discussed with particular emphasis on the hands-on dimension. This presentation also addressed, as an information point, the traditional approach to hands-on training utilized by grantees employing fully instructor-led traditional training methods.

An important aspect of the program was the policy developed and issued with respect to the means for complying with the existing OSHA standard and interpretations specific to HAZWOPER CBT. In addition, the dedicated efforts to effectively blend the program composed of off-campus CBT training elements and on-campus instructor-led skills training resulted in expansion of the instructor-led hands-on element of the program from the initial duration of one day to two days. This was driven, in part, by the instructional staff based upon their inability to effectively conduct the hands-on element of the program in a manner that was essentially an intense, stand-alone, and somewhat disconnected element of the over-all training program.

Lessons learned and observations were offered, for example:

### Technology (ATT):

- Inconsistent.
- Many new standards, such as SCORUM, continue to emerge.
- The technology can overwhelm you and your students.

### Learning Curve:

- It is not easy.
- Trainer-developer interface is difficult.
- WebCT and Blackboard are still the best student interfaces based upon cost.

The developer must:

- Know HTML.
- Have access to a Web designer who knows Java and frames.
- Must learn the basics: i.e., take the 40-hour Hazwoper course.

Observations on distance learning:

- Distance learning techniques are a mechanism for delivery of information.
- Distance learning seldom improves the quality of the delivered presentation.
- Distance learning can, however, really degrade the quality.
- In summary: start with a quality product and don't let the delivery methodology mess it up.<sup>32</sup>

### **Lessons from the Lessons Learned Workshop**

*Brenda Cantrell, (NIEHS/OSHA/Program Director, Rail Workers Hazardous Materials Training Program, George Meany Center-National Labor College)*

The Rail Workers training program faced an unusual challenge in reaching their diverse target audience. They met this challenge through the application of ATT methods. Unlike many other organizations they developed, pilot tested, launched, and now maintain their ATT applications without outside expert/consultant assistance. Many lessons were learned in this process that led to articulation of best practices based upon an in-depth “hands-on” experience.

The Rail Workers Hazardous Materials Training Program has a target audience of over 130,000 workers who are highly dispersed across the nation. Results of a survey of past raining participants indicated that 49% had no prior HAZMAT raining from any source, despite the high volume of hazard materials transported by rail and an increasing rail accident rate. Less than 10% of the target population has received the classroom-based training developed and delivered under the program. In order to increase access to the target training population, an existing 8-hour hazardous materials course was converted from classroom to web-based training.

Many challenges, barriers, and constraints were faced during the development and launch of the web-based awareness training program. These were identified as being in five major areas. Lessons learned were presented and discussed in each of these areas. The major areas and selected lessons learned in each are:

- Course development.
  - Need to know the regulations and the minimum criteria.
  - There is a need to involve experts at the beginning of such a project.
  - An ideal framework uses an in-house team augmented by expert assistance.

- Courseware.
  - Select software/hardware/technology that meets the needs of the learning design.
  - Consider instructor to student, student to instructor, and student to student interactivity.
  - Easy to use.
  - Availability of technical assistance.
  - Understand the technical limitations.
  - Seek expert advise on selection.
  - Allow time and training for course developers, as they need familiarity with the courseware.
  
- Conversion of pre-existing course materials to on-line format.
  - When converting, divide text into two categories: need-to-know and nice-to-know.
  - Provide nice-to-know information in the form of pop-up windows.
  - Use external links for reference materials.
  - Using pop-up windows and external links individualize the training experience, which improves the on-line training experience.
  
- Graphics.
  - Pop-up windows for charts and graphics can replace some of the need for graphics in the main text and decrease download time.
  - Download time was considered a constraint, but that was not evidenced in the pilot project.
  
- Bulletin Boards and Chat Rooms.
  - Chat rooms have evidenced several constraints including personal schedules, work schedules, and geographic.
  - Bulletin Board communications worked more effectively than did Chat Rooms because of the asynchronous format.
  - Participation of HAZMAT peer trainers was essential to the development and design of the on-line course and, more importantly, in their role as on-line course facilitators.

In the future, plans include development of an on-line peer assisted training course for Navajo and Spanish-speaking track workers on remote production gangs and a Spanish version of the current on-line HAZMAT awareness course.

Many very specific and detailed aspects of the CBT program were reviewed and discussed in substantial detail. The reader can best gain a full appreciation of these by reviewing the Power Point presentation.<sup>33</sup>

## **The NIEHS Guidance Document for developing an ATT program.**

*Donald Elisburg (NIEHS/ Clearinghouse)*

The NIEHS ATT Guidance document was developed over the period of a year and a half based upon three NIEHS-WETP ATT workshops. The Guidance document establishes the basis for the funded application of ATT by the individual NIEHS grantees, provides for various technical support and related activities by the National Clearinghouse, and reaffirms the requirements to conform to the “core values” including the Minimum Criteria and the current OSHA interpretations of the HAZWOPER training requirements with respect to CBT. (See Appendix XI.10 for the Power Point presentation.)

The NIEHS WETP perspectives that were developed during the several ATT workshops and which serve as the basis upon which the WETP ATT Guidance is based were reviewed in some detail. They include:

- The WETP target audience is far better prepared to engage ATT than previously thought.
- There is a very high in-house learning curve in organizations beginning to apply ATT.
- There is an affirmative need to assure compliance with OSHA regulatory policy and interpretations.
- The costs and people commitments required when moving into state-of-the-art ATT applications can be easily underestimated.
- There is a need to consider the long-term resources needed to sustain ATT enhancements.
- There is a need to consider the redundancy of development efforts among all of the WETP grantees.
- The Guidance document needs to encourage and embrace different training methodologies and philosophies among the various grantees.
- “ATT focus groups” representing the dimensions of the grantees can be useful in advancing ATT applications.
- WETP “Core values” must be maintained during ATT development and application.
- There is a need to develop a deliberative evaluation procedure.

- WETP needs to consider “life-cycle planning” specific to ATT.
- WETP should actively interface and interact with other federal agencies, which are also developing applications utilizing ATT.
- ATT-specific capital expenditure criteria should be considered.
- WETP should consider funding a “technology person” on the staff of each grantee.
- ATT investment should be viewed in terms of years.
- Each grantee should not be expected to start and end at the same point with respect to ATT.
- A formal evaluation of the effectiveness of ATT applications by individual grantees should be considered at an appropriate point in the development and application process.
- A “mentoring” program among the grantees needs to be developed.
- There is a need to develop a continuing approach to sharing ATT information among the grantees.
- ATT-specific sessions at each of the grantee meetings must be considered.
- ATT “Minimum Criteria,” “selection model,” “evaluation criteria,” and a “living guide to good ATT application practices” must be developed.
- Aid and assistance must be provided to the grantees in identifying the most significant opportunities for developing and applying ATT methods that support and enhance the individual grantee’s training program.<sup>34</sup>

The Mini-symposia on ATT addressed many of these aspects as does the WETP ATT Guidance document. Clearly, however, not all were addressed and additional work is required with particular emphasis on a continuing with a holistic rather than fragmentary approach.

## **IX. Summary:**

The summaries of the four best practices mini-seminar sessions were in the form of reports by the co-chairs of each such session in a closing plenary “wrap-up” session. The purpose of this session was to provide a summary of the results of each of the mini-seminar sessions for all participants as an individual participant could only attend two of the four concurrent mini-seminar sessions. In addition, it offered the opportunity for discussion of particular issues of interest among all of the workshop participants.

The introduction to the “wrap-up” session by Donald Elisburg and the reports by the co-chairs are summarized in broad terms in this section, while the Power Point presentations for each report are included in the Appendices.<sup>35</sup>

Donald Elisburg framed the focal point of the Wrap-up session as being the co-chair’s summary reports on the four mini-symposia to encompass the mini-symposia best practice topic perspective, the presentations, and discussions and comments that arose after each presentation. The purpose of the wrap-up session was:

- to share additional best practices, methods, approaches, and lessons learned that emerged in each mini-symposia.
- to provide an overview of each mini-symposia to all workshop participants.
- to discuss any possible collaborative opportunities that emerged.

The wrap-up session format used to achieve these purposes was:

- reports by the co-chairs.
- discussion following each co-chair’s presentation.
- open discussion among all participants after the conclusion of the co-chair’s reports and discussion.

*Introduction:*

The mini-seminar focal points were four “Best Practices”: core concerns, partnerships, skill enhancements, and advanced training technologies. Within each best practice topical sector, there were five presentations on best practices elements comprising the best practices topic. The purpose of the wrap-up session was three-fold:

- Share the additional best practices, methods, approaches, and lessons learned that emerged in the mini-symposia sessions.
- Provide an overview of each mini-symposia to all workshop participants.
- Discuss any possible collaborative opportunities that emerged.

*Core Concerns:*

The Core Concerns session included presentations on the Minimum Criteria document, Model Curricula Development, Peer Training and Instructor Development, Certification/Successful Completion for OSHA Requirements, and Quality Assurance and Training Evaluation. Highlights of the report back were:

### Minimum Criteria:

A comprehensive consensus training and curriculum guideline was needed to guide the NIEHS-WETP grants program.

WETP grantees were diverse including academia, building trade unions, and industrial unions resulting in a number of areas of concern:

- disparate perspectives on worker training and adult education
- resistance to worker testing by some grantees
- instructional staff
- training format
- “Turf Tension,” ie: sharing of resources

Solutions emerged in the consensus guideline development process:

- technical workshop approach capitalized on strengths of disparate perspectives on worker training and adult education.
- NIEHS was flexible in the development of alternative testing formats.
- Exchanges of effective training methods forged a common understanding.

The objective of developing a consensus guideline meeting both WETP and individual grantee needs was achieved.

### Model Curricula Development:

Model curricula development based upon the Minimum Criteria Guidelines was successfully achieved. However, the following concerns had to be addressed in achieving that objective:

- Insufficient time was allocated for satisfactorily covering the training objectives in the HAZWOPER standard.
- Trainee: instructor ratios must be balanced.
- A means to assess proficiency without jeopardizing employment must be included in the program.
- Trainee differences within the same class must be addressed in class discussions and training material.

- Principles of Adult Education needed to be considered in view of the diversity of trainees and the complex nature of the HAZWOPER training program, which includes both competency and proficiency requirements.

Model curriculum development has to focus on the following aspects as well:

- Hands-on training.
- Learning to use reference materials.
- Frequent reviews.

Lessons learned in the Curriculum Development effort included:

- Curriculum development takes time and commitment.
- Input from instructors makes for successful curricula.
- Piloting is necessary in a variety of settings.
- Training must be expansive enough to be effectively utilized in diverse workplace settings.

#### Peer Training and Instructor Development:

The challenge was to turn experienced workers into peer instructors. This was achieved through:

- workshops to teach workers how to develop curricula.
- creation of teams to develop curricula, evaluation formats, and approaches to making changes in the workplace.
- getting worker trainers to think in terms of “Systems of Safety.” (Not the “who,” but the “what.”)

#### Certification/Successful Completion for OSHA Requirements:

The presentations focused on three current areas of concern:

- Site-specific training non-compliance
- Lack of adherence to safe work practices post-training
- OSHA’s training requirements are minimums

#### Quality Assurance and Training Evaluation:

The following key concerns were identified:

- sharing of evaluation methods

- quality control and evaluation
- key evaluation questions

Solutions that have been developed:

- establishment of an ad hoc advisory committee and outside reviewers for overall policy guidance at the WETP level
- development of instruments for quality control and evaluation of programs that address instructor performance, course improvement, and student achievement
- sustaining a sense of community to facilitate working together
- creation of a resource guide
- SREP-team-based approach to evaluation.

The following evaluation components were recommended:

- development of quality and appropriate program objectives
- adequate facilities and staff
- appropriate course materials and mix of classroom and hands-on training
- assessment of program strengths and weaknesses

*Partnerships:*

The Partnerships included presentations on several dimensions. These included consortia arrangements, community outreach, training and outreach to multi-cultural populations, employer partnerships, and joint funding/program relationships between other agencies. The later included presentations on Superfund, Job Training Initiative (JTI), Brownfields, and DOE.

The Co-chair's summary report on this mini-symposium captured the basic theme of the partnerships sector as "Outreach & Marketing to Target Populations." This report was presented in terms of "common threads":

- development of contacts in each location through organizational and agency linkages.
- development of a relationship (and trust) over time.

- understanding the needs of the target population.
- staying in touch with key contacts within the target populations.
- willingness to make resources available when the need arises.
- responding in a manner, which is consistent with the needs of the target population.

Potential conflicts were noted as well:

- conflicts between best practices which emerge out of adherence with 29 CFR 1910.120 and the policies which are in place for the trainees.
- training techniques may conflict with local customs.

The final and overriding consideration is building relationships with populations in need of hazardous waste worker or emergency response training.

*Skill Enhancements:*

The Skills Enhancements symposium was viewed as having two goals:

- to provide information on best practices associated with craft/job skills and for new workers entering the workforce.
- target groups for skills training, which include construction crafts and urban unskilled workers.

Instrumental enrichment objectives are:

- creating thought pathways/mental capacity increases.
- fully integrating life skills and technical training.

The outcomes/impacts of Instrumental Enrichment are:

- increased social/promoted class cohesion across racial and ethnic lines.
- enhanced self-esteem and self-efficiency.
- decreased impulsivity in trainees.
- increased attendance, punctuality, and job retention.

Career Path Development efforts by the L-AGC centered on the Construction Craft Laborers apprenticeship program. Collaboration with the MWTP and the BMWTP evidenced benefits for the L-AGC. This program achieved their objectives through engagement of local unions, training funds, and CBO's and included recruitment, screening, and shaping life skills training and included an active job placement effort. The program actively recruits for apprenticeship entry for its graduates while framing the Program in a manner to stimulate the target jobs for placements.

*Advanced Training Technologies:*

The Advanced Training Technologies (ATT) arena has been expanding at a rapid rate nationally and internationally over the past few years. ATT have been viewed as having many advantages, yet few if any studies have been conducted to assess the benefits or disincentives associated with the application of ATT to safety and health training of workers. Further, OSHA has issued a number of letters of interpretation raising concerns about certain aspects of ATT when applied to worker safety and health training. Most notably these include lack of hands-on training and skills verification, availability of instructional staff, and program content.

The NIEHS-WETP began addressing this issue over a year and a half ago. Over that time period a number of workshops were conducted and a WETP ATT Guidance was developed and issued in September 2000.

This mini-seminar focused on providing an update on the OSHA position on ATT methods for working training, presentations on three key aspects of the ATT programs developed by WETP grantees ("Smart classrooms," "Hands-on Issues," and "Lessons Learned" in developing and launching a specific ATT program.) The concluding presentation wrapped these elements together in terms of a focus on the WETP ATT Guidance document.

**X. Challenges and Goals for the Next decade:**

The final segment of the closing plenary session was devoted to consideration of the next steps that might be fruitfully developed between the NIEHS and OSHA grantees. This session included seven panelists selected from among the workshop participants:

-Judy Jarrell

-Teresea Madden-Thompson

-Scott McKay

-Sheila Pressley

-Betty Szudy

-Mark Holdbrooks

Clearinghouse Director Michael Baker moderated the session.

A number of potential “next steps” were put forth for consideration. These included:

- Agreement between the NIEHS-WETP and OSHA-OTE Administrators that another joint meeting of the respective program grantees should be held in two years.
- The awardees desired more opportunities to “network” outside of the structured format inherent in the Workshop process.
- Mentoring and exchanging specific problem resolution decisions, particularly with respect to ATT, was of interest.
- As an element of the mentoring approach, exchanges between trainers from the respective grant programs, was mentioned in the context of exchanging “lessons learned.”

## **XI. Conclusion**

This report of the first joint NIEHS-OSHA worker training workshop provides a perspective on unparalleled advancements in worker training over more than a decade. These advancements have been achieved by grantees of the NIEHS and OSHA training grants programs through their dedication, professionalism, persistence, cooperation, willingness to tackle difficult and demanding challenges, and absolute commitment to the health and safety of those whom they train. As a result, millions of workers have completed state-of-the-art training programs that have prepared them for work in often highly hazardous jobs. The challenges associated with training urban inner-city and under-employed workers, minority workers, native Americans, immigrant workers, and other employment disadvantaged workers has been addressed with vigor, purpose, innovation, and success as well.

This report provides but a brief overview of the real success stories of these grantees. The focus on best practices provided the opportunity to share many “best practices”, but by no means all of those that have been developed and applied over the past decade or more by these grantees. Indeed, a report of this length could be written on each of the twenty best practices presented during this workshop. The “best practices” that have been the focus of this workshop, however, have been proven and can serve as guidelines and a roadmap, based upon the lessons learned aspects, for other training organizations. For that reason, the Appendices to this report are extensive, as the intent is to provide comprehensive resource for others who may benefit from this work.

There are a number of keys to the success of the NIEHS grants program that need to be noted. They are:

1. In the absence of anticipated federal standards, the development of minimum curriculum and training program criteria applicable to all grantee programs.

2. The conceptualization, development, and application of the innovative and NIEHS-unique national consensus technical workshop approach to developing criteria and guidelines applicable to the grants program in a timely manner as issues arose.
3. The commitment from all of the grantees to the “consensus” process and their acceptance and utilization of the resulting guidelines and criteria.
4. The willingness of the grantees to meaningfully participate, contribute, and share in the process involved in training innovation, such as the Advanced Training Technology initiative.
5. The recognition by NIEHS-WETP that each grantee faces unique challenges and the willingness to embrace the philosophy that each grantee has some freedom to address their unique challenges in their own way.
6. The “NIEHS-WETP Team” that has emerged and continues to strengthen.
7. Total commitment to serving their training target audiences including the needs and future of the each individual that represents.

There are a number of keys to the success of the OSHA training grants program that need to be noted. They are:

1. Utilization of scarce training grant resources to target industries, worker populations, employers, and the like, where safety and health training can provide a significant contribution to improving workplace safety and health.
2. Focusing training grant resources strategically so as to develop model training programs specific to emerging safety and health hazards and recently promulgated standards for which model training programs are not available.
3. Extending the availability of OSHA-OTE approved training programs through the OSHA Training Institute Education Centers.
4. Providing the National leadership in the application and utilization of Advanced Training Technologies specific to worker and workplace safety and health training.

## **Appendices:**

1. NIEHS/OSHA Joint Grantee Workshop:
  - A. Agenda.
  - B. Participants list.
  - C. List of documents and reference materials provided.
  
2. NIEHS Advanced Training Technologies Report: "Development of an Integrated WETP ATT Program: Final Report." National Clearinghouse for Worker Safety and Health Training. Undated.
  
3. NIEHS: WETP ATT Guidance Document: September 29, 2000.
  
4. Opening Plenary Panel Power Point Presentations.
  
5. "On the Cutting Edge: Best Practices of the Worker Education and Training Program, National Institute of Environmental Health Sciences." April 2000. Ruth Ruttenberg and Associates, Inc. For NIEHS-WETP.
  
6. "Best Practices: How We Got Here." Ruth Ruttenberg. Opening plenary presentation. April 17, 2001.
  
7. Symposium I Power Point Presentations:
  - A. Richard Dwyer- Minimum Criteria.
  - B. Craig Slatin- Model Curricula Development.
  - C. Doug Feil- Hands On Issues.
  - D. Les Leopold- Peer Training and Instructor Development.
  - E. Ernest Thompson- Certification/Successful Completion for OSHA Requirements.
  - F. Thomas McQuisten & Tobi Lippin- Quality Assurance and Training Evaluation.
  
8. Symposium II Power Point Presentations:
  - A. Carol Rice- Consortia Arrangements.
  - B. Mark Holdbrooks- Community Outreach.
  - C. Betty Szudy- Training & Outreach to Multi-cultural Populations.
  - D. Don Ellenberger- Employer Partnerships.
  - E. Myra Blakely (EPA), Richard Brancato (DOE), and Marian Flum (U. Mass.-Lowell)- Joint Funding with Other Agencies: Superfund, JTI, Brownfields, and *DOE*.
  
9. Symposium III Power Point Presentations:
  - A. James Kinard and Jack Huenefeld- Instrumental Enrichment Integrated with HAZWOPER Training.

- B. Donna Gross McDaniel- Career Path Development.
- C. Kizetta Vaughn- Apprenticeship Programs.
- D. James Kojo Livingston- Job Skills and Life Skills.
- E. Cindy Herleikson- Trainee and Graduate Tracking.

10. Symposium IV Power Point Presentations.

- A. Henry Payne- Distance Learning Overview.
- B. MaryAnn Garrahan- Worker Training in the Digital World-OSHA Specific.
- C. Michael Glassic- Smart Classrooms. (CD)
- D. Brenda Cantrell- Lessons from the Lessons Learned Workshop.
- E. Donald Elisburg- The NIEHS Guidance Document for developing an ATT Program.

11. Joint Workshop Closing Plenary Reports by the Symposium Sessions Co-Chairs.

- A. Symposium I-Core Concerns.
- B. Symposium II-Partnerships.
- C. Symposium III-Skills Enhancement.
- D. Symposium IV-Advanced Training Technologies.

12. NIEHS National Technical Workshop Reports:

- A. "Minimum Criteria for Worker Health and Safety Training for Hazardous Waste Operations and Emergency Response: National Technical Workshop Report." NIEHS-WETP, 1990.
- B. "Interpretive Guidance to the Minimum Criteria for Worker Health and Safety Training for Hazardous Waste Operations and Emergency Response." Technical Workshop, NIEHS-WETP, March 29-31, 1994.
- C. "Anticipating Occupational Hazards of Cleanup Technologies: Remembering the Worker." Guidance Document and Technical Workshop Report. NIEHS-WETP, October 1996.
- D. "Guidelines for Training in Support of Workplace Safety and Health Programs." Guidance Document/Technical Workshop Report. Volumes I and II. NIEHS-WETP Workshop, November 12-13, 1998.
- E. "Resource Guide for Evaluating Worker Safety and Health Training." NIEHS-WETP. April 1997.
- F. "Successful Training Partnerships: Lessons Learned." Report of the NIEHS Technical Workshop, January 23-24, 1997.
- G. Report of the NIEHS-WETP Trainers Exchange, April 1997.

H. "Minimum Criteria for Hazardous Materials Train-the-Trainer Programs." Report of the NIEHS-WETP Technical Workshop conducted December 11-12, 1997.

I. "Computer and Internet-Based Learning Methods in Safety and Health Training." Report of the NIEHS-WETP Technical Workshop conducted on April 20-21, 1999.

J. "Development of an Integrated WETP ATT Program: Final Report." Report of the NIEHS-WETP Technical Workshop on October 16-18, 2000.

13. US Department of Energy, Office of Environmental Management, Implementation Policy "Occupational Safety and Health in the Environmental Management Science and Technology Program." Approved/Signed by EM Assistant Secretary Huntoon, January 2001 and the Environmental Management Advisory Report that considered safety and health issues in the EM technology development program.

14. "Hazardous Waste operations and Emergency Response", 29 CFR 1910.120, Appendix E.

15. CD "Workshop on Advanced Training Technologies." Michael Glassic, Laborers'-AGC Education and Training Fund. May 2001.

16. Links:

A. "On the Cutting Edge: Best Practices of the Worker Education and Training Program, National Institute of Environmental Health Sciences." April 2000. Ruth Ruttenberg & Associates, Inc.

B. WETP Web site. <http://www.wetp.org>

C. NIEHS Web site. [www.niehs.nih.gov](http://www.niehs.nih.gov)

D. OSHA Web site. <http://www.osha.gov>

## Endnotes

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<sup>1</sup> Appendix 12

<sup>2</sup> Appendix 1A

<sup>3</sup> Appendix 5

<sup>4</sup> Appendix 6

<sup>5</sup> Appendix 12C

<sup>6</sup> Appendix 4

<sup>7</sup> Appendix 4

<sup>8</sup> Appendices 5 and 6

<sup>9</sup> Appendix 12

<sup>10</sup> Appendix 12

<sup>11</sup> Appendix 7A

<sup>12</sup> Appendix 7B

<sup>13</sup> Appendix 7D

<sup>14</sup> Appendix 7E

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- <sup>15</sup> **Appendix 7F**
  - <sup>16</sup> **Appendix 8A**
  - <sup>17</sup> **Appendix 8B**
  - <sup>18</sup> **Appendix 8C**
  - <sup>19</sup> **Appendix 8D**
  - <sup>20</sup> **Appendix 8E**
  - <sup>21</sup> **Appendix 9A**
  - <sup>22</sup> **Appendix 9B**
  - <sup>23</sup> **Appendix 9C**
  - <sup>24</sup> **Appendix 9D**
  - <sup>25</sup> **Appendix 9E**
  - <sup>26</sup> **Appendix 12I**
  - <sup>27</sup> **Appendix 3**
  - <sup>28</sup> **Appendix 2**
  - <sup>29</sup> **Appendix 10A**
  - <sup>30</sup> **Appendix 10B**
  - <sup>31</sup> **Appendix 15**
  - <sup>32</sup> **Appendix 7C**
  - <sup>33</sup> **Appendix 10D**
  - <sup>34</sup> **Appendix 10E**
  - <sup>35</sup> **Appendix 11**