

Department of Energy and NIEHS WETP
Nuclear Worker Training Program

FY 2006 Accomplishments and Highlights
September 1, 2005 – August 31, 2006



International Association of Firefighters, an NIEHS DOE grantee, training demonstration .

The Superfund Amendments and Reauthorization Act of 1986 (SARA), Section 126(g), authorizes an assistance program for training and education of workers engaged in activities related to hazardous waste generation, removal, containment or emergency response and hazardous materials transportation and emergency response. The Congress assigned responsibility for administering this program to the National Institute of Environmental Health Sciences (NIEHS), an Institute of the National Institutes of Health (NIH) within the Public Health Service (PHS) of the US Department of Health and Human Services (DHHS).

The National Defense Authorization Act for fiscal years 1992 and 1993 (42 USC 7274(d)) authorized the Secretary of Energy in section 3131(a)(1)(A)-(B) to make awards: "to provide training and education to persons who are or may be engaged in hazardous substance response or emergency at Department of Energy (DOE) nuclear weapons facilities; and to develop response curricula for such training and education." The Secretary was further authorized in Section 3131(a)(2)(A)-(B) to make the training awards to non-profit organizations demonstrating capabilities in: "implementing and conducting effective training and education programs relating to the general health and safety of workers; and identifying, and involving in training, groups of workers whose duties include hazardous substance response or emergency response."

To implement this, DOE entered into an agreement with NIEHS to award and administer the grants and to adapt its existing program to meet the needs of the DOE nuclear weapons complex.

Protecting worker health and safety through the delivery of safety and health training is a priority of the Secretary of Energy and is a primary goal of the Office of Environmental Management (EM). As the DOE's mission has shifted from weapons production to environmental restoration, the site worker is exposed to new operations and hazards while conducting restoration activities, many of which are associated with potential exposure to hazardous substances and wastes.

To provide protection to workers' health and safety, all workers at DOE sites engaged or potentially engaged in environmental restoration activities, including hazardous substance response or emergency response, are required by CERCLA and respective DOE Orders to meet the requirements of the Occupational Safety and Health Administration's (OSHA) regulations 20 CFR 1910.120 and the EPA Hazardous Waste Operations and Emergency Response (HAZWOPER) training requirements (40 CFR 300.150).

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1.0 A Partnership for Worker Protection: Facts About the DOE NIEHS Nuclear Worker Training Program

Introduction: Crane operators, carpenters, welders, laborers, boilermakers, chemical operators, construction workers, electricians, environmental technicians, insulators, laboratory technicians, machinists, painters, pipe fitters, truck drivers: these are the people who make up the workforce engaged in environmental restoration activities at DOE nuclear weapons sites. And these are the workers receiving health and safety training under the DOE/National Institute of Environmental Health Sciences (NIEHS) Nuclear Worker Training Program.

Administered since 1993 by the NIEHS Worker Education and Training Program, this effort has resulted in a DOE complex that has one of the best safety and health records of any major industrial site. This has been achieved by providing site-specific, quality safety and health training to workers in a timely and cost-effective manner, through a partnership involving government, contractors, and labor organizations. A cornerstone of the program is the use of "worker-trainers," employees well versed in performing a given task in a hazardous environment who are trained to instruct other workers.

What Is the Goal of the Program? These DOE sites are complicated, featuring a combination of nuclear, industrial, demolition, and construction activities; therefore, safety and health training must be both site specific and trade-specific. NIEHS, through its awardees, has provided such high quality training to ensure that DOE site workers are prepared to work safely in hazardous environments; and that workers have sufficient knowledge to identify hazardous situations and to take appropriate actions to protect themselves, fellow workers, and the environment.

Who Are the DOE/NIEHS Awardees? The eight current awardees are the International Association of Fire Fighters, International Union of Operating Engineers, United Steelworkers of America, International Chemical Workers Union, Laborers-AGC Education and Training Fund, International Brotherhood of Teamsters, Center to Protect Workers' Rights, and the Hazardous Materials Training and Research Institute.

How Many Are Trained? Across the DOE complex, 3,490,330 contact hours of safety and health training were delivered by the NIEHS/DOE awardees between 1993 and 2006. The awardees have trained 251,132 workers and presented 18,774 classroom and hands-on training courses. In FY2006, 26,365 workers received 325,533 contact hours of training in 2,044 classes.

How Much Does It Cost? Through an Interagency Agreement, NIEHS received \$10 million from FY 2005 DOE appropriations, which provided \$9,365,407 in funding to NIEHS awardees during the past year (September 1, 2005 - August 31, 2006).

Where Is the Training Held? Though training was conducted at 31 different DOE sites in 2006, it was concentrated at the following sites: Oak Ridge Field Office, Tennessee (28% of all workers trained); Hanford Waste Vitrification Plant, Washington (27%); Savannah River Site, South Carolina (14%); Paducah Gaseous Diffusion Plant, Ohio (5%); Los Alamos National Laboratory, Nevada (5%).

A National Asset: It should be noted, that in case of an actual accidental or deliberate radiological events, the DOE/NIEHS program represents a large pool of trained, certified workers. NIEHS WETP has also developed a mechanism for identifying and mobilizing these workers. While it was never imagined that this program would result in a capacity to respond to such events, this is an actual benefit and a national security asset.

2.0 Highlights from Awardee Progress Reports

The following section examines each of the eight DOE/NIEHS awardees and their sub-awardees. It considers who are these consortia? Who benefits from their services? How many benefit? And are there specific examples or anecdotes from their progress reports that provide useful insights into the nature of health and safety training in this country?



Nuclear Waste Tank Farm, Hanford , Washington

United Steelworkers of America

Who they are: The Tony Mazzocchi Center has access to approximately 875,000 USW members who form 3,500 local unions located in every state. USW has established health and safety training programs and fields more than 200 national and site worker-trainers who recruit and train workers. Approximately 336,000 USW members are concentrated in the paper, petroleum, chemical, rubber, plastics and primary metals industry groups, all of which contain large quantities of hazardous waste, and experience large quantities of toxic releases.

In the DOE program, the Tony Mazzocchi Center has access to more than 3,500 members in seven states, through six union locals at six DOE reservations. They target for training workers whose jobs (primarily site remediation and reclamation) put them at risk of exposure to hazardous materials and waste, and risks associated with hazardous materials incidents. These cleanup programs generate hazardous waste that must be removed, containerized, stored, processed and shipped by site workers.

Who benefits: USW provided training as requested at six DOE sites where it has members: 1) Idaho National Environmental & Engineering Laboratories, Idaho Falls, Idaho; 2) Mound Facility, Miamisburg, Ohio; 3) K-25 Facility, Oak Ridge, Tennessee; 4) Paducah Uranium Enrichment Facility, Paducah, Kentucky; 5) Portsmouth Uranium Enrichment Facility, Piketon, Ohio; 6) Hanford Site, Richland, Washington.

How many: USW conducted 127 classes reaching 2,056 workers totaling 23,288 contact hours through August 31, 2006.

An Example of Training Effectiveness: Each training activity is followed by an evaluation form. Using this form each trainee evaluates the effectiveness of the training material:

in achieving its' stated "purpose",
to self-assess their comprehension of the material delivered,
and to propose improvements to the delivery of the materials and/or its content.

Each activity evaluation form is designed for the specific training module being delivered. There are no generic forms. These forms are gathered at the end of each training exercise and reviewed by the trainers. Excessively low scores are noted and adjustments are made in the training, immediately if possible. This information is then transmitted to the training director. The training director, in consultation with the curriculum development team, analyzes all gathered data and makes appropriate adjustments to the training material or instruction method where necessary. This information gathering mechanism is particularly crucial during the development and formative phases of curriculum and course development.

Additionally, the trainees are constantly monitored by the trainers throughout every phase of the training including the small group discussion and report back. This information, along with recommendations for changes in the substance or structure of the materials is communicated to the training director for inclusion in the above mentioned analysis.

This long standing and ongoing process has proven to be highly effective for evaluating the efficacy of the training offered. It also serves as a tool in helping to adjust the curriculum and training to accommodate multiple application and trainee constituencies.

Laborers/Associated General Contractors Education and Training Fund (L-AGC)

Who they are: This consortium is headed by the Laborers/Associated General Contractors Education and Training Fund (L-AGC).

Who benefits: The DOE worker training courses were conducted by seven regional and two mobile training centers. They include: Augusta, GA (for Savannah River). Brighton, CO (for Rocky Flats), Edgewood, NM (for Los Alamos), Idaho Falls, ID (for Idaho National Environmental and Engineering Laboratory), Las Vegas, NV (for Nevada Test Site), Oak Ridge, TN (for Oak Ridge), Pasco, WA (for Hanford), Iowa Mobile Unit (for assistance at Oak Ridge, Nevada Test Site, Rocky Flats, and Los Alamos), West Virginia Mobile Unit (for DOE Headquarters).

How many: Laborers-AGC conducted 555 courses for 5,884 trainees. This accounts for 119,686 contact hours of training.

Examples of instructor development: Laborers-AGC policy continues to require that instructors in the DOE program satisfactorily complete the basic 80-hour Hazardous Waste Worker course. They are then given an additional 40 hours of instruction in the Hazardous Waste New Instructor course. In order to maintain their qualifications to teach, instructors are required to attend a Hazardous Waste Instructor Refresher on an annual basis. Finally, in order to teach any other environmental course, the instructor must attend a course-specific train-the-trainer.

Hazardous Waste Instructor Training included hazard recognition; personal protective equipment; confined space; workplace monitoring; decontamination; and Hazard Communication.

Hazardous Waste Instructor Refresher Training included hazard communication using the *NIOSH Pocket Guide to Chemical Hazards*; review of Material Safety Data Sheets, and the *DOT North American Emergency Response Guidebook* within the larger context of hazard communication.

For new instructors, a three-part training provides them with fundamental instructional skills. The first portion consists of 40 hours of training that focuses on presentation skills; principles of adult learning; elements of trade teaching; content, design and use of Laborers-AGC curriculum; and managing the learning environment. Training is highly interactive, with instructors presenting material in front of the classroom a minimum of once per day. The final presentation is video-taped for review and peer feedback.

After the initial 40-hour course, the instructors participate in 16 hours of online learning. The topics in the online learning module reinforce the classroom learning; familiarize instructors with technologies that can be used in the classroom; and develop a network among the instructors that serves as a source of support, information sharing, and communication.

Finally, the new instructors attend a 14-hour refresher course that takes place approximately 8 weeks after their initial 40-hour training. During the 8 weeks, instructors will have gained experience teaching and documented their experiences in personal journals. Each instructor writes a case study based upon his/her classroom experience. This case study is shared with

the other new instructors at the 8-hour Refresher course. Instructors also facilitate a group discussion which is video-taped for comparison with their performance at the end of their initial 40-hour class. The refresher allows instructors to reflect on their experiences and to measure their progress.

Laborers-AGC also conducts a 120-hour Best Practices course for instructors who have more than 3 years of teaching experience. During this training, instructors gain skills and knowledge in the areas of activities-based learning, experiential learning teaching multi-level classes, adapting materials to meet the needs of participants, and using visuals and technology to deliver instruction. Instructors teach construction related content and skills to a group of Laborers using the concepts they have learned. At the end of the training, the instructors are better able to work with subject matter curricula provided by Laborers-AGC; can adapt curricula and lesson plans to meet their students' needs; and are able to create or find lesson plans and materials as needed.

The Best Practices training occurs in three phases. Instructors spend two weeks in the classroom learning the adult education techniques and practicing what they have learned in a group setting. Participants then spend approximately 4 weeks incorporating what they have learned into the courses they regularly conduct at their training funds. Finally, they attend a second 2-week training session where they discuss their experiences, refine instructional techniques, and critique course presentations.



Huge cranes in the distance, Hanford, Washington

International Union of Operating Engineers (IUOE)

Who they are: The International Union of Operating Engineers (IUOE) represents 360,000 workers including operating engineers (heavy equipment operators, mechanics, and surveyors), stationary engineers who maintain buildings and industrial complexes, nurses and other health workers, and a variety of public employees.

Who benefits: The diverse student roster for the IUOE DOE Training Program includes employees of Y-12 National Security Complex, ORNL, East Tennessee Technology Park (ETTP) all of the Oak Ridge Tennessee facility; INEEL, Battelle, Bechtel National and Fluor-Hanford. Managing Contractors for the sites listed above are BWXT (Y-12), UT-Battelle (ORNL), Bechtel Jacobs (ETTP), Bechtel BWXT Idaho (INEEL), Battelle, Bechtel National and Fluor-Hanford (Hanford). In addition, the IUOE DOE Program trains workers from hundreds of subcontractors throughout the DOE complex including British Nuclear Fuels Limited Inc. (BNFL) – the largest decontamination and decommissioning (D&D) contractor in the world.

The IUOE DOE Training Program is available to all personnel affiliated with a DOE contract. This creates a diverse class makeup consisting of individuals with extensive talents, experience, and responsibilities, which greatly enhance the educational environment. The training classes have consisted of boilermakers, chemical operators, construction workers, electricians, engineers, environmental technicians, environmental engineers, facility managers, health physics technicians, industrial hygienists, insulators, laboratory technicians, laborers, carpenters, machinists, painters, pipe fitters, planners/estimators, project managers, quality assurance engineers, radiation safety officers, scientists, subcontract technical representatives, truck drivers, and waste transportation experts and managers.

How many: During the year, IUOE held 70 classes for 1,744 students resulting in 16,832 contact hours of training.

Targeting a population at risk: The DOE mission includes the cleanup and remediation of its sites. The management of the workforce to accomplish this task uses increased subcontractor involvement. Many of these contractors have young employees and inadequate training programs. The IUOE training program is designed to provide timely, quality training to IUOE members and other contractors. The classroom diversity is created by the broad backgrounds and experience of the students. Promoting interaction between long-term DOE site workers with those whose expertise and experience go beyond the normal DOE site activities enhances the learning atmosphere. The IUOE training program trains students from subcontractors nationwide including, but not limited to, the companies and job requirements listed below:

Decontamination and Decommissioning (D&D) – D&D work is prevalent at DOE facilities. D&D workers are faced daily with potential exposures to harmful contaminants. Some of the more common exposure issues involve uranium, asbestos, beryllium, lead, mercury, and exhaust fumes. The nature of D&D involves operating in aged structures with poor lighting and no ventilation. These conditions create additional challenges. The personal protective equipment requirements limit visibility and dexterity, which presents potential problems when working in areas of high personnel and equipment activity. High noise levels present problems from both a hearing protection and overall awareness. Heat stress and hypothermia are also very real concerns. IUOE trainees are utilized in every aspect of the D&D work continuing at East Tennes-

see Technology Park (ETTP), formerly the K-25 Plant, in Oak Ridge, Tennessee.

Emergency Services – The IUOE DOE Training Program’s students are frequently members of Emergency Response units and other emergency services organizations both on site and within their respective communities. IUOE has provided HAZWOPER training to firefighters, tactical response team members, security specialists, spill response personnel, and emergency medical technicians working on site or under cooperative agreements with DOE.

National Priority List (NPL) Sites – The Oak Ridge Reservation [ETTP, Y-12, and Oak Ridge National Laboratory (ORNL)], Idaho National Engineering and Environmental Laboratory (INEEL), and the Hanford sites are facilities presently included on the NPL. Each contains countless clean-up and corrective action sites within their boundaries, such as wastewater treatment plants and landfills (legacy and active), Resource Conservation and Recovery Act (RCRA) and Toxic Substance Control Act (TOSCA) permitted waste storage facilities, security firing ranges, and research and development labs (active and inactive). Common ongoing environmental restoration projects at these sites include building D&D, hydro-fracture injection well plugging and abandonment, underground storage tanks, surface impoundment, and waste burial ground remediation.



Work Safely, Hanford, Washington

International Chemical Workers Union (ICWU)

Who they are: This consortium is based at the Center for Worker Health & Safety Education which is operated by the International Chemical Workers Union (ICWU) and includes the International Association of Machinists and Aerospace Workers (IAM), the American Flint Glass Workers (AFG), the Rubber Plastics Industry Conference of the USWA (R/PIC), the Aluminum, Brick and Glass Workers Division of the USWA (ABGWD), the Coalition of Black Trade Unionists (CBTU), the United Food and Commercial Workers Union (UFCW) and the American Federation of Teachers (AFT). The consortium also includes the University of Cincinnati and the Greater Cincinnati Occupational Health Center.

Who benefits: Workers at Hanford, Oak Ridge, Rocky Flats, and Kansas City DOE sites.

How many: The total number of persons trained at all DOE sites as of August 31, 2006 was 3,190 persons at 238 sessions (29,219 person hours). These numbers are significantly higher than those reported for the last year (17,742 person hours) and even higher than the previous grant year 24,276. This year's increase is due to the initiation of training at Los Alamos (25 courses, 590 people for 6,504 person hours in cooperation with OAI, another NIEHS grantee), an increase in the number of refresher, respirator and beryllium classes being offered at Hanford and increased training in Oak Ridge.

A new refresher course: The new Oak Ridge refresher begins with a chemical spill skit performed by the instructors. The skit is centered on workers that walk up and discover a spill within a work area. This is used as a trigger to generate discussion on the proper procedure for notifying and reporting a spill per the plant procedures. As the discussion continues it leads into the OSHA designated responder levels and their required training. Emphasis is placed on the incident command system and the roles and responsibilities of trained responders. Finally the training level and responsibilities of the students are discussed within the plants emergency response plan.

It is critical in an emergency situation to be able to identify a chemical, its properties and hazard information quickly. A module was developed as a way of reviewing the components of the NFPA labeling system and the use of other commonly used chemical resources. A small group activity, "Alphabet Soup", is used based on commonly used terms encountered in chemical research. Resources are provided dealing specifically with chemical acronyms. At the conclusion of the small group activity all participants are given a handout with a complete list of all the terms researched. After the small group activity, participants are given an exercise based on the OSHA 1910.1200 standard. This requires the participants to research and determine what information is required to be present on a Material Data Safety Sheet.

Next an existing module was modified to emphasize the toxic effects of chemicals, with a PowerPoint presentation as a trigger. Questions on the toxic health effects, route of entry, chemical state, chemical latency as well as chronic and acute health affects are discussed. This module is used to reinforce the toxicology principals and terms taught in previous refreshers.

A comprehensive module was then developed on the OSHA Personal Protection, Respiratory Protection and Hazwoper standards. The limitations of respirators and personal protective

equipment are discussed at length with importance placed on the plants procedures. Industrial Hygiene hierarchies of controls and the industrial hygienist role in the facility are explained and examples solicited from the participants. These are then tied back into the plants site-specific policies and procedures. With the possibility of chemical contamination present at the Department of Energy sites, special emphasis is placed on the decontamination process.

The final module of the day is a combination class dealing with incompatible chemicals and confined space awareness. Emphasis is placed on the hazard recognition portion of confined space procedures. An instructor-guided discussion is used to determine ways to either eliminate or control these hazards. Participants are reminded this is done strictly as an awareness course and emphasis is placed on the site-specific confined space program.

All the Oak Ridge trainers were heavily involved in the development of this new eight-hour refresher which is currently being delivered at the site. Their knowledge of plant policies procedures and equipment continues to be used in developing new material resulting in making the program truly site specific.



ICWU training session

International Association of Firefighters (IAFF)

Who they are: The International Association of Fire Fighters (IAFF) has more than 2,700 affiliates, representing 263,000 fire fighters and paramedics in more than 3,500 communities in the U.S. and Canada.

Who benefits: The IAFF continues to address the hazardous materials training needs of emergency responders in those geographical areas proximate to sites within the DOE Nuclear Weapons Complex.

How many: As of August 31, 2006, the IAFF HazMat/WMD Training Department delivered 26 classes for 606 students during 21,904 contact hours of instruction.

What they offer and where: To help meet their training goal, the IAFF has made the following courses available for the DOE project.

- Instructor Training
- First Responder Operations
- HazMat Technician
- Emergency Medical Services
- Confined Space Operations
- Confined Space Rescue
- Surviving a Hazardous Materials Incident
- Radiation
- Pesticides
- Chemical Process Industry
- Incident Management and Responder Safety

These courses were offered at or proximate to the following DOE sites:

- Hanford, Washington
- Lawrence Livermore, California
- Savannah River, South Carolina
- Oak Ridge, Tennessee
- Rocky Flats, Colorado
- Yucca Mountain, Nevada
- West Valley, New York
- Argonne National Laboratories and Chicago Area Laboratories, Illinois
- Nevada Test Site, Nevada
- Los Alamos, New Mexico
- Idaho Lab, Idaho

Center to Protect Workers' Rights (CPWR)

Who they are: The Center to Protect Workers' Rights (CPWR) and its Construction Consortium for Hazardous Waste Worker Training includes the following international-national construction unions: Insulators & Asbestos Workers, Iron Workers, Boilermakers, Painters, Bricklayers, Plasterers & Cement Masons, Carpenters, Plumbers & Pipe Fitters, Electrical Workers, Sheet Metal Workers. These unions represent over 2,000,000 workers.

Who benefits: Workers at Hanford, Oak Ridge, Kansas City, Princeton, Stanford, Nevada, DOE headquarters, Paducah, Fernald, Argonne East, and Savannah River.

How many: The CPWR consortium conducted 336 classes and trained 4,682 workers, technicians and support staff for 54,510 contact hours of training.

Training that Empowers: A carpenter apprentice who had recently taken a 16-hr Permit-Required Confined Space Entry course offered under the NIEHS grant was assigned the task of welding 18 feet up inside a steel vessel. After seeing a technician monitor for oxygen at the ground-level opening of the vessel, the apprentice refused the assignment, claiming that the monitoring needed to include samples from different heights in the vessel. The foreman decided to appease the apprentice and had the safety specialist order the monitoring higher up in the tank, where oxygen levels were recorded at only 16%. Welding and grinding would have also used oxygen, and the apprentice would probably have fallen.



View of part of the HAMMER Training Facility, Hanford Washington

Hazardous Materials Training and Research Institute (HMTRI)

Who they are: This consortium is lead by Kirkwood Community College's Hazardous Materials Training and Research Institute (HMTRI) and includes the Community and College Consortium for Health and Safety Training (CCCHST). There are 93 colleges and universities, five community-based organizations, eight governmental units, 12 independent training providers and one union in CCCHST, representing 32 states and one territory.

Who benefits: Workers, technicians, and supervisors at Savannah River, Pantex, Oak Ridge, Paducah, Portsmouth, and Idaho National Engineering Laboratory.

How many: During the year, CCCHST-DOE collectively delivered 540 courses to 6,117 students for a total 36,158 contact hours of instruction.

Blended web-supported training: These community colleges, partnered with universities, business and industry, and organized labor work with other NIEHS consortia to set minimum training criteria, develop train-the-trainer programs, work on adult education and literacy issues, share information on emerging technologies, and promote advanced training technologies and distance learning. They share materials and experiences with other trainers throughout the nation. All of this benefits the worker who receives consistent, quality training, reviewed and approved for use at multiple training sites. In addition to traditional classroom training, the open-entry, open-exit, electronic format affords students anytime, anywhere learning at an affordable price. Benefits are demonstrated in the workplace as workers and supervisors strive to improve health and safety conditions through policy changes, adherence to procedures, hazard identification, and an attitude that promotes the integration of safety into all work efforts, as promulgated through DOE's Integrated Safety Management Systems. It is well demonstrated that training leads to fewer worker injuries and fewer losses to the employer. Properly trained workers understand their rights and their responsibilities; they can discuss safety policy and inspect personal protective equipment; they have knowledge of hazards and evacuation procedures prior to undertaking a task; and they use proper decontamination procedures. It is well documented that DOE facilities are facing a large turnover in personnel due to an aging workforce preparing for retirement. Older workers are replaced by a new generation accustomed to electronic learning and gaming. And, as the number of subcontractors that work at DOE sites increases, so do the number of new workers. These younger workers are acclimated to the very creative and highly efficient electronic learning methodology. CCCHST will continue to offer both traditional classroom learning and its blended web-supported training to meet the needs of all workers.

International Brotherhood of Teamsters (IBT)

Who they are: The International Brotherhood of Teamsters – National Labor College Consortium’s target population for the DOE Worker Training Program will be: 1) remediation site workers and supervisors at DOE facilities; 2) construction workers and supervisors involved in the remediation of DOE facilities, including drivers of specialized off-road and waste hauling vehicles; 3) truck transportation workers and supervisors who are involved in the transportation of radioactive waste and chemical waste from DOE facilities; and 4) railroad workers and supervisors involved in the transportation of radioactive waste and chemical hazardous waste from DOE facilities.

Who benefits: The International Brotherhood of Teamsters – National Labor College Consortium DOE Worker Training Program goals are to: 1) increase worker and community safety; and 2) protect DOE facilities and vital transportation infrastructure during the remediation of DOE sites and the transportation of radioactive waste and chemical hazardous waste from DOE sites. The IBT-NLC Consortium will deliver the following courses that fulfill DOE, OSHA and DOT requirements: Basic Hazardous Waste Worker Course; Hazardous Waste Refresher Course; OSHA Construction Safety Course; Load Securement Course; Craft Skills Course; RadCon II Course; Respiratory Protection Course; Initial Hazardous Waste Worker Course for Occasional Site Workers; Bridge Course; and Radiological Transportation Training. The consortium proposes to train 2,334 workers in Grant Year 01. The courses taught by the DOE Worker Training Program will utilize strong adult education techniques and consist of classroom lecture, dress-out activities, and small group activities.

How many: IBT conducted 152 classes for 2086 workers resulting in 23,936 contact hours of training.

Where are they working Now: In tracking the employment of their DOE trainees, IBT found that 197 trainees were employed on the Nevada Test Site; 47 trainees were employed on UM-TRA sites in Moab, Utah; 36 trainees were employed at Tolecha Peak (NTS); 3 trainees were employed at the Mound Plant; 8 trainees were employed at the Weldon Springs DOE Site; 82 trainees acquired employment, or were employed, on the Oak Ridge DOE Site; 370 Savannah River DOE site workers participated in the IBT DOE Worker Training Program courses; and 1,127 Hanford DOE site workers participated in the IBT DOE Worker Training Program.

NIEHS WETP National Clearinghouse for Worker Safety and Health Training Update

The National Clearinghouse for Worker Safety and Health Training, operated by MDB, Inc., provides strong technical support to the NIEHS awardees that conduct hazardous waste worker training around the DOE weapons complex. The Clearinghouse regularly features articles in its electronic newsletter that is distributed to over 900 subscribers about chemical and radiological issues around the complex. Newsbrief articles cover critical issues such as cleanup completion at sites, and the creation of the Office of Health, Safety and Security, include links to recently released DOE reports, and features DOE health and safety meetings in the Calendar of Events section.

The Clearinghouse website, www.wetp.org, has a library that houses numerous reports on environmental, health and safety topics specifically related to DOE. With technical support from WETP, DOE produced innovative communication tools called Technology Safety Data Sheets (TSDS) for workers. The Clearinghouse website contains numerous examples of TSDS and also houses a database of ES&H curricula developed for DOE workers by NIEHS awardees with DOE funds that are available to professional trainers.

Part of the Clearinghouse support includes attending and presenting at meetings. In April 2005, Deborah Weinstock, Director of the Clearinghouse, attended the HAMMER Medical Surveillance Subcommittee and Steering Committee meetings in Washington, DC.

Deborah Weinstock also attended the March 14-16, 2006 EFCOG/DOE Chemical Management Workshop on Advancing Chemical Safety in the 21st Century. Topics included advances in chemical emergency response, control banding, the global harmonization standard and nanotechnology.

In September 2006, Deborah Weinstock attended a meeting of the NIEHS DOE trainers, as well as the HAMMER Medical Surveillance Subcommittee and Steering Committee meetings. In preparation for the Steering Committee meeting, the Clearinghouse, in conjunction with WETP, developed a proposal to work with the DOE trainers and HAMMER to jointly develop awareness level training. The following language was included in the proposal:

As part of the National Response Plan, the NIEHS Worker Education and Training Program must be prepared for any type of disaster. As part of the Program's preparedness planning, NIEHS WETP has undertaken a process to prepare both awareness and preparedness level training materials for the hazards presented in the Department of Homeland Security's 15 Planning Scenarios. One of these scenarios is *Radiological Attack: Radiological Dispersion Devices*.

WETP would like to engage in a cooperative process with HAMMER to develop and pilot materials that will prepare workers to face the hazards presented should the nation face a dirty bomb scenario. The DOE complex has unique expertise in dealing with radiological materials. Should a dirty bomb be detonated in the United States, DOE workers would be the ones with the most experience to respond.

WETP would like to work with HAMMER to jointly develop awareness level training and preparedness/predeployment level (via modifications to the OSHA Disaster Site Worker Course) training to address the hazards of radiological materials. This process should engage the appropriate staff at DOE, as well as OSHA and any other government agencies or organizations with expertise in this area.

The proposal was brought to the HAMMER Steering Committee and approved on September 21, 2006. Work began on this effort almost immediately following the Steering Committee meeting and will be reported on more thoroughly in the FY 2007 report.

Another area of interest for the NIEHS WETP program and its Clearinghouse has been the promulgation of 10 CFR 851, the Worker Safety and Health Program rule. NIEHS WETP, its awardees and the Clearinghouse began efforts to understand the rule's implications for worker safety and health training. This is another effort that will be further reported on in the FY 2007 annual report.

The Clearinghouse also undertook an assessment and examination of specific awardee activities and focus across the DOE complex during FY 2006. The assessment showed a desire on behalf of awardees to be more integrated into DOE training at a number of sites and efforts will be made to achieve that goal during FY 2007.



View of the river near Hanford, Washington

5.0 Two New Initiatives: 10 CFR 851 Engagement for Worker Safety and Responding to the use of Radiological Dispersion Devices

CFR 851 Engagement for Worker Safety: During the upcoming year, NIEHS WETP and its DOE awardees will begin to incorporate the new DOE 10 CFR 851 rule into their training programs. The rule expands upon previous DOE safety and health regulations in setting safety and health requirements that govern the conduct of contractor and worker activities at DOE sites. Under the rule, contractors must provide a place of employment free from recognized hazards that cause or have the potential to cause death or serious physical harm to workers, and ensure that work is performed in accordance with all applicable requirements and with the worker safety and health program for that workplace. The rule applies to both contractors and subcontractors; incorporates many additional health and safety standards; requires that hazards be identified and controlled and that procedures be developed for workers to report hazards without reprisal; requires contractors use the hierarchy of controls to mitigate hazards; requires that there be communication with workers; that a written Worker Safety and Health Program be available; requires that there be stop work and work refusal procedures; and requires that workers be trained.

A summary of this effort will be included in next year's annual report.

Responding to the use of Radiological Dispersion Devices: The safety and health training that thousands of workers have received under the DOE NIEHS Nuclear Worker Training Program has created a national asset: a core of skilled workers who potentially could provide significant services in responding to a terrorist "dirty bomb" attack. The Department of Health and Human Services, which includes the National Institutes of Health and the NIEHS is a signatory to the National Response Plan. The NRP assists in the important homeland security mission of preventing terrorist attacks within the United States; reducing the vulnerability to all natural and man-made hazards; and minimizing the damage and assisting in the recovery from any type of incident that occurs. The use of a radiological dispersion device is one of the incidents for which preparation is necessary. During the upcoming year, NIEHS WETP and its DOE awardees will participate in a process to develop awareness level training materials to assist in the response and cleanup of a dirty bomb attack.

6.0 Program Charts:

DOE/NIEHS Worker Education and Training Awards For Budget Period 09/01/2005-08/31/2006			
AWARDEE	COURSES COMPLETED	WORKERS TRAINED	CONTACT HOURS
International Association of Fire Fighters	26	606	21,904
International Union of Operating Engineers	70	1,744	16,832
United Steelworkers of America	127	2,056	23,288
International Chemical Workers Union Council	238	3,190	29,219
Laborers-AGC Education and Training	555	5,884	119,686
International Brotherhood of Teamsters	152	2,086	23,936
Center to Protect Workers' Rights	336	4,682	54,510
HMTRI Kirkwood Community College	540	6,117	36,158
TOTAL	2,044	26,365	325,533

DOE/NIEHS Target Populations 09/01/2005 – 08/31/2006						
TARGET POPULATIONS	COURSES COMPLETED	% COURSES COMPLETED	# WORKERS TRAINED	% WORKERS TRAINED	# CONTACT HOURS	% CONTACT HOURS
CERCLA Cleanup ¹	704	34%	10,332	39%	138,693	43%
RCRA/Industrial	46	2%	503	2%	4,388	1%
Emergency Response	83	4%	1,557	6%	26,583	8%
Radiation	319	16%	2,887	11%	30,956	10%
Lead Abatement	7	0%	97	0%	2,288	1%
Asbestos Abatement	225	11%	2,736	10%	55,440	17%
Hazmat Transport	5	0%	77	0%	1,188	0%
Other Safety and Health	655	32%	8,176	31%	65,997	20%
TOTALS	2,044	100%	26,365	100%	325,533	100%

**DOE/NIEHS Worker Education and Training Program Percent and Total of
NIEHS Courses Completed, Workers Trained, and Contact Hours,
by Site for Budget Period 09/01/2005-08/31/2006**

SITE	COURSES COMPLETED		WORKERS TRAINED		CONTACT HOURS	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Argonne East	17	1%	368	1%	13,116	4%
Ashtabula	4	0%	69	0%	602	0%
Bettis Plant	3	0%	59	0%	632	0%
Brookhaven National Laboratory	2	0%	28	0%	1,120	0%
Department of Energy - Headquarters	19	1%	297	1%	6,332	2%
Department of Energy – SF	1	0%	10	0%	160	0%
Fernald Integrated Demonstration Site	6	0%	86	0%	1,784	1%
Formerly Utilized Sites Remedial Action Program	2	0%	35	0%	326	0%
Hanford Waste Vitrification Plant	559	27%	7,104	27%	55,999	17%
Idaho National Engineering Laboratory	115	6%	562	2%	10,474	3%
Kansas City Plant	12	1%	140	1%	1,974	1%
Lawrence Berkeley	10	0%	146	1%	2,728	1%
Lawrence Livermore National Laboratory	21	1%	387	1%	9,376	3%
Los Alamos National Laboratory	78	4%	1,220	5%	14,872	5%
Mound Plant	14	1%	273	1%	3,232	1%
Multiple DOE sites	9	0%	89	0%	2,448	1%
Nevada Test Site	38	2%	530	2%	11,248	3%
Non-DOE Sites	24	1%	409	2%	8,501	3%
Oak Ridge Field Office	649	32%	7,425	28%	101,698	31%
Paducah Gaseous Diffusion Plant	132	6%	1,316	5%	13,150	4%
Pantex Plant	77	4%	1,006	4%	10,933	3%
Pinellas Plant	8	0%	136	1%	2,240	1%
Portsmouth Gaseous Diffusion Plant	28	1%	377	1%	6,772	2%
Princeton Plasma Physics Laboratory	5	0%	55	0%	2,088	1%
Rocky Flats Office	34	2%	313	1%	6,560	2%
Sandia Albuquerque	1	0%	30	0%	1,200	0%
Santa Susanna Field Laboratory	2	0%	28	0%	370	0%
Savannah River Site	164	8%	3,714	14%	32,572	10%
St. Louis Airport Site	2	0%	51	0%	1,090	0%
Umtra Project Office	3	0%	47	0%	1,496	0%
Weldon Springs	5	0%	55	0%	440	0%
TOTAL	2,044	100%	26,365	100%	325,533	100%

**DOE/NIEHS Worker Education and Training Awards
For Budget Period 09/01/2006-08/31/2007**

AWARDEE	DOE AWARD
International Chemical Workers Union Council	\$789,505
International Association of Fire Fighters	\$532,476
Laborers-AGC Education and Training	\$2,377,644
United Steelworkers of America	\$1,701,282
International Brotherhood of Teamsters	\$689,558
International Union of Operating Engineers	\$1,405,201
Center to Protect Workers' Rights	\$1,881,829
HMTRI Kirkwood Community College	\$194,176
TOTAL	\$9,571,671

**THIRTEEN YEAR SUMMARY:
DOE/NIEHS WORKER EDUCATION AND TRAINING PROGRAM**

TRAINING PA-RAMETERS¹	1993	1994	1995	1996	1997	1998	1999
Number of Awardees	8	8	8	7	7	7	7
Courses Completed	486	1,091	1,199	1,277	983	922	1,152
Workers Trained	7,107	13,566	18,642	18,394	15,048	14,049	15,860
Contact Hours	184,604	249,704	290,938	244,212	217,666	202,997	218,087
Dollars Awarded	\$11,887,000	\$9,891,526	\$9,719,474	\$8,935,000	\$7,996,000	\$8,436,000	\$7,423,500
Cost Per Contact Hours	\$64.39	\$39.61	\$33.41	\$36.59	\$36.74	\$41.56	\$34.04

TRAINING PARAMETERS

Year	2000	2001	2002	2003	2004	2005	TOTAL
Number of Awardees		8	8	8	8	8	
Courses Completed	1379	1,954	1,959	2,367	1,961	2,044	18,774
Workers Trained	18,833	25,399	23,187	29,240	25,442	26,365	251,132
Contact Hours	245,436	302,723	303,633	374,957	329,840	325,533	3,490,330
Dollars Awarded	8,200,000	\$8,076,971	\$8,201,000	\$8,022,138	\$8,031,138	\$9,365,407	\$114,185,154
Cost Per Contact Hours	\$33.41	\$26.68	27.01	\$21.39	\$24.35	\$28.77	\$32.71



IAFF demonstration at the HAMMER Training Facility, Hanford, Washington.

