



National Institute of
Environmental Health Sciences
Worker Training Program

The National Institute of
Environmental Health Sciences/
Department of Energy

Nuclear Worker Training Program

Accomplishments and Highlights

Sept. 1, 2018 – Aug. 31, 2019



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Overview of the National Institute of Environmental Health Sciences (NIEHS)/Department of Energy (DOE) Nuclear Worker Training Program



IAFF safety culture training at Safety Fest.

Program Goal

The goal of the NIEHS/DOE Nuclear Worker Training Program is to provide high-quality training to DOE site workers to ensure they are prepared to work safely in hazardous environments, and to support DOE Office of Environmental Management (EM) mission completion. Training aids DOE's commitment to safe work performance, providing skills and knowledge for workers to identify hazardous situations and to take appropriate actions to protect themselves, fellow workers, and the environment. To accomplish this, NIEHS funds programs to deliver both site-specific and trade-specific training that address complicated DOE site missions with ongoing and emerging hazards. The missions often include a combination of nuclear, industrial, chemical, demolition, and construction activities.

Program Overview

Administered since 1993 by the [NIEHS Worker Training Program \(WTP\)](#), the program provides site-specific, quality health and safety training to workers in a timely and cost-effective manner, with an average cost of \$27 per contact hour. Since the beginning of the program, 651,888 workers have received 8,544,902 contact hours of training in 44,669 courses.

Training is accomplished through a partnership involving government, contractors, and labor organizations. A cornerstone of the program is the use of “worker-trainers” — peer trainers who are experienced employees well-versed in performing a given task in a hazardous environment and who are trained to instruct other workers.

Protecting worker health and safety through training delivery has been a priority of the secretary of energy and is a primary goal of the EM. As the DOE’s mission has shifted from weapons production to environmental restoration, the site worker is exposed to new operations and hazards. The training offered under the NIEHS/DOE Nuclear Worker Training Program supports and integrates with DOE safety culture; Title 10 of the Code of Federal Regulations, part 851 (10 CFR 851), “Worker Safety and Health Program”; and other initiatives.

Training Participants

WTP training is available to all DOE workers, including represented and non-represented individuals. Additionally, in some circumstances, acceptance of training performed before hire improves project mobilization and can reduce hiring costs.

The NIEHS/DOE Nuclear Worker Training Program trains a variety of workers engaged in environmental restoration activities at DOE nuclear weapons sites. Trainees include crane operators, carpenters, welders, laborers, chemical operators, firefighters, construction workers, electricians, environmental technicians, insulators, laboratory technicians, machinists, pipe fitters, and truck drivers.

Additionally, some training is extended to communities surrounding DOE sites, who then gain certifications and skills that increase eligibility for employment at a nearby DOE site or keep them prepared if called upon in an emergency. These “fence line” communities include Native American tribes, as discussed in a 2018 NIEHS WTP [report on training with Native Americans](#) that included examples from the NIEHS/DOE program.

Collaboration with DOE National Organizations and Programs

Additionally, NIEHS and grantees collaborate with the [DOE Energy Facility Contractors Group \(EFCOG\)](#) and the DOE National Training Center (NTC) [Training Reciprocity program](#). These efforts can reduce duplication of training, improve consistency in core training content, and improve communication with site contractors.

A National Asset in Emergency Response

The NIEHS/DOE program represents a large pool of trained, certified workers who respond in case of accidental or deliberate radiological events. While it was never imagined that this program would result in a capacity to respond to such events, this is a benefit and a national security asset. WTP has developed a mechanism for identifying and mobilizing these pre-trained, experienced workers.

Program Training Data, 2018-2019

Training Summary

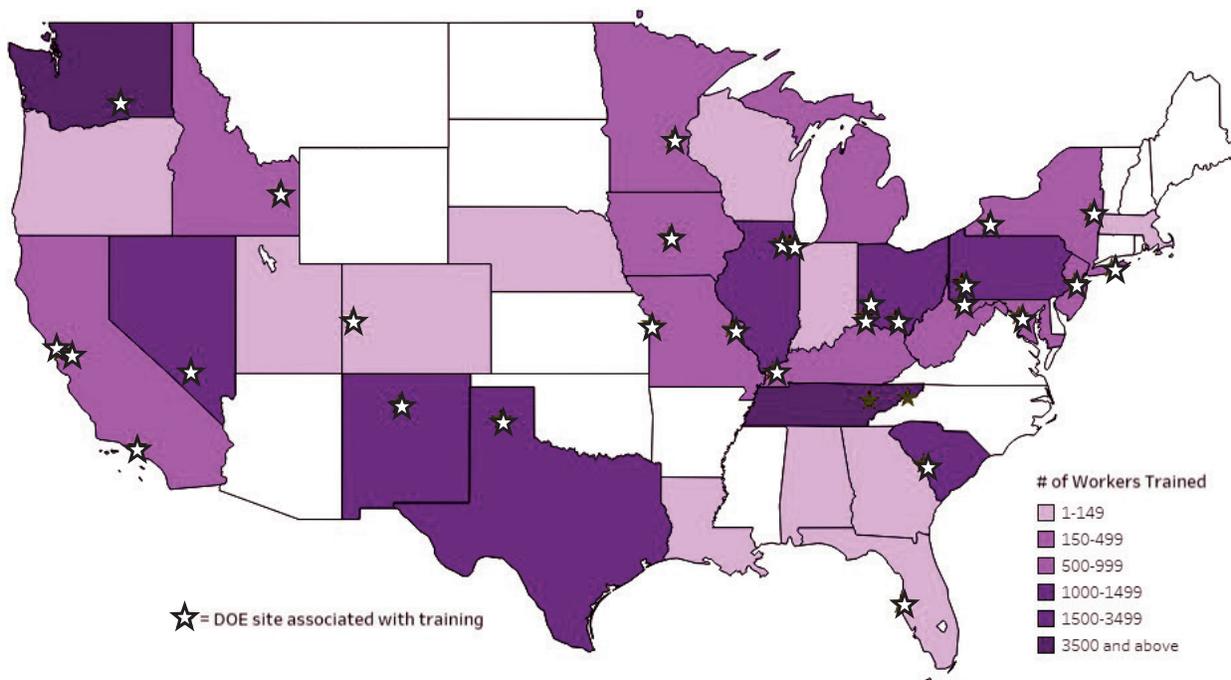
For the 2018-2019 program year (Sept. 1, 2018 – Aug. 31, 2019):



Training Locations

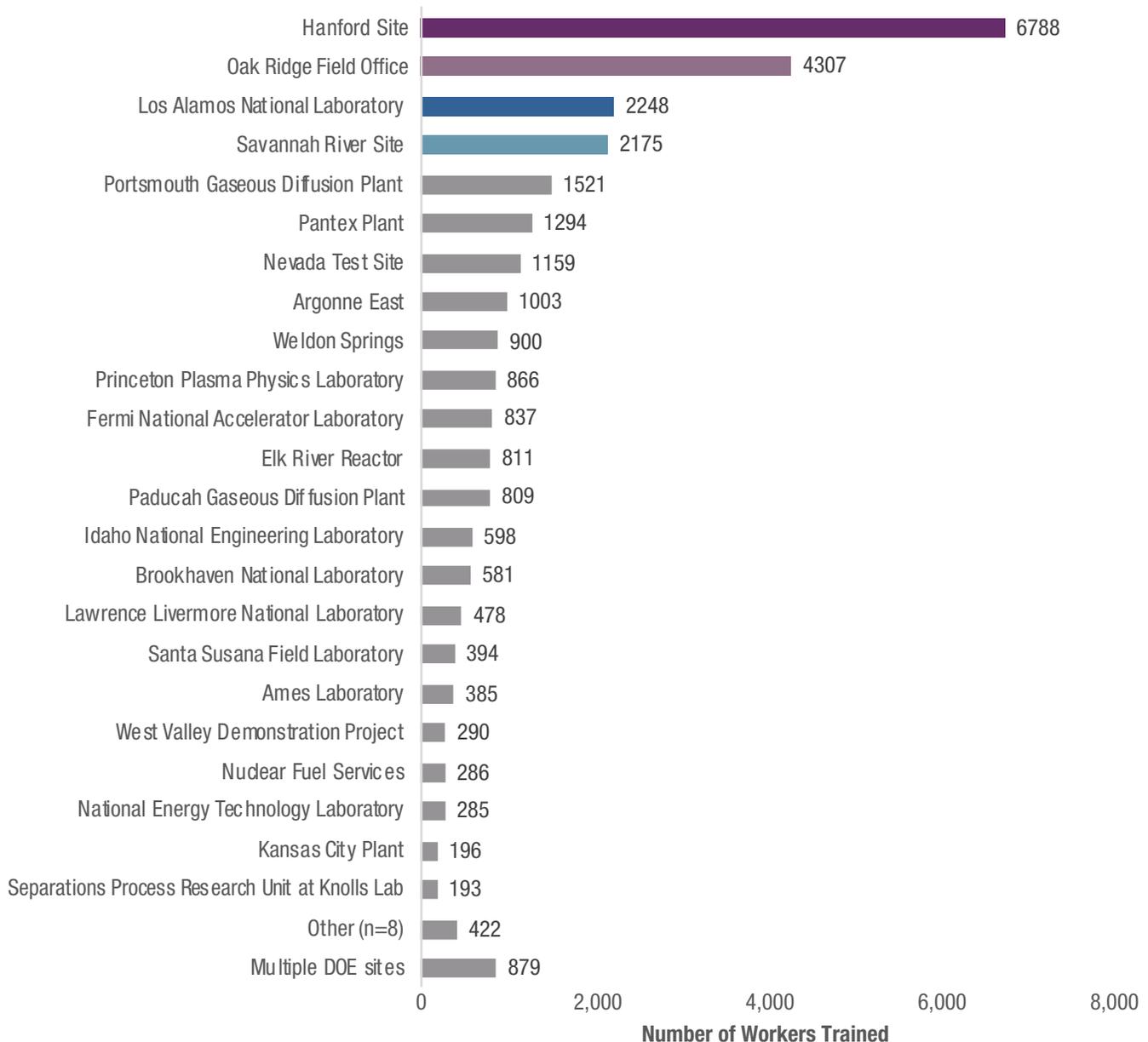
Training was conducted at or around 31 different sites, as shown in the map. The training for so many sites, large and small, demonstrates the national scope of this program. A full list of DOE sites is available in the Data Tables section of this report.

The map also summarizes the number of workers trained across the country. The locations with the highest numbers of workers trained reflect the sites with the largest cleanup operations for the DOE EM.



The figure below shows sites with the highest numbers of workers trained.

The **Hanford Site** had the highest number of workers trained, followed by **Oak Ridge**, **Los Alamos**, and **Savannah River**. Overall, grantees trained at or around 31 sites this year. (Sept. 1, 2018 – Aug. 31, 2019)

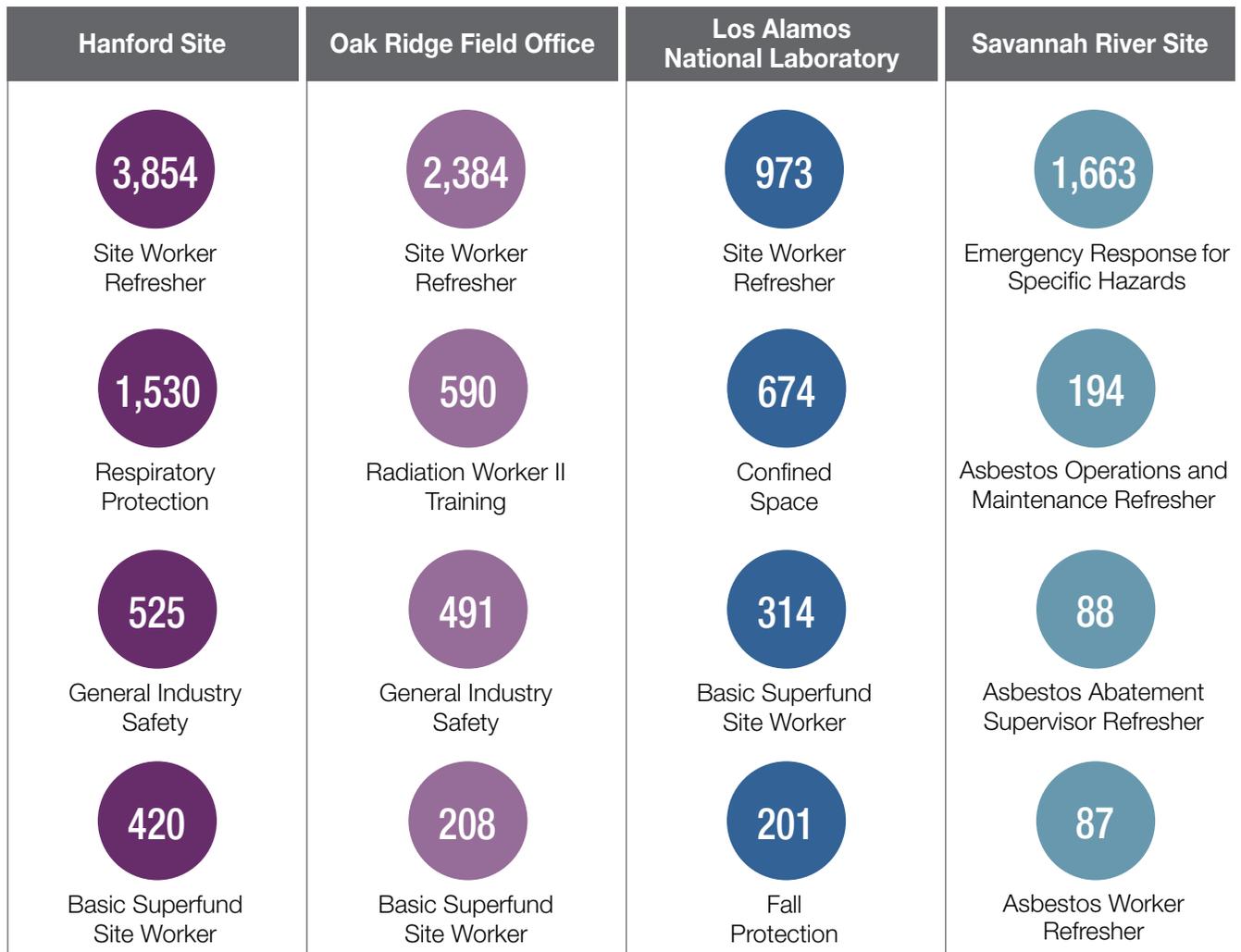


Multiple DOE Sites: When trainees are brought in from across various sites to a specific training center for a course.

Top Courses at Top Sites

The figure below shows the courses in which the highest numbers of workers received training at the sites with the highest numbers of workers trained during the 2018-2019 program year.

Top Courses, by Workers Trained, by Site



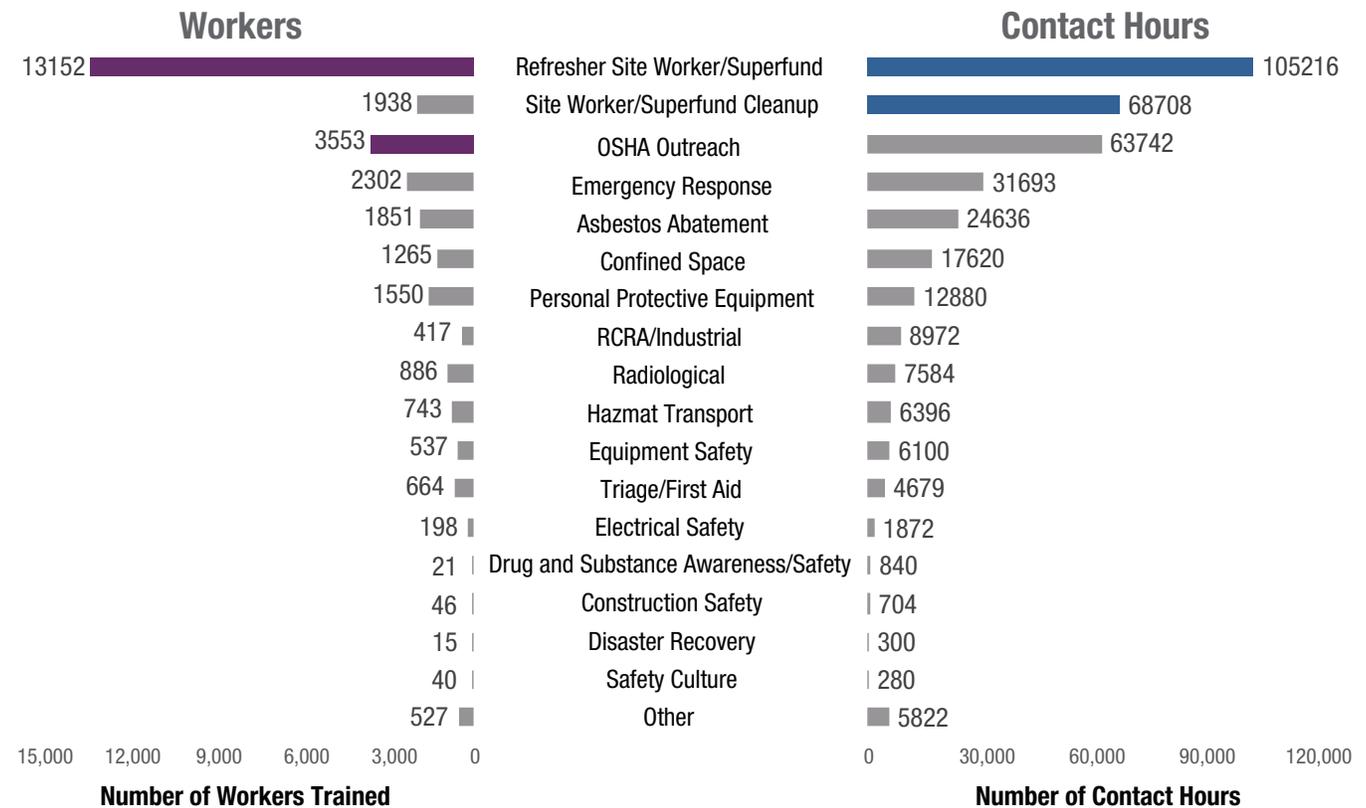
Training Course Categories

The figure below shows the numbers of workers trained and total contact hours for various courses during the 2018-2019 program year. These courses are critical to ensuring DOE worker and site safety, and worker readiness for employment. A full list of training courses, organized by categories, is available in the Data Tables section of this report.

Of the 29,705 workers trained, the highest numbers of workers received training in **Refresher for Site Worker** and **OSHA Outreach** courses.

Of the 368,044 contact hours, grantees delivered the highest numbers of contact hours through **Refresher for Site Worker** and **Site Worker** courses.

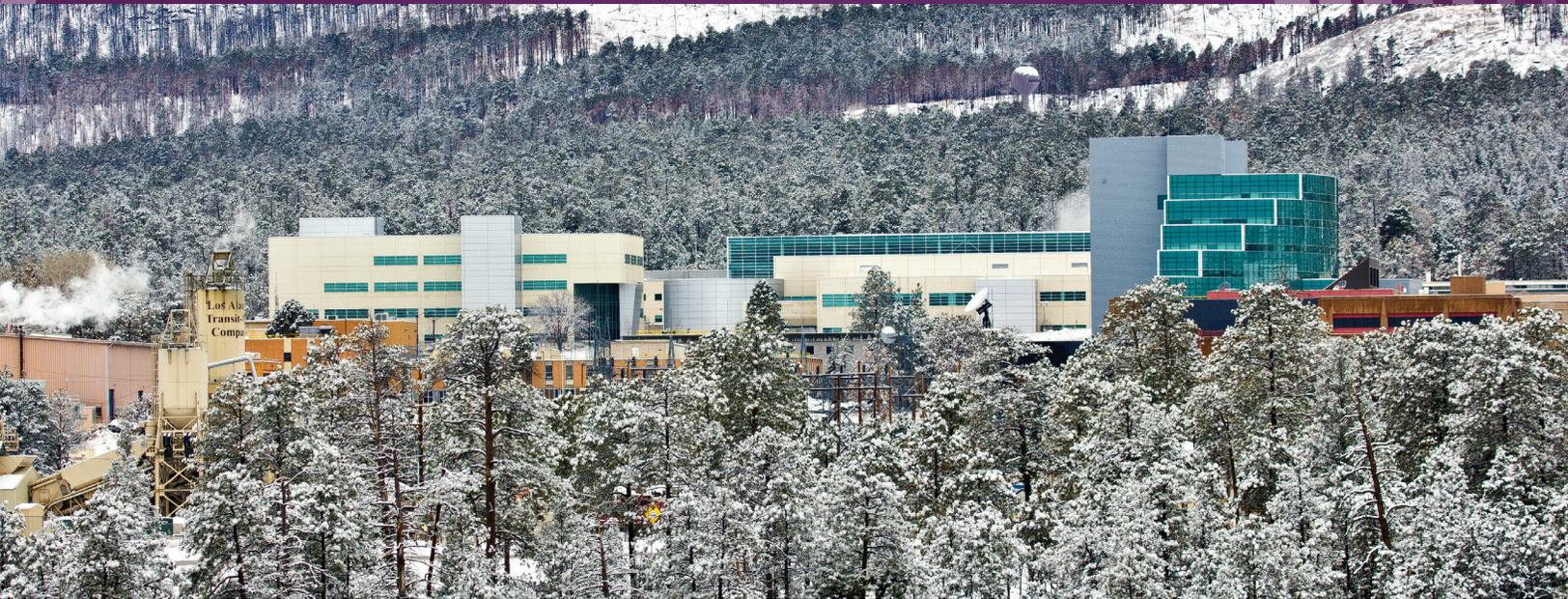
(Sept. 1, 2018 – Aug. 31, 2019)



The “Other Courses” shown in the chart above include:

- Training Methods/Trainer Development
- Work Zone Safety

Ongoing, New, and Upcoming Initiatives



Los Alamos National Laboratory's Technical Area 3. (Photo courtesy of Los Alamos National Laboratory)

NIEHS Program Leadership and Activities

- NIEHS WTP staff engage in ongoing work with DOE partners. During the 2018-2019 year, this included:
- Providing a program briefing at DOE EM headquarters in Germantown, Maryland, in Sept. 2019.
- Presenting to the DOE Industrial Hygiene Contractors Meeting at the American Industrial Hygiene Conference and Exposition in Minneapolis, Minnesota, in May 2019. During this presentation, WTP Industrial Hygienist Sharon Beard provided an update on training under the NIEHS/DOE program, discussed an example of successful contractor-grantee collaboration at the Idaho National Laboratory, and summarized other recent events from WTP.
- Attending two DOE Labor Training Working Group (LTWG) meetings:
 - First, was a joint meeting with EFCOG, Dec. 4-6, 2018, at the NTC in Albuquerque, New Mexico. During the meeting, NIEHS grantees, NTC, and EFCOG members shared their training capabilities to encourage future partnerships.
 - The second occurred at Safety Fest Tennessee, April 30-May 1, 2019. Safety Fest Tennessee provides a week of free safety and health training annually in Oak Ridge and Knoxville, Tennessee, through the combined efforts of federal, state, and local governments; large and small businesses; and nonprofit organizations. NIEHS/DOE grantees attended the LTWG meeting, along with key stakeholders from DOE sites and DOE headquarters (Office of the Associate Under Secretary for Environment, Health, Safety and Security (AU) and EM). Part of the meeting addressed upcoming revisions to the DOE Radiological Worker core curriculum. Additionally, the LTWG discussed ongoing collaboration with DOE site contractors, revisions to the LTWG charter, and updates from NIEHS. Additionally, some of the NIEHS/DOE grantees provided classes during Safety Fest, such as a 30-hour Occupational Safety and Health Administration (OSHA) class, a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) class, and a Frontline Safety/Safety Culture class.

These meetings, presentations, and discussions allow NIEHS and DOE to continually collaborate, keep each other up-to-date, and receive feedback on initiatives.

Reciprocity through the National Training Center (NTC)

Several grantees have been **certified for reciprocity for multiple training courses** by NTC in accordance with DOE policy on health and safety training reciprocity (DOE P 364.1). NIEHS WTP is working with grantees and the NTC to complete DOE reciprocity course evaluations and expand use by DOE contractors.

Reciprocity course certification allows for portability of worker training between DOE contractors and sites, improves project mobilization, and enhances course consistency between contractors. Reciprocity saves money for DOE by eliminating redundant fundamental training and allowing contractors to redirect resources to job- or site-specific training or other training prior to job qualification. The EFCOG Training Working Group supports this initiative.

An indirect benefit of NIEHS grantee participation in reciprocity has been an ability to help DOE contractors address in-house instructor needs. Examples are discussed under “Grantee Training for Contractor Employees.”

The current NIEHS-funded organizations holding reciprocity certifications are:

- CPWR—The Center for Construction Research and Safety: HAZWOPER, Confined Space Entry
 - CPWR Consortium Members
 - National Ironworkers and Employers Apprenticeship Training and Journeyman Upgrading Fund: HAZWOPER, Fire Watch, Scaffold Safety
 - United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States, Canada: Confined Space Construction and Hazardous Communication (HAZCOM)
 - Electrical Training Alliance/International Brotherhood of Electrical Workers (IBEW): National Fire Protection Association (NFPA) 70E Standard for Electrical Safety, NFPA 70 Code Update
- International Union of Operating Engineers: HAZWOPER, Bloodborne Pathogens, Fall Hazard Recognition and Prevention, Confined Space Awareness, HAZCOM
- United Steelworkers Tony Mazzocchi Center (USW TMC) for Health, Safety, and Environmental Education: HAZWOPER

The LIUNA (Laborers’ International Union of North America) Training and Education Fund has previously been funded under the NIEHS/DOE Nuclear Worker Training Program and has course reciprocity for HAZWOPER, Radiological Worker, Hazard Communication (HAZCOM), Asbestos Awareness, Excavation/Trenching Awareness, and Hearing Conservation. They currently train workers at DOE sites, including Washington, D.C., and Germantown, Maryland, staff, under the **NIEHS Hazardous Waste Worker Training Program**.

Reviews are in progress, or are planned for later in 2020, to expand participation of USW TMC and LIUNA Training and Education Fund.

Accepting Apprentice/Journey Training

NIEHS WTP and grantees are supporting the NTC pilot program to evaluate the apprentice training curriculum for DOE reciprocity. Union craft and trade workers typically complete a five-year apprentice program that contains an extensive emphasis on health and safety. National labor apprentice programs are validated by the U.S. Department of Labor or a state apprenticeship agency and many hold accreditations through third party organizations or granting of college credit.

NTC is conducting a pilot program with LIUNA Training and Education Fund and reviewing specific apprentice and journey training content to understand how it aligns with DOE requirements. If successful, this expanded use of the DOE reciprocity program can be extended to other grantees and will create additional efficiencies for workers, contractors, and DOE.



Idaho National Laboratory

National and Site-Specific Collaborations with the Site Contractor Community

NIEHS grantees continued their collaborations with the contractor community. The desired goal is to develop relationships to facilitate delivery of training by NIEHS WTP grantees at no or reduced cost to the sponsoring contractor, which could reduce redundancy, reduce contractor costs, and fill contractor training gaps. The training delivery could occur through improved use of the DOE Training Reciprocity Program and existing DOE EM funding to NIEHS.

DOE Liaison

To better leverage existing training capacity and educate new DOE contractors, WTP established a part-time liaison with extensive DOE experience, Ted Giltz. Giltz started in the position in Oct. 2018 and has continued into 2020 to assist with many of the initiatives described in this report.

Grantee Training for Contractor Employees

NIEHS has been engaging in an initiative to communicate our training capabilities and availability to DOE staff and contractors at sites. DOE and contractor leadership are often unaware of the skills and services offered through grant-funded training, due to DOE personnel changes, attrition of both DOE and contractor leadership, and routine promotion and changes in DOE contractor organizations.

Collaboration and partnership with the DOE contractor community is being pursued through several efforts.

- Sites already using NIEHS WTP grantees for training are being approached to maintain and expand training support as their contractor organizations undergo continued fiscal and attrition pressure.
- Grantees and the LTWG have participated in EFCOG Training Working Group meetings. They continue to educate EFCOG members on available options.

Benefits of using the NIEHS WTP grant training include:

- Using workers as trainers, who are highly qualified instructors that deliver the training material as an experienced employee and peer.
- Assisting with issues of staff attrition, particularly smaller contract organizations. WTP grantees offer the benefits of providing quality training materials and staff, including mobile training to organizations that do not have full time training staff, or safety and health subject matter experts in some cases. Many organizations no longer have the depth and competencies in topics such as specialty electrical training topics, scaffold awareness, fire system maintenance, condensate-induced water hammer, crane/rigging, and trenching. However, more effective safety training is provided by instructors who are experts and who have worked in the field on the topic.
- Expanding training access to a workforce that has already completed fundamental safety training in many areas.
- Avoiding retraining and other project mobilization costs through reciprocity certifications.

The following examples show where contractors have started planning for use of NIEHS/DOE grantee training beyond the existing HAZWOPER training delivery that has been in place for several years.

- **Los Alamos National Laboratory (LANL):** NIEHS WTP and grantees are closely working with training staff and subject matter experts (SMEs) at LANL to better utilize the capacity of the grantees to deliver training. Currently, progress has been made that allows for grantee trainers to deliver the following courses:
 - CPWR – through the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States, Canada
 - Pressurized Pipe Training
 - International Brotherhood of Teamsters (IBT)
 - Forklift
 - Load Securement
 - Department of Transportation Driver Safety Training

- National Partnership for Environmental Training and Education (PETE) – through Santa Fe Community College
 - Hazard Communication
 - Waste Generator Orientation
 - Resource Conservation and Recovery Act (RCRA)
- International Chemical Workers Union Council – through the International Association of Machinists and Aerospace Workers (IAM)
 - Confined Space Awareness
 - Fall Protection
 - Ladder Safety
 - Scaffold Awareness
- Grantee to be determined
 - Radiation Worker

An in-person meeting of grantees, NIEHS, NTC, DOE EM, and the Newport News Nuclear BWXT Los Alamos LLC (N3B) and LANL contractors took place on Feb. 20, 2020, to reinforce partnerships and to improve coordination based on lessons learned.

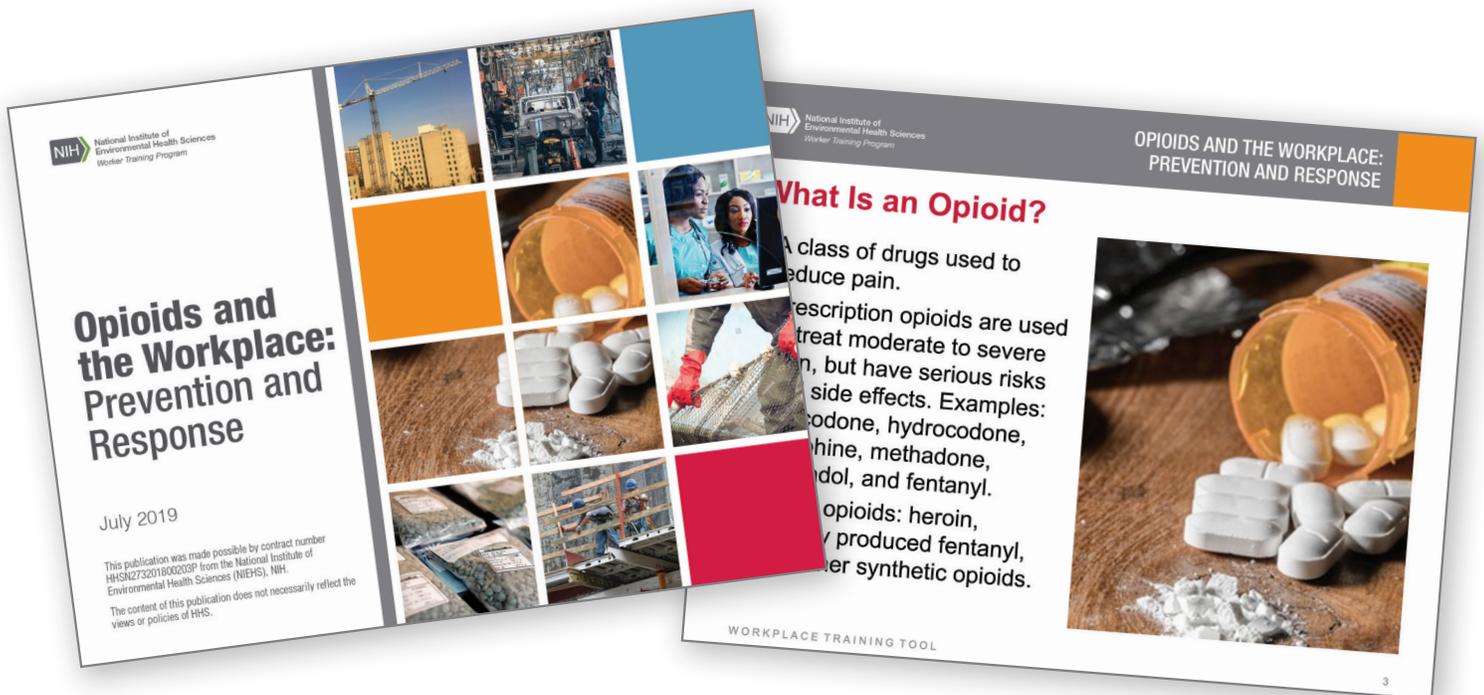
Idaho National Laboratory (INL): Worker trainers have historically been used for HAZWOPER training at INL. Starting in Nov. 2018, CPWR consortium member IBEW started delivery of required NFPA 70E electrical training to Idaho contractors. This satisfies the requirements of 10 CFR 851 and aids individual electricians in maintaining their state of Idaho electrician license for work. The WTP training was provided at no cost to the contractor, resulting in a savings of over \$100,000 per year when compared to their previous decision to broker training to general industry vendors. Battelle is now participating in training. The WTP liaison and CPWR are making plans to expand training support during 2020.

EM Consolidated Business Center and Headquarters: A 40-hour HAZWOPER course was delivered to four Environmental Management Consolidated Business Center (EMCBC) staff by the International Union of Operating Engineers. LIUNA Training and Education Fund completed a Radiation Worker course for ten federal and contractor staff at the West Valley Demonstration Project in New York. An in-person meeting was held on Jan. 21, 2020, to discuss how EMCBC and NIEHS can work together to encourage small sites to use grant-funded training. The visit also included a training facilities tour and discussion with the International Chemical Workers Union Council in downtown Cincinnati.

Waste Isolation Pilot Plant (WIPP): Preliminary discussions have been conducted with USW TMC local leadership. A meeting with newly assigned contractor management is planned in the first half of 2020, after the ratification of a labor agreement at the site. Participation by WTP grantees at WIPP offers the opportunity to support Voluntary Protection Program Assessment corrective actions for improved worker involvement and may provide efficiencies for the contractor.

Portsmouth/Paducah Gaseous Diffusion Plants Project Office: USW TMC and EMCBC is interested in initiating a dialog with DOE and staff across multiple contractors to determine how the WTP grantees might support worker safety and health training.

Each site brings unique situations and challenges, and the lessons learned are applied as NIEHS moves forward.



National Initiative on Opioids

Opioids: Prevention of Occupational Exposure, and Workforce Training on Use and Abuse

WTP is at the forefront of addressing the opioid crisis from the worker health and safety perspective, looking at the issue from two viewpoints.

First, there are the workers who may encounter toxic exposures from illicitly-manufactured drugs during their daily work, such as emergency medical services providers, firefighters, environmental cleanup workers, families of users, co-workers, health care providers, and law enforcement personnel. An awareness-level training tool, **“Prevention of Occupational Exposure to Fentanyl and Other Opioids,”** developed under separate funding, is available from NIEHS.

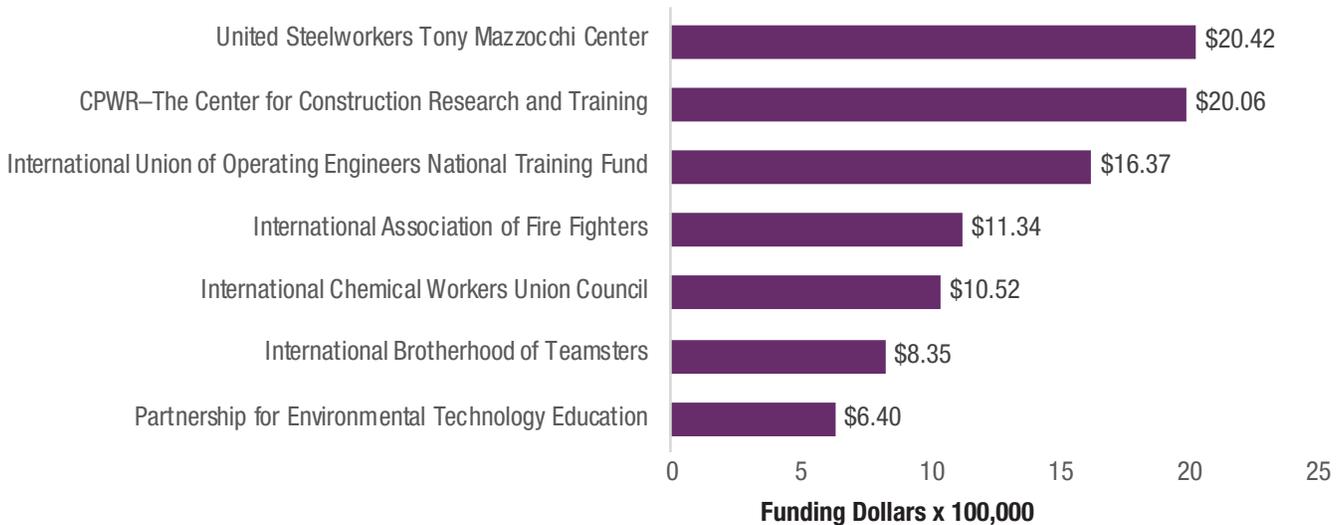
Second, there are workers in the construction, manufacturing, and service industries that have been identified as a primary vulnerable population for both potentially harmful opioid exposure and potentially deadly opioid use and abuse. WTP developed another training, under separate funding, to address the risks for these workers.

This **“Opioids and the Workplace: Prevention and Response”** curriculum was piloted at the DOE’s Hanford/Volpentest Hazardous Materials Management and Emergency Response (HAMMER) Training Facility on July 22, 2019. The pilot was organized in conjunction with an activity held by the International Chemical Workers Union Council (ICWUC) consortium. Participants included trainers who are members of IAM and IBEW, as well as industrial hygiene technicians and radiological control technicians from HAMMER, Oak Ridge, and the Kansas City Plant. The training was followed by a community meeting on July 23, 2019, with a variety of Hanford stakeholders.

Program Funding and Grantees

Funding

Through an interagency agreement, NIEHS provided \$9,346,048 in funding to NIEHS/DOE program grantees (\$8,767,646 in the primary grant and \$578,402 in supplemental funds) during the 2018-2019 program year. Funding was from fiscal year 2018 DOE appropriations. Seven grantees were funded to implement training during the year.



Five-Year Competitive Renewal

The competitive renewal phase for the next five years of the NIEHS/DOE Nuclear Worker Training Program is underway. The NIH funding opportunity announcement (FOA), [HAZMAT Training at DOE Nuclear Weapons Complex \(UH4 Clinical Trial Not Allowed\)](#), had an application deadline of Nov. 2019, and the external peer review will occur in March 2020. The awards for the first year of the next project period will be announced in summer 2020. NIEHS will keep all DOE partners informed of progress.

Program Grantees

CPWR—The Center for Construction Research and Training

CPWR is sponsored by North America’s Building Trades Unions, which represents 14 international/national building trades unions. Their training consortium includes the following international and national construction unions: Insulators and Asbestos Workers; Iron Workers; Boilermakers; Painters; Bricklayers; Plasterers and Cement Masons; Carpenters; Plumbers and Pipe Fitters; Electrical Workers; Roofers; and Sheet Metal Workers. CPWR provides training for many DOE sites across the country.

International Association of Fire Fighters (IAFF)

IAFF represents full-time professional firefighters and paramedics in more than 3,200 affiliates. Its members protect more than 85% of the population in communities throughout the U.S. and Canada. IAFF implements national training programs for all-hazards emergency response and recovery, meeting or exceeding minimum requirements of federal regulations and national industry standards. IAFF provides training at or around many DOE sites across the country.

International Brotherhood of Teamsters (IBT)

Through partnerships with major trucking and rail unions, IBT works with: 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 and chemical waste from DOE facilities; and 4) railroad workers and supervisors involved in the transportation of radioactive and chemical hazardous waste from DOE facilities. IBT delivers training for many DOE sites, bringing in members to their regional training centers across the country.

International Chemical Workers Union Council (ICWUC) Center for Worker Health and Safety Education

The ICWUC Center for Worker Health and Safety Education provides training on the dangers of hazardous materials and waste at nuclear facilities and includes the following consortium partners for the DOE program: International Association of Machinists and Aerospace Workers and the University of Cincinnati. ICWUC primarily trains workers at Hanford, Kansas City, LANL, and Oak Ridge.

International Union of Operating Engineers (IUOE) National Training Fund (NTF)

The workers IUOE represents include 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. IUOE provides training for many DOE sites across the country.

National Partnership for Environmental Training and Education (PETE)

The Community College Consortium for Health and Safety Training (CCCHST) is administered by PETE. There are more than 150 training organizations represented in CCCHST, including colleges and universities, community-based organizations, governmental units, independent training providers, and a union. These groups offer hazardous waste training in most states in the nation. PETE primarily provides training at colleges near Oak Ridge, Pantex, and Savannah River.

United Steelworkers Tony Mazzocchi Center (USW TMC) for Health, Safety, and Environmental Education

USW TMC has established health and safety training programs and has more than 200 national and site-specific trainers who recruit and train workers. Many 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. USW TMC primarily provides training at Hanford, INL, Oak Ridge, Paducah Gaseous Diffusion Plant, and Portsmouth Gaseous Diffusion Plant.

Additionally, LIUNA Training and Education Fund provides some training at DOE sites under the [NIEHS Hazardous Waste Worker Training Program](#). They were previously funded under the NIEHS/DOE Nuclear Worker Training Program.

Trainee and Employer Feedback

USW TMC

One location had a safety committee representative share an example of the utility of 851 training:

"There was a dispute about what level to set the alarms so that they would serve their proper function and alert workers to elevated radiation levels. The alarms were being set at a level that was too high to give adequate warning to the workers. The training received by workers and management on 851 encouraged the group to work together to attain a safe alarm level."

CPWR

Trainee evaluation comments:

"[It was] actually one of the best 8-hour refreshers I've had." - Hazardous Waste Refresher 8-hour course participant

"The instructors were fantastic and extremely helpful. This course is amazing. I learned so many new things. This class was extremely helpful to myself and my job skills." - OSHA General Construction 10-hour course participant

"Great job, very clean presentation and facilitation. I think this will be very helpful. The videos were great." - Safety Orientation for DOE Workers/Foundations for Safety Leadership participant

IUOE NTF

Impact evaluation results from trainees:

Most trainees see themselves as improving in workplace health and safety. 94% of respondents reported that, compared to a year ago, they felt more aware of workplace health and safety issues.

Also, participants report that the training impacts their workplace. Trainees reported that health and safety training:

- Prevented them from performing a task they deemed to be unsafe or unhealthy (59%)
- Helped them to identify an unsafe or unhealthy situation (75%)
- Helped them to know how to take steps to remedy an unsafe or unhealthy situation (75%)

ICWUC

Trainee evaluation comments from HAMMER:

Hazardous Waste Refresher 8-hour course:

"[They were] very knowledgeable instructors who shared personal experiences that improved the course. It was the best 8-hour refresher I have attended"

"This was one of the best 8-hour hazardous waste refresher courses I have attended. And I have gone to 25 of them."

"The practicals (walk-throughs) were nice (leaking drum). I have attended the hazardous waste refresher several times and this is the best version I have attended."

Hazardous Waste 40-hour:

"It was phenomenal how involved and passionate the instructors were. The best class so far hands down!"

IAFF

Trainee evaluation comments on what they found to be the most valuable part of the training:

"The use of the meters and the radiation segment. I feel more confident in my understanding of how to use the meters and know I'm confident if I have to respond to a radiation incident."

"I particularly liked learning about chemical and physical properties to figure out flammability, toxicity, corrosivity, radiological activity, personal protective equipment and how to choose the appropriate meters, as well as establishing a proper decontamination tent."

"The instructors were very positive about the course and what had to be accomplished. They created a very positive learning environment and presented the material in a manner that was job specific and useful."

"Every class I have attended that the IAFF conducted had top notch instructors. This was no exception. All of the instructors were very knowledgeable and kept the students' attention."

PETE

Employer feedback evaluation results from supervisors at CNS Pantex:

As part of the evaluation of the training delivered to Pantex through Amarillo Community College, PETE asks employers for feedback. A total of 37 employer follow-up evaluations from HAZWOPER Refresher courses were completed and received for this course during this reporting period. Based on the responses, the employers view the training that their employees received as extremely beneficial to both the worker and the overall workplace. For example,

- When asked to what extent did your employees' HAZWOPER training benefit the workers, 97% "Agreed" or "Strongly Agreed" that the training helped employees recognize physical and chemical hazards on the job and helped employees during training drills.
- When asked to what extent did your employees' HAZWOPER training benefit the overall workplace, 94% "Agreed" or "Strongly Agreed" that the training helped create a safer workplace through employee recognition of physical and chemical hazards.

Training Highlights

IBT

Building Trainer Capacity Across the Complex: IBT was able to build the capacity of health and safety instructors through several courses this year. For example, they conducted the annual 40-hour Instructor Development Program from April 1-5, 2019, at Teamsters Local 519 in Knoxville, Tennessee, and taught a condensed Modular Emergency Response Radiological Transportation Training Train-the-Trainer course at Northwest Rail Institute in Vancouver, Washington, for railroad safety trainers. These training courses provided the instructors with additional knowledge and tools that they can use to improve their teaching abilities in the classroom. The new instructors benefitted from learning effective teaching techniques, developing new training skills, and being mentored by other trainers.

ICWUC

Paper published on Worker Trainers as Workplace Experts: The paper describes how ICWUC peer trainers at DOE facilities not only teach health and safety in the classroom setting but also serve informally as important peer mentors on the shop floor as well. They are often the “go-to” people, for both hourly workers and managers, when there is a health or safety question — be it about tank vapors or personal protective equipment, confined space, or specific chemicals. These worker trainers actively use health and safety resource materials, both hard copy and online.

Morawetz JS, Frazee T, Ruttenberg, R. 2019. [Worker trainers as workplace experts: how worker trainers enhance safety and health at Department of Energy facilities](#). Labor Studies Journal; doi: 10.1177/0160449X19868771 [Online 9 Aug. 2019]

CPWR

Piloting of the Safety Orientation for DOE Workers course: CPWR develop a standardized, one-day Safety Orientation for DOE Workers course. The course was developed by SMEs familiar with the DOE policies and procedures in combination with instructional designers experienced in developing training curriculum for the construction industry. The Safety Orientation course focuses on worker safety and health within the context of existing DOE policies and procedures, such as the Integrated Safety Management System and DOE’s 10 CFR 851 Worker Safety and Health Program. These policies are the fundamental underpinnings for a positive safety culture across the complex that drive worker safety and health protections at each DOE site. A final pilot course was conducted in Dec. 2019, at the URS/CH2M Oak Ridge LLC (UCOR) facility in Oak Ridge, Tennessee. Based on feedback from participants and course evaluators, final changes were made and the training course has been added to CPWR’s curriculum catalog.

CPWR has worked in close collaboration with LTWG, EFCOG, and DOE’s NTC in promoting the program across the DOE complex and incorporating it within the NTC reciprocity process.

IUOE NTF

Native American Training: IUOE NTF is training tribal members on the Nez Perce reservation. This assists the tribe with their tribe-approved OSHA oversight and allows tribal members to learn marketable skills that can support activities at the Hanford site or INL. In Feb. 2019, the NTF conducted a 40-hour HAZWOPER course for 18 students in Lapwai, Idaho, on the Nez Perce reservation.

Training for Environmental Management Consolidated Business Center (EMCBC): In July 2019, IUOE NTF also conducted a 40-hour HAZWOPER course for DOE’s EMCBC field staff in Cincinnati. IUOE was able to use the training facilities of ICWUC in downtown Cincinnati. NIEHS hopes to continue providing training opportunities for EMCBC staff through grantee training.

USW TMC

Native American Training: The TMC continues to make progress in establishing a dynamic working relationship with Native American tribes in the Northwest, including the Confederated Tribes and Bands of the Yakama Nation and the Confederated Tribes of the Umatilla Indian Reservation. Spring 2019 proved to be momentous in expanding the health and safety infrastructure capacities that were achieved in 2018. Four separate trainings were held on tribal lands, each yielding a unique result. These classes included an OSHA 10-hour class in General Industry, delivered by two Yakama TMC trainers. The training was organized jointly by the Tribal Employments Rights Office, and the TMC. Both OSHA 510 (Standards for Construction Industry) and 500 (Trainer Course for Construction) were delivered. Some attendees had enough prerequisites that, upon completing both classes, they became eligible to be authorized OSHA Construction Outreach Trainers, sponsored by the Pacific Northwest OSHA Education Center, Region 10. For DOE sites in the area (Hanford and INL), this increases the training capacity in the region and allows tribal members to learn marketable skills that can support related construction and cleanup activities.



40-hour HAZWOPER training at Safety Fest, provided by ICWUC.

IAFF

Wildland-Urban Interface Training: IAFF has developed a Wildland-Urban Interface training program to improve urban interface firefighting training, tactics, and response to reduce fatalities, injuries, and unintended outcomes. The course is designed to teach firefighters and company officers a consistent basic understanding of safety, command and control, and strategy and tactics to use when defending structures from wildland fire or suppressing a wildland fire in and around structures. The program includes a web-based component and two days of hands-on field instruction. At the conclusion of the program, participants will have the necessary skills needed to safely operate in the Urban Interface Environment and successfully defend homes while suppressing interface fires. IAFF has begun teaching this course under the DOE grant, responsive to sites that would face the Wildland Urban Interface hazards.

Clearinghouse Activities

Clearinghouse Overview

The **National Clearinghouse for Worker Safety and Health Training** (Clearinghouse), operated by MDB, Inc., and directed by Deborah Weinstock, provides technical support to NIEHS grantees that conduct hazardous waste worker training for the DOE weapons complex. The Clearinghouse regularly features articles about chemical and radiological issues around the complex in its electronic newsletter, the **Worker Training Program Weekly e-Newsbrief**, which is distributed to more than 1,500 subscribers. Newsbrief articles cover critical issues such as cleanup completion at sites, include links to recently released DOE reports, and feature DOE health and safety meetings in the Calendar of Events section.

The Clearinghouse website houses numerous reports on environmental, health, and safety topics specifically related to DOE. The website contains many resources and a database of **health and safety training curricula** developed for DOE workers by NIEHS DOE awardees.

Evaluation of NIEHS/DOE Nuclear Worker Training Program

Following a request by the WTP to examine the evaluation methods of all the grantee programs in 2018, the Clearinghouse completed an evaluation of the NIEHS/DOE Nuclear Worker Training Program that assesses evaluation methods, challenges, and successes of grantees based on progress and evaluation reports submitted by the awardees for training years 2015-2018. This **report** provides a synopsis of evaluation methods used across the NIEHS-DOE Program, a summary of key findings from grantee evaluations, and recommendations for improving evaluation efforts across the program.

Participation in the Labor Training Working Group (LTWG)

Weinstock participated in the LTWG meetings. Two of these meetings were held during the 2018-2019 program year (Dec. 4-6, 2018, and April 30-May 1, 2019).

HAMMER Steering Committee Meetings

Weinstock attended the HAMMER Steering Committee and Medical Surveillance Subcommittee meetings in Richland, Washington, on Oct. 22-23, 2018 and in Washington, D.C., on April 10-11, 2019.

WTP/DOE Annual Report

The Clearinghouse provides the graphic design for the annual interagency report submitted by WTP to DOE and designed the NIEHS/DOE Nuclear Worker Training Program fact sheet.

Background of the NIEHS/DOE Program Partnership

WTP Authorization

Section 126(g) of the Superfund Amendments and Reauthorization Act of 1986 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. Congress assigned responsibility for administering this program to NIEHS.

Defense Authorization

Section 3131(a)(1)(A)-(B) of the National Defense Authorization Act for fiscal years 1992 and 1993 (42 USC 7274(d)) authorized the secretary of energy to award grants “to provide training and education to persons who are or may be engaged in hazardous substance response or emergency at Department of Energy nuclear weapons facilities; and to develop curricula for such training and education.” The secretary was further authorized in section 3131(a)(2)(A)-(B) to award grants to nonprofit 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.”

NIEHS/DOE Agreement

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.

OSHA Regulations

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 the Comprehensive Environmental Response, Compensation, and Liability Act and respective DOE directives to meet the requirements of OSHA regulation 20 CFR 1910.120 and the Environmental Protection Agency HAZWOPER training requirements (40 CFR 300.150).

For more information on the NIEHS/DOE Nuclear Worker Training Program, visit https://www.niehs.nih.gov/careers/hazmat/training_program_areas/doe/index.cfm.

Data Tables



Workers at Argonne National Laboratory prepare shipments of transuranic waste for disposal at the Waste Isolation Pilot Plant in New Mexico. (Photo courtesy of DOE)

Total Training by NIEHS Grantee, Sept. 1, 2018 – Aug. 31, 2019

Grantee	Courses Completed	Workers Trained	Contact Hours
CPWR - The Center for Construction Research and Training	363	5,643	92,894
International Association of Fire Fighters	37	805	36,560
International Brotherhood of Teamsters	255	3,722	39,358
International Chemical Workers Union Council	188	2,870	25,980
International Union of Operating Engineers	340	7,126	83,235
Partnership for Environmental Technology Education	278	3,831	26,445
United Steelworkers Tony Mazzocchi Center	331	5,708	63,572
Totals:	1,792	29,705	368,044

Courses Provided through the DOE Program by NIEHS Grantees, Sept. 1, 2018 – Aug. 31, 2019

Course Category	Course Name	Courses Completed	Workers Trained	Contact Hours
Asbestos Abatement	Asbestos Abatement Supervisor	14	233	9,320
	Asbestos Abatement Supervisor Refresher	65	899	7,192
	Asbestos Abatement Worker Basic	6	79	2,528
	Asbestos Abatement Worker Refresher	32	377	3,016
	Asbestos Inspector Refresher	5	45	380
	Asbestos Management Planner	2	24	192
	Asbestos Operations & Maintenance Refresher	15	194	2,008
	Asbestos Abatement Total		139	1,851
Confined Space	Confined Space	93	1,265	17,620
	Confined Space Total	93	1,265	17,620
Construction Safety	Trench Protection Principles of Pipe Laying	3	46	704
	Construction Safety Total	3	46	704
Disaster Recovery	15-hour Disaster Site Worker	2	12	180
	Disaster Site Worker Train-the-Trainer	1	3	120
	Disaster Recovery Total	3	15	300
Drug and Substance Awareness/Safety	Drug Response Safety Awareness	1	21	840
	Drug and Substance Awareness/Safety Total	1	21	840
Electrical Safety	Basic Electrical Training	1	3	48
	Electrical Safety	11	170	1624
	Lockout/Tagout	1	25	200
	Electrical Safety Total	13	198	1872
Emergency Response	Emergency Response Basic Operations	1	3	72
	Emergency Response for Specific Hazards	80	1,699	5,277
	Emergency Response Incident Command	1	17	136
	Emergency Response Refresher	1	29	232
	Emergency Response/HazMat Technician	23	537	25,840
	Hospital Emergency Room Operations	1	17	136
	Emergency Response Total	107	2,302	31,693

Course Category	Course Name	Courses Completed	Workers Trained	Contact Hours
Equipment Safety	Fall Protection	16	269	3,300
	Rigging and Signaling	25	238	2,560
	Scaffold	3	30	240
	Equipment Safety Total	44	537	6,100
Hazmat Transport	Commercial Driver's License Class B	1	4	256
	HazMat Transportation Awareness	2	33	528
	HazMat Transporter/Basic	20	388	3,068
	Load Securement	30	318	2,544
	Hazmat Transport Total	53	743	6,396
OSHA Outreach	General Construction Safety	122	1,967	44,774
	General Industry Safety	85	1,586	18,968
	OSHA Outreach Total	207	3,553	63,742
Other	Training Methods/Trainer Development	32	513	5,710
	Work Zone Safety	1	14	112
	Other Total	33	527	5,822
Personal Protective Equipment	Respiratory Protection	79	1,550	12,880
	Personal Protective Equipment Total	79	1,550	12,880
Radiological	Radiation Protection Worker/Basic	6	73	1,126
	Radiation Worker II Training	63	662	5,250
	Radiation Worker Refresher	11	151	1,208
	Radiological Total	80	886	7,584
RCRA/Industrial	Fire Watch	1	35	280
	Industrial Emergency Responder Specialist	1	22	880
	Process Safety Management	4	38	304
	RCRA TSD Site Worker	26	322	7,508
	RCRA/Industrial Total	32	417	8,972
Refresher - Site Worker/Superfund Cleanup	Site Supervisor Refresher	6	85	680
	Site Worker Refresher	656	13,067	104,536
	Refresher - Site Worker/Superfund Cleanup Total	662	13,152	105,216

Course Category	Course Name	Courses Completed	Workers Trained	Contact Hours
Safety Culture	Safety Culture/Safety Leadership	3	40	280
	Safety Culture Total	3	40	280
Site Worker/ Superfund Cleanup	Basic Superfund Site Worker	126	1,689	63,192
	General Hazardous Waste Train-the-Trainer	1	13	520
	Hazardous Waste Operations	7	86	1,268
	HazMat Chemistry	3	36	288
	Site Worker Train-the-Trainer	1	14	1,120
	Superfund Bridge Training	28	100	2,320
	Site Worker/Superfund Cleanup Total	166	1,938	68,708
Triage/First Aid	Adult CPR	70	616	4,351
	Basic First Aid	4	48	328
	Triage/First Aid Total	74	664	4,679
Grand Total		1,792	29,705	368,044

Total NIEHS Training by DOE Site, Sept. 1, 2018 – Aug. 31, 2019

Site Name	Courses Completed	Course Percentage	Workers Trained	Workers Percentage	Contact Hours	Contact Hours Percentage
Ames Laboratory	22	1%	385	1%	3,424	1%
Argonne East	53	3%	1,003	3%	29,072	8%
Bettis Plant	1	0%	9	0%	72	0%
Brookhaven National Laboratory	33	2%	581	2%	14,668	4%
Department of Energy - Headquarters	4	0%	71	0%	2,544	1%
EM Consolidated Business Center	1	0%	4	0%	160	0%
Elk River Reactor	39	2%	811	3%	8,440	2%
Fermi National Accelerator Laboratory	19	1%	837	3%	8,701	2%
Grand Junction	1	0%	25	0%	2,000	1%
Hanford Waste Vitrification Plant	381	21%	6,788	23%	72,854	20%
Idaho National Engineering Laboratory	43	2%	598	2%	5,624	2%
Kansas City Plant	30	2%	197	1%	4,888	1%
Lawrence Berkeley	2	0%	34	0%	1,072	0%
Lawrence Livermore National Laboratory	22	1%	478	2%	7,392	2%
Los Alamos National Laboratory	124	7%	2,248	8%	19,744	5%
Mound Plant	3	0%	56	0%	2,240	1%
Multiple DOE sites	56	3%	887	3%	18,166	5%
National Energy Technology Laboratory	12	1%	285	1%	5,608	2%
Nevada Test Site	88	5%	1,159	4%	12,478	3%
Nuclear Fuel Services	14	1%	286	1%	3,584	1%
Oak Ridge Field Office	301	17%	4,307	14%	49,694	13%
Paducah Gaseous Diffusion Plant	55	3%	809	3%	9,352	3%
Pantex Plant	85	5%	1,294	4%	13,810	4%
Pinellas Plant	8	0%	78	0%	1,844	1%
Portsmouth Gaseous Diffusion Plant	100	6%	1,521	5%	19,594	5%
Princeton Plasma Physics Laboratory	49	3%	866	3%	11,388	3%
Santa Susana Field Laboratory	32	2%	394	1%	7,750	2%
Savannah River Site	120	7%	2,175	7%	12,325	3%
Separations Process Research Unit at Knolls Lab	16	1%	193	1%	2,296	1%
St. Louis Airport Site	8	0%	145	0%	4,024	1%
Weldon Springs	49	3%	900	3%	9,790	3%
West Valley Demonstration Project	24	1%	290	1%	3,678	1%
Totals	1,795	100%	29,714	100%	368,276	100%

10-Year Training Summary: NIEHS/DOE Nuclear Worker Training Program, 2010-2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of Grantees	8	8	8	8	8	8	7	7	7	7
Courses Completed	2,188	1,987	1,963	1,797	1,900	1,830	1,927	2,066	1,678	1,792
Workers Trained	35,329	31,238	29,842	27,755	28,334	26,396	28,162	32,202	27,739	29,705
Contact Hours	523,287	405,556	365,083	310,369	311,412	323,316	368,680	389,786	343,203	368,044
Dollars Awarded	\$9,670,474	\$9,577,000	\$9,599,741	\$8,760,715	\$8,760,685	\$9,543,426	\$8,827,223	\$8,852,400	\$9,425,498	\$9,346,048
Cost Per Contact Hour	\$18.48	\$23.61	\$26.29	\$28.26	\$28.13	\$29.52	\$23.94	\$22.71	\$27.46	\$25.39

Summary of NIEHS Training at DOE Sites, 1994-2019

Training Year	Total Courses	Total Workers	Total Contact Hours
1994	486	7,107	184,604
1995	1,091	13,566	249,704
1996	1,199	18,642	290,938
1997	1,277	18,394	244,212
1998	983	15,048	217,666
1999	922	14,049	202,997
2000	1,152	15,860	218,087
2001	1,379	18,833	245,436
2002	1,954	25,399	302,723
2003	1,959	23,187	303,633
2004	2,367	29,240	374,957
2005	1,961	25,442	329,840
2006	2,044	26,365	325,533
2007	2,283	34,074	400,491
2008	2,225	33,702	414,746
2009	2,265	36,266	530,271
2010	2,188	35,329	523,287
2011	1,987	31,238	405,556
2012	1,963	29,842	365,083
2013	1,797	27,755	310,369
2014	1,900	28,334	311,412
2015	1,830	26,396	323,316
2016	1,927	28,162	368,680
2017	2,066	32,202	389,786
2018	1,678	27,739	343,203
2019	1,792	29,705	368,044
Totals:	44,669	651,888	8,544,902

Projected Versus Actual Training, Sept. 1, 2018 – Aug. 31, 2019

Grantee	2019 Projected Courses	2019 Courses Completed	Percentage of projected courses that were delivered	2019 Projected Workers to be Trained	2019 Workers Trained	Percentage of projected workers that were trained
CPWR - The Center for Construction Research and Training	184	363	197%	3139	5643	180%
International Association of Fire Fighters	18	37	206%	450	805	179%
International Brotherhood of Teamsters	171	255	149%	2,501	3,722	149%
International Chemical Workers Union	205	188	92%	2,806	2,870	102%
International Union of Operating Engineers	396	340	86%	6,340	7,126	112%
Partnership for Environmental Technology Education	250	278	111%	2,500	3,831	153%
United Steelworkers of America	298	331	111%	5,800	5,708	98%
Totals:	1,522	1,792		23,536	29,705	

Projected Training Courses for Sept. 1, 2020 – Aug. 31, 2021

Course Name	Number of Courses Projected	Total Course Hours Projected
15-hour Disaster Site Worker	2	30
Adult CPR	44	256
Advanced Training Technology Train-the-Trainer	1	40
Asbestos Abatement Supervisor	4	160
Asbestos Abatement Supervisor Refresher	12	88
Asbestos Abatement Worker Basic	11	232
Asbestos Abatement Worker Refresher	20	160
Basic Superfund Site Worker	134	5,232
Confined Space	60	684
Disaster Site Worker Train-the-Trainer	2	80
Electrical Safety	4	32
Emergency Response Awareness	60	120

Course Name	Number of Courses Projected	Total Course Hours Projected
Emergency Response Train-the-Trainer	1	40
Emergency Response//HazMat Technician	8	640
Fall Protection	35	136
Final Rule Awareness	10	40
General Construction Safety	92	1,858
General Hazardous Waste Train-the-Trainer	1	40
General Industry Safety	54	818
HazMat Transportation Awareness	10	120
HazMat Transporter/Basic	30	60
Industrial Emergency Response Awareness	30	60
Lead Abatement Worker Basic	1	32
Lead Abatement Worker Refresher	1	8
Load Securement	17	136
Process Safety Management	24	216
Radiation Worker II Training	23	232
Radiation Worker Refresher	16	138
RCRA TSD Site Worker	19	456
Respiratory Protection	99	580
Rigging and Signaling	27	336
Safety Culture/Safety Leadership	4	64
Scaffold	4	48
Silica Hazards	1	32
Site Supervisor Refresher	4	32
Site Worker Refresher	594	4,759
Site Worker Train-the-Trainer	1	80
Superfund Bridge Training	27	632
Training Methods/Trainer Development	22	668
Totals:	1,509	19,375



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