

NIEHS/DOE Worker Training Program
Annual Progress Report for FY 1996

Based on the September 24, 1992 Interagency Agreement between the National Institute of Environmental Health Sciences (NIEHS) and the US Department of Energy (DOE), a worker safety and health training program was initiated as authorized under Section 3131 of the National Defense Authorization Act of 1992-93. A continuation of the National Defense Authorization Act for FY 96 is provided in Appendix 1. On July 1, 1993, NIEHS made the first awards for conducting needs assessment and direct training of DOE-related environmental restoration and waste management workers and site emergency responders. This progress report represents a summary of activities conducted between September 1, 1995 and August 31, 1996.

Since the initiation of the Superfund Worker Training Grants Program in 1987, the National Institute of Environmental Health Sciences (NIEHS) has developed a strong network of non-profit organizations that are committed to protecting workers and their communities by delivering high-quality, peer-reviewed safety and health curriculum to target populations of hazardous waste workers and emergency responders.

The worker training program was originally authorized for five years (FY 87-91) by Congress with the passage of Section 126 of the Superfund Amendments and Reauthorization Act of 1986 (SARA). The model program encourages innovation for training difficult-to-reach populations by addressing issues such as literacy, appropriate adult education techniques, training quality improvement and other areas unaddressed directly by the market place. The program enhances rather than replaces private sector training responsibility by demonstrating new and cost-effective training techniques and materials.

During the past year, the program has experienced a significant increase in the delivery of training across the DOE complex. Between September 1, 1995 and August 31, 1996, the NIEHS/DOE Worker Training Awardees presented 1,220 courses to 19,196 workers, which resulted in 297,460 hours of safety and health training with an average cost per contact hour of \$32.67.

Over the first three years of this program, the awardees have presented 2,839 safety and health training courses which reached 40,250 workers and resulted in 732,083 contact hours of training at an average cost per contact hour of \$39.89 (See Appendix 4). During the past program year, almost 70% of the training has been focused on delivering CERCLA cleanup worker training, which comprises 13,035 workers who received basic 40 hour training or refresher courses out of the annual total of 19,196 workers reached by the program (See Appendix 5). Unlike the previous two years when the greatest amount of training took place at the Oak Ridge site, the most workers trained (5,294) and the most contact hours (66,929) of training were recorded at the Hanford site in Washington state (See Appendix 6).

1) Continuation of a peer-reviewed Worker Training awards for training of hazardous waste workers, emergency responders and minority workers --- After the completion of the initial program year on the projected five year long cooperative agreements to support worker training activities, the 20 organizations submitted progress reports, training data and year two budget requests and training plans on July 1, 1996. Budget adjustments in the proposed funding plan have been based on the training needs of high risk populations, national geographic coverage in training availability and the published program priorities for training support. Because of reductions in available funds through the appropriations process, funding to support the DOE/NIEHS Worker Training awardees was reduced by an average of 8.6% for the coming year. A summary of DOE/NIEHS Worker Training Awards for FY 96 are included in Appendix 2.

2) Completion of the first national Labor Market Study of Hazardous Waste Workers and Emergency Responders --- In conjunction with the EPA-Superfund Labor Task Force and EPA-OSWER staff, NIEHS has developed a study protocol to capture site specific, environmental restoration employment data and describe the workforce which is involved in Superfund site cleanup projects. Through a supplemental award to the George Meany Center for Labor Studies, Ruttenberg & Associates has implemented the study design to examine specific labor markets where Superfund cleanups have already been carried out.

At least three times as many workers need to be trained at hazardous waste sites as would be indicated by just the total hours of labor required. This is because of the specialization of trades on a site and the need to hire specific individuals to perform specific tasks, and sometimes tasks of relatively brief duration. Using employment projections from the study, remediation job demand is expected to grow by 60 percent, or almost 300,000 jobs, from the 1990-1995 five year period through the five year period 1995-2000 -- from 447,000 to 740,000. Demand for jobs continues to grow by nearly another 300,000 in the 2000-2005 time interval. During this peak period nearly 2 million jobs will require hazardous waste workers. As many as 7.5 million more workers will require training -- either basic or refresher. The Final Report, which examines over 20,000,000 hours of site specific Superfund remediation work, has been completed and reviewed by EPA, DOE, NIEHS and a committee of outside peer reviewers (See Attachment 1).

3) National Training Evaluation Project --- During March 1996, NIEHS sponsored the first national conference on **Measuring and Evaluating the Outcomes of Hazardous Waste Worker Training** to examine the methods which have been developed by various programs to document the effectiveness of training activities. Drawing on public health experts in the evaluation field, awardee representatives spent two days exploring the methodological issues that underlie the collection of program effectiveness data. Breakout sessions examined issues from trainee comprehension of curricula to outcome results in the workplace after training had taken place. The significant resources that have been allocated for NIEHS training awards require that recipients demonstrate not only effective implementation, but also positive impacts on the health and safety of trained workers. The findings reported at the technical workshop clearly demonstrate that NIEHS grantees have responded to the challenge for program evaluation and have documented monumental changes in the health and safety of workers and communities across the United States.

After the technical workshop, an ongoing committee has been established to publish a manual on program evaluation to benefit other organizations which grapple with safety and health training evaluation issues. As a summer project, a draft manual has been completed, along with contributions from other invited authors, which will be edited into a final product during the Spring of 1997.

4) Process to update training-needs assessment --- NIEHS has initiated a process to update the needs assessment for clean-up related health and safety training in the DOE complex to continue to assure that we are meeting the training needs. Our awardees individually report to us changing DOE-complex training needs as they continue to monitor DOE mission changes and accordingly make training program corrections. We propose documenting the individual assessments through an update of the comprehensive needs assessment completed in the first year of the program. The results will help justify the FY 1998 budget request and can be done at a reasonable cost as a part of the next round of awards on September 1, 1997. Instruments to gather updated needs assessment data have been distributed and collected from all of the Worker Training awardees. Each of them have conducted two year assessments for future training needs at all of the sites where they either have or plan to conduct training activities. A complete report summarizing this data will be completed during March 1997 by the NIEHS Clearinghouse contractor, Ruth Ruttenberg & Associates (RRA).

5) Continued operation and support for a national clearinghouse on hazardous waste worker training --- The Clearinghouse functions as a link between awardees of NIEHS Worker Training cooperative agreements and other members of the general public who are concerned with quality worker health and safety training. Tasks of the Clearinghouse include, but are not limited to, the distribution of curricula, research work to support the development of the NIEHS Worker Training Program, cataloguing of training materials, and other information pertaining to worker health and safety training for hazardous materials, waste operations, and emergency response, as well as other related activities. The Clearinghouse is the information exchange and dissemination mechanism for 20 worker training programs whose support from the Environmental Protection Agency (EPA) and the Department of Energy (DOE) is intended to set a high standard for health and safety training to protect workers in the burgeoning environmental technology sector. A new initiative for the Clearinghouse this past year has been the development of a World Wide Web page of hazardous waste worker materials, including a summary of all curricula produced by the program, all technical workshop reports and the monthly Newsbrief in a download-able format. The Clearinghouse web address is: <<http://www.niehs.nih.gov/clear.htm>>. A summary of Clearinghouse activities is provided in Appendix 3.

6) Completion of External Program Review --- In May 1995, NIEHS established a special External Panel of outside peer reviewers with a specific charge: 1) to review and evaluate the overall NIEHS Superfund Worker Training Program taking into consideration program quality, output, productivity and impact, and 2) to make any recommendations considered appropriate by the Panel with regard to future directions for the NIEHS program. The Panel focused on the EPA component of the overall program. The Panel has met twice at NIEHS, in June and

October, 1995. During this process, the Panel reviewed extensive materials on the worker training program, analyzed the program in depth, and developed its findings, recommendations and conclusions. This evaluation was conducted by an external expert panel at the request of Dr. Olden, Director, NIEHS.

The final report contains the Panel's detailed program review, conclusions and recommendations. The Panel concluded that the NIEHS program fulfills the legislative mandate and is providing much needed high quality training for workers managing hazardous wastes, doing hazardous waste clean-up and responding to spills of hazardous materials. The NIEHS training grant program is impacting worker health and safety through primary prevention and serves as a model for effective worker health and safety training. The Panel recommends that the NIEHS program receive continued funding and support. Several additional recommendations concerning further development of the program are contained in the report. A final report from the External Review Committee was completed in December 1995 and is included as Attachment 2.

7) Publication of Final Document on Safety and Health Concerns of Emerging Environmental Restoration Technology --- Two technical workshops were held during the last two years to develop approaches to anticipating occupational hazards associated with emerging cleanup technologies. The goal of the workshops was to develop guidance for developers of cleanup technologies to identify potential workplace hazards. The DOE Technology Development Office, the DOE Environmental Health and Safety Office and the EPA Technology Innovation Office actively participated with NIEHS awardees in this process. The results included recommendations for Technology Safety Data Sheets to catalog workplace hazards as a technology develops. In addition, the workshops included criteria for implementing Emergency Response Plans which would prepare developers and users of emerging technologies for emergencies that might occur at each stage of its development.

In November 1995, a second workshop on innovative technology was held during which participants reviewed the draft and provided comments to produce the final guidance on the integration of safety and health into the design of technologies. This guidance document, which is entitled *Anticipating Occupational Hazards of Cleanup Technology: Remembering the Worker*, has been jointly published during October 1996 with the Assistant Secretary for Environment, Safety and Health of the U.S. Department of Energy and distributed to remediation technology developers throughout the country. A copy of this report is included as Attachment 3.

8) Streamlining Pilots for DOE HAZWOPER Training --- As a joint project with DOE-EH and DOE-EM, the NIEHS Worker Training Awardees undertook a national project to streamline the modules which make up the basic CERCLA cleanup worker training course. This project grew out of the concern that there were redundancies and repetition in the course which could be more efficiently reduced, without losing the high quality of the overall course content. Pilots of course modules were prepared by different awardees and presented at the Hanford site through

the HAMMER program. This program is still under development and review by the DOE Richland area office.

9) Response to Richland Area Office (DOE RL) Audit --- NIEHS was pleased to note that the overall conclusion of the draft report from the Richland Operations Office's independent review is that the training conducted by the NIEHS grantees at HAMMER is "substantially compliant with 29CFR1910.120." This conclusion is strongly consistent with NIEHS' own conclusions from comprehensive review of these programs as conducted by nationally recognized, well experienced professionals, administrative reports and other evaluative processes aimed at bettering training. It is also consistent with the 1991 Congressionally-mandated DOE report that the NIEHS training program is suitable for training workers at DOE sites. The program has consistently improved since then and we intend to see that it continues to be refined. As a sister Federal agency, we join with the U.S. Department of Energy in the conviction that this high quality training program contributes significantly toward the public policy goal of preventing work-related injury and illness at DOE sites as well as throughout the nation.

NIEHS disagreed with the audit's conclusion that there is a lack of review of the program. Each awardee in this national program has in place quality assurance programs as part of their competitive applications. Each awardee conducts comprehensive reviews at many levels, keeps records and produces reports as self-assessments based on established, pre-existing peer-reviewed criteria. In addition, NIEHS performs scheduled site reviews of the national programs conducted by independent experts in occupational safety and health training which DOE staff have been invited to observe and participate. NIEHS recommends further communication on this issue with DOE Headquarters and field offices and are confident that we will find it readily resolved.

Summary

In administering the Hazardous Waste Worker Training Program through an Interagency Agreement with the U.S. Department of Energy (DOE), the NIEHS ensures that the traditional peer review process of the National Institutes of Health (NIH) provides the essential framework for the oversight of grant application reviews, and guidance of the program with grants management activities and ongoing program administration. Technical experts in toxicology, industrial hygiene, labor education and hazardous waste management from both the public and private sectors have played an ongoing role in assuring that NIEHS supported programs demonstrate high technical merit and adhere to stringent standards for quality control through periodic site reviews and an ongoing peer review process.

Based on the agency's program experience over the past eight years, the NIEHS has decided to continue to use cooperative agreements as the appropriate mechanism for making awards to non-profit training organizations for fiscal years 1995-99. Because of the substantial programmatic involvement by NIEHS staff to ensure the consistency, appropriateness and technical reliability of funded training programs, the use of cooperative agreements appear to be a more suitable

instrument for supporting extramural training of hazardous waste workers and emergency responders and assuring the delivery of high quality safety and health programs to high-risk populations.

Appendix 1

NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 1996

[[Page 110 STAT. 186]]

Public Law 104-106
104th Congress

An Act

To authorize appropriations for fiscal year 1996 for military activities of the Department of Defense, for military construction, and for defense activities of the Department of Energy, to prescribe personnel strengths for such fiscal year for the Armed Forces, to reform acquisition laws and information technology management of the Federal Government, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ``National Defense Authorization Act for Fiscal Year 1996."'

SEC. 3143. PROTECTION OF WORKERS AT NUCLEAR WEAPONS FACILITIES.

Of the funds authorized to be appropriated to the Department of Energy under section 3102, \$10,000,000 shall be available to carry out activities authorized under section 3131 of the National Defense Authorization Act for Fiscal Years 1992 and 1993 (Public Law 102-190; 105 Stat. 1571; 42 U.S.C. 7274d), relating to worker protection at nuclear weapons facilities.

Appendix 2:
Summary of DOE/NIEHS Worker Training Awards for FY 1996

1) United Brotherhood of Carpenters --- The United Brotherhood of Carpenters (UBC) Health and Safety Fund has training components for the EPA Hazardous Waste Worker Training Program (HWWTP), the DOE HWWTP and the EPA Minority Worker Training Program (MWTP). The target population are members of the five participating consortium International Unions, or union training funds. These unions are: the United Brotherhood of Carpenters and Joiners (UBC); the Ironworkers National Training Fund (IW); the Painters and Allied Trades Labor-Management Fund (PAT); the Sheetmetal Workers Training Fund (SW); and the Operative Plasterers and Cement Masons Union (OPC). All of these unions perform construction and general industry work, as defined by OSHA, on sites containing hazardous materials, or on sites where HAZMAT operations are present or planned. These five unions represent 35% of the organized construction workers in the United States and perform over 50% of all the construction work on remedial sites. The UBC consortium plans to identify 6,120 journeymen and the target populations as defined are appropriate and their access to them is evident.

2) Laborers/AGC --- This proposal from the Laborers-AGC (L-AGC) and the International Brotherhood of Teamsters (IBT) represents a new joint effort. This application includes proposals for an EPA Hazardous Waste Worker Training Program (HWWTP), a DOE HWWTP and an EPA Minority Worker Training Program (MWTP). The proposals for the EPA and DOE HWWTP include a joint venture between the Laborers-AGC (L-AGC) and the IBT. In regard to their target populations, L-AGC and IBT members are central to EPA superfund clean up work in this country. They have demonstrated the need for trained environmental workers and their needs assessment is outstanding. L/AGC and IBT are proposing special outreach efforts to train undeserved worker groups. This includes efforts with Native Americans, continued instruction in Spanish, and a new minority worker initiative.

3) International Chemical Workers Union --- ICWU, in cooperation with United Steelworkers, the University of Cincinnati and the Greater Cincinnati Occupational Health Center was first awarded a training grant from NIEHS in 1987. In 1990-92 four additional unions were added and two additional regional training centers began. This project proposes to train over the next five years: 2,900 members at the primary Cincinnati Center; 1,000 members at five regional facilities (adding three new facilities); develop members of the Coalition of Black Trade Unions (CBTU) as trainers, and expand the existing train-the-trainers program to meet increased field training programs which will reach an additional 12,500 workers over five years. To date, corporations at 90 sites have sponsored training by the Center. Extensive evaluation efforts have been conducted and will be continued and expanded. The proposed expansion of the program includes a partnership with the Coalition of Black Trade Unionists (CBTU), three new regional

facilities to train workers, and to initiate an annual trainers conference with trainers from the 6 unions.

4) International Union of Operating Engineers --- This application from the International Union of Operating Engineers (IUOE) includes proposals for an EPA Hazardous Waste Worker Training Program (HWWTP) and a DOE HWWTP. IUOE has developed a training plan to provide hazardous materials health and safety training to its membership, in particular the Hoisting and Portable (H&P) engineers and Stationary Engineers. They plan to expand and administer their on-going training effort to ensure that their membership who could work in hazardous waste cleanup have the skills to recognize and control hazards.

5) Alice Hamilton Consortium --- This application includes proposals for an EPA Hazardous Waste Worker Training Program (HWWTP), a DOE HWWTP and an EPA Minority Worker Training Program (MWTP). The Alice Hamilton Consortium includes the Alice Hamilton Occupational Health Center (AHOHC), four local Committees on Occupational Safety and Health (COSH groups), six international unions who represent primarily construction workers in industries that generate and otherwise have to handle hazardous materials, and two universities. The Department of Health Education at University of Maryland will evaluate the project and the Howard University School of Social Work will help provide access to minority populations. COSH groups are independent local organizations typically including representatives of workers, health and safety professionals, and others. The purpose of this application is to reach members of the represented unions and others to provide awareness level and operations level training.

6) Oil, Chemical and Atomic Workers Union --- This application from the Oil Chemical and Atomic Workers Union (OCAW) includes proposals for an EPA Hazardous Waste Worker Training Program (HWWTP), a DOE HWWTP and a DOT HWWTP. Specific aims of this proposal are to "raise the standard of safety and health training throughout the petrochemical and nuclear industries." for their members; to insure their members receive the best possible training, and by creating a worker-to-worker training program conceived, designed, and implemented by the union's membership, to foster a "culture of safety." They seek continued funding for the Hazardous Waste Operations and Emergency Response Training Program in conjunction with the Labor Institute and the Work Environment Program at University of Massachusetts, Lowell.

7) International Association of Firefighters --- This application from the International Association of Fire Fighters (IAFF) includes proposals for an EPA Hazardous Waste Worker Training Program (HWWTP), a DOE HWWTP and a DOT HWWTP. The International Association of Fire Fighters (IAFF) proposes to disseminate training and evaluation materials, institute a train-the-trainer program where feasible and to train fire fighters directly when no qualified instructors are available. IAFF represents 85% of career fire service personnel in USA and Canada. They have provided training materials and direct training in hazardous materials emergency response since 1987. Their goals in this program are to: 1) determine which communities need the training; 2) train the trainers where possible (approximately 120

instructors will be trained under this program), and 3) conduct direct training (300 first responders 100 emergency medical technicians and paramedics, and 60 hazmat technicians each year).

8) University of Medicine and Dentistry of New Jersey --- This application from the New Jersey/New York Hazardous Materials Worker Training Center includes proposals for an EPA Hazardous Waste Worker Training Program (HWWTP), a DOE HWWTP, and an EPA Minority Worker Training Program (MWTP). The New Jersey/New York Hazardous Materials Worker Training Center has been funded by NIEHS since 1987. The Center members include the University of Dentistry and Medicine of New Jersey, Hunter College, New Jersey Department of Labor, New Jersey State Police, New York Committee for Occupational Safety and Health, New York Carpenters Labor Technical College, and the University of Buffalo. The applicant proposes to train 13,500 workers in the first year who are involved in hazardous waste site investigation or clean-up, emergency response, and operations at RCRA/TSD facilities in New Jersey, New York, and Puerto Rico.

Appendix 3:
**National Clearinghouse for Worker Safety and Health Training for Hazardous Materials,
Waste Operation, and emergency Response**

The National Clearinghouse for Worker Safety and Health Training for Hazardous Materials, Waste Operations, and Emergency Response provides the George Meany Center with a resource center of the latest information on training workers who are exposed to hazardous materials, emergency response and environmental cleanup. Additionally, two technical workshops on campus each year bring national leaders in hazardous waste training from labor, government, academia and industry to the Center.

A five year renewable contract for the Clearinghouse was awarded on May 1, 1995 to Ruth Ruttenberg & Associates, Inc., with the George Meany Center for Labor Studies as a major subcontractor. The Director, an Assistant Director, and three research associates are employed by Ruth Ruttenberg & Associates, Inc. The other Assistant Director, Industrial Hygiene support, and two full time Clearinghouse staff members are employed by the Meany Center

The Clearinghouse is the information exchange and dissemination mechanism for 20 worker training programs whose support of \$30 million from the Environmental Protection Agency (EPA) and the Department of Energy (DOE) monies is intended to set a high standard for health and safety training to protect workers in the burgeoning environmental technology sector. Eleven of the prime awardees (including the Meany Center's Railway Workers Hazardous Materials Project) and 12 of the sub-awardees are AFL-CIO affiliates. Administration of the program by one of the National Institutes of Health--the National Institute of Environmental Health Sciences (NIEHS) --- enhances the programs's stature and credibility. Close to 500,000 workers have received hazardous materials training in the past eight years through the NIEHS-funded programs (refresher training is also required on an annual basis).

The Clearinghouse serves as a resource center housing numerous sets of model curricula produced under the award and which training providers use as reference in developing new courses or improving existing ones. The Clearinghouse is the only authorized distributor of these curricula. In addition to the curricula, the resource center also houses hundreds of basic reference texts, key periodicals, books, regulatory information, and other documents of relevance to occupational and environmental health and safety. The resource center is open to everyone. A technical information specialist is available to answer questions and is located in the office next to the resource center.

A March 1995 technical workshop, organized by the Clearinghouse, was the first of two Innovative Technology workshops dealing with the integration of health and safety into the design of new environmental remediation technologies. At the end of that conference a working guidance document was developed. In November 1995, a second workshop on innovative technology will be held and participants will mark-up the draft guidance document to produce final guidance on the integration of safety and health into the design of technologies. A technical

workshop scheduled for March 1996 will be titled, Measuring and Evaluating the Outcomes of Training. Workshops are held on the George Meany Center campus and proceedings are expected to be published in refereed journals. A monthly Newsbrief is written and produced by Clearinghouse Staff, and is distributed to approximately 200 training program staff members and interested parties. The Newsbrief provides information on HAZMAT matters pertinent to awardees, including monthly columns on hazardous waste news, government agencies, environmental justice, and industrial hygiene. Also included monthly is an Awardee resource exchange to promote the sharing of relevant resources. Upcoming events are also noted, as well as summaries of events which have been attended by either the Clearinghouse or awardees. In August 1995 the Newsbrief became available electronically, via the Internet. Subscriptions to those not associated with the NIEHS program are available at \$25 per year.

The Clearinghouse is also responsible for outreach on the training program and response to public inquiries from those seeking information on health and safety training for hazardous waste operations and emergency response. The Clearinghouse distributes thousands of brochures on the program and individual training providers throughout the year at trade shows and conferences. The 1995 exhibit schedule has included attendance at one of five National Environmental Justice Advisory Council meetings, the National Association of Environmental Professionals Annual Conference, the Mid-Atlantic Industrial and Hazardous Waste Conference, and the Ground Breaking of the Hazardous Materials Management and Emergency Response Training Facility in Hanford, Washington. Still to be attended are the DOE's Training Resources and Stat Exchange Annual Conference and the meeting of the Society for Occupational and Environmental Health.

Another component to the Clearinghouse is its ongoing research program--focussing this year on measuring the outcomes of training, on profiling the labor market for hazardous waste workers and emergency responders, and on environmental justice and the new NIEHS Minority Worker Training Program.

The Clearinghouse is now on-line via CompuServe, which widens its capabilities to disseminate information, to receive inquiries, to access the latest information. While awardees are on campus for the next technical workshop, special sessions will be scheduled, at their request, to aid them in the use of the CD-ROM capacity now available in the Meany Center library, as well as in the use of the Internet.

Appendix 4:

Final Three Year Summary: DOE-NIEHS Worker Health and Safety Training Program				
Training Parameters	1994(1)	1995	1996	Total
No. Of Awardees	7	7	8	9
Courses Presented	533	1,086	1,220	2,839
Workers Trained	7,468	13,586	19,196	40,250
Contact Hours	185,759	248,864	297,460	732,083
Dollars Awarded	\$9,898,826	\$9,591,026	\$9,719,474	\$29,209,326
Cost Per Contact Hour	\$53.28	\$38.54	\$32.67	\$39.89

1) Data based on program years of training which begin on September 1, 1993 through August 31, 1994; September 1, 1994 through August 31, 1995; and September 1, 1995 through August 31, 1996.

Appendix 5:

DOE/NIEHS FY 96 Training Summary by Target Population			
Target Population	Courses	Workers	Hours
CERCLA Cleanup	716	13,035	204,688
RCRA TSD	224	3,398	36,032
Emerg Resp	35	346	6,624
Radiation Prot.	134	1,495	41,251
Misc. Training	111	922	8,865
FY 96 Totals	1,220	19,196	297,460

Appendix 6:

DOE/NIEHS FY 1996 Training Contact Hours by DOE Cleanup Site		
Name of DOE Site	Total Contact Hours	Percent of Total Hours
1) Hanford	66,929	22.5%
2) Oak Ridge	52,564	17.7%
3) Rocky Flats	23,952	8.1%
4) Savannah River	22,720	7.6%
5) Brookhaven	14,888	5.0%
6) Fernald	12,240	4.1%
7) Argonne	10,512	3.5%
8) West Valley	9,548	3.2%
9) Nevada Test Site	9,424	3.2%
10) Los Alamos	9,248	3.1%
11) Formerly Utilized Sites	6,864	2.3%
12) Idaho National Lab	6,504	2.5%
13) Santa Susanna	5,632	1.9%
14) Paduch Plant	5,000	1.7%
15) Weldon Springs	4,640	1.6%
16) Pantex Plant	4,352	1.5%
Other DOE sites	32,443	13.4%
FY 96 Total Hours	297,460	100%

Appendix 7:

DOE FY 96 Total Training By NIEHS Awardee			
Awardee	# Courses	# Workers	# Contact Hours
California/Arizona Consortium	10	123	1,544
International Association of Firefighters	11	200	3,336
New Jersey/New York Consortium	128	1,091	12,053
Intl Union of Operating Engineers	237	4,908	73,472
Oil Chemical & Atomic Workers	138	2,656	30,448
International Chemical Workers Union	190	3,361	38,560
Laborers/Associated General Contractors	304	3,188	82,096
Alice Hamilton Occupational Health Center	25	336	6,051
United Brotherhood of Carpenters	177	3,333	49,900
Total	1,220	19,196	297,460

Appendix 8:

DOE/NIEHS FY 1996 Training Contact Hours by DOE Cleanup Site			
Name of DOE Site	# of Courses	# of Workers	# of Contact Hours
1) Hanford	268	5,294	66,929
2) Oak Ridge	285	4,417	52,564
3) Rocky Flats	71	1,196	23,952
4) Savannah River	58	662	22,720
5) Brookhaven	38	869	14,888
6) Fernald	55	746	12,240
7) Argonne	20	734	10,512
8) West Valley	93	871	9,548
9) Nevada Test Site	45	457	9,424
10) Los Alamos	25	340	9,248
11) Formerly Utilized Sites	31	438	6,864
12) Idaho National Lab	30	453	6,504
13) Santa Susanna	16	235	5,632
14) Paducah Plant	16	213	5,000
15) Weldon Springs	12	188	4,640
Other DOE sites	157	2,083	36,795
FY 96 Total	1,220	19,196	297,460