

Final Progress Report

NIOSH Training Grant No. T03/CCT410451-07

Department of Occupational Safety and Health  
Combined Undergraduate and Graduate Training Program

July 1, 1995 - June 30, 2000

-  
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September 28, 2000

## Table of Contents

	<u>Page No.</u>
Abstract	1
Significant Findings	2
Project Training Record	2
List of Trainees Supported	4
Body of Report with Conclusions	4
Purpose and Goals	4
Program Characteristics	5
Changes in Curriculum	6
Program Enhancement	7
Faculty	8
Final Comments	9
Publications	9

## ABSTRACT

The demand for diversified education and training for safety professionals led to the establishment of Murray State University's Department of Occupational Safety and Health in 1978. The Department of Occupational Safety and Health at Murray State University provides a variety of curriculum options which include a bachelor of science in the area of occupational safety and health (safety and environmental options); master of science in occupational safety and health with specialties in safety management, industrial hygiene, and environmental; and a technical minor in occupational safety and health. Each degree provides a comprehensive broad-based educational background designed to prepare individuals for entry-level and advanced work in the field.

The bachelor and master of science programs in occupational safety and health are accredited by RAC/ABET. Both the undergraduate and graduate programs in occupational safety and health were originally accredited by ASSE in 1988. These accreditations, along with the curriculum changes and support from the National Institute of Occupational Safety and Health, all served to increase the visibility of occupational safety and health at Murray State University.

The purpose of the grant was to strengthen the preparation of our undergraduate and graduate level students in occupational safety and health. This was done by providing learning situations designed to help them become more effective entry-level and advanced professionals. The primary focus was:

1. Increased involvement of the internship supervisors in visiting intern sites to observe and improve employer-intern-university relationships. Over 96 interns/co-ops were placed during the 1999/2000 school year.
2. Development of seminars and OSH training center programs designed to address current occupational safety and health issues.
3. On-going faculty professional development to keep abreast of changes in the occupational safety and health field.
4. Support for undergraduate and graduate students in the form of textbook allowance, stipends and travel.
5. Improvement and upgrade of the laboratory and computer equipment within the OSH department.
6. Expansion of OSH degree programs to off campus sites.

Major accomplishments in this reporting period include change in curriculum, program enhancement, growth in numbers and breadth of faculty, improvement in recruitment, increased numbers and placement of interns and graduates, expansion of seminars and continuing education output, and expansion of OSH degree programs offered to off campus sites.

A. SIGNIFICANT FINDINGS (ACCOMPLISHMENTS)

Project Training Record

During the past (5) five years (July 1, 1995 - June 30, 2000) the Department of Occupational Safety and Health has generated a great deal of effort in training and placement (internship/co-op, graduate) activities. The following is a summary of these activities:

(Intern/Co-op Placement)

5 year summary

SUMMER 1995.....	<u>79</u>	INTERNS
FALL '95/SPRING '96.....	<u>28</u>	INTERNS

TOTAL 107 INTERNS

SUMMER 1996.....	<u>54</u>	INTERNS
FALL '96/SPRING '97.....	<u>37</u>	INTERNS

TOTAL 91 INTERNS

SUMMER 1997.....	<u>73</u>	INTERNS
FALL '97/SPRING '98.....	<u>26</u>	INTERNS

TOTAL 99 INTERNS

SUMMER 1998.....	<u>62</u>	INTERNS
FALL '98/SPRING '99.....	<u>25</u>	INTERNS

TOTAL 87 INTERNS

SUMMER 1999.....	<u>70</u>	INTERNS
FALL '99/SPRING '00.....	<u>26</u>	INTERNS

TOTAL 96 INTERNS

GRAND TOTAL = 480 INTERNS

In summary, during the past 5 years the OSH Department has placed 480 interns in over 25 states and Finland.

(OSH Department Graduates)

5 year summary

<u>YEAR</u>	<u>PROGRAM GRADUATES</u>	
	<u>B.S.</u>	<u>M.S.</u>
1995-96	71	33
1996-97	46	31
1997-98	51	25
1998-99	35	19
1999-00	51	18
GRAND TOTAL =		254 128

In summary, the Department of Occupational Safety and Health has graduated (382) students during the past (5) academic years. This figure represents a total of (254) undergraduate students receiving a B.S. degree and (128) graduate students receiving a M.S. degree. The graduation numbers have remained consistent over the last several years; however, the current enrollment trends show a consistent number of graduate students and a slight increase in undergraduate students. The department currently has (244) students enrolled in its programs.

(Training - Continuing Education Output)

5 year summary

<u>YEAR</u>	<u># of courses</u>	<u>C.E. Trainees</u>
1995-96	45	1332
1996-97	53	1061
1997-98	40	857
1998-99	31	584
1999-00	29	335
TOTALS =		198 4169

In summary, the Department of Occupational Safety and Health along with its Training Center has offered (198) training programs reaching (4169) trainees during the past (5) years. The number of courses offered and trainees receiving instruction has

been on a slight decrease in recent years due to budget restraints. It is anticipated that the training number will stay constant or slightly increase.

### List of Trainees Supported

The following is a list of 32 NIOSH supported trainees who received trainee expenses during the period.

<u>Name of Trainee</u>	<u>Degree</u>	<u>Current Position</u>
Brice A. Benford	M.S.	Ford Motor Company
Chad D. Boike	M.S.	Imperial Bondware Corp.
Jamie W. Bradsher	M.S.	Boeing
Larry E. Gehring	M.S.	Sav-A-Lot
Jerry B. Jessup	M.S.	3M Corp.
Brian D. Long	M.S.	Tennalum Corp.
Patrick S. Nance	M.S.	Toyota Motors
Brett D. Neal	M.S.	Ford Motor Company
John K. Wallace	M.S.	Chevron Corp.
Molly E. Wallace	M.S.	3M Corp.
Wendi A. Wilson	M.S.	McGraw/KoKosing Construction
Bethany L. Martin	M.S.	Cargill
Shane A. Nistrath	M.S.	3M Corp.
Becky Youngwerth	M.S.	General Motors Corp.
Susanne Beckwith	M.S.	Collier County Government
Michelle D. Dixon	M.S.	Forte Power Systems
David T. Hart	M.S.	Air Products & Chemicals
Matthew J. Hutchison	M.S.	Arthur J. Gallagher
Jonathan Jacobi	M.S.	Philip Morris
Brad A. Jones	M.S.	SETI
David M. Lewis, Jr.	M.S.	Volume Services America
Charles R. Daniels	M.S.	International Paper
Robert E. Hoffman	M.S.	Avery-Dennison
Robin A. Mears	M.S.	General Motors Corp.
Stephen A. Rust	M.S.	Emerson Power Transmission
Karen L. Eddins	M.S.	General Motors Corp.
Phyllis E. Jackson	M.S.	*Graduate Student/MSU
Sherise L. LaBon	M.S.	*Graduate Student/MSU
Steven M. Lawson	M.S.	*Graduate Student/MSU
Jeannette M. Cunningham	M.S.	*Graduate Student/MSU
Aloysius A. Eyali	M.S.	*Graduate Student/MSU
Adam Schmidt	M.S.	*Graduate Student/MSU

\*Currently graduate student in the Department of Occupational Safety and Health.

### B. BODY OF REPORT WITH CONCLUSIONS

#### Purpose and Goals

The purpose of the grant project period was to strengthen the preparation of our undergraduate and graduate level students in occupational safety and health. This was done by providing



learning situations designed to help them become more effective entry-level and advanced professionals. The primary focus was:

1. Increased involvement of the internship supervisors in visiting intern sites to observe and improve employer-intern-university relationships. Over 100 interns/co-ops were placed during the 1999/2000 school year.
2. Development of seminars and OSH training center programs designed to address current occupational safety and health issues.
3. On-going faculty professional development to keep abreast of changes in the occupational safety and health field.
4. Support for undergraduate and graduate students in the form of stipends and travel.
5. Improvement and upgrade of the laboratory and computer equipment within the OSH department.
6. Expansion of OSH degree programs to off campus sites.

### Program Characteristics

The Department of Occupational Safety and Health at Murray State University provides a variety of curriculum options which include a bachelor of science in the area of occupational safety and health (safety and environmental options); master of science in occupational safety and health with options in safety management, industrial hygiene, and environmental; and a technical minor in occupational safety and health.

The primary objective of the academic programs in Occupational Safety and Health are designed to: (1) provide a broad-based educational background designed to prepare practically oriented, academically sound graduate for entry-level and advanced positions in the field; and (2) ensure students are academically prepared to pursue advanced degrees in higher education. This objective is met through the design of the curriculum to provide a general education component intended to enhance a student's ability in communications, reasoning and cultural awareness; a basic instruction component in scientific and engineering principles; applied course work in the management and technical areas of occupational safety and health; and an internship position to expose students to experience in their field.

The bachelor and master of science programs in occupational safety and health are accredited by the Related Accreditation Commission of the Accreditation Board for Engineering and Technology (RAC/ABET). We are proud to be one of only two universities in the country who have both undergraduate and graduate accredited degree programs in occupational safety and health. Both the undergraduate and graduate program in occupational safety and health were originally accredited in 1988 by the American Society of Safety Engineers (ASSE). These accreditations, along with the curriculum changes and support from the National Institute of Occupational Safety and Health all

served to increase the credibility of the occupational safety and health program at Murray State University.

The occupational safety and health internship program at Murray State University was initiated and developed by Dr. Marvin Mills in 1980. From 1987 to the present, Dr. David G. Kraemer has been the coordinator of the department's internship (experiential education) program. The internship program has had rapid growth during the last five years.

The internship/co-op program is designed to provide qualified students with real world experience in their major field of study. The extension of classroom training through practice in their profession adds a unique dimension to the students' preparation for entering their career area. This unique exposure is provided by assignments that require the application and demonstration of knowledge, attitudes, judgement and techniques. Increased interest in the educational program develops as the student sees the relationship of academic studies to the world of work.

The Department of Occupational Safety and Health at Murray State University continues to supply diversified education and training for occupational safety and health professionals to meet the local, regional and national demand. The various curriculum, programs and training within the department are designed to meet the professional needs of students as well as the manpower, continuing education, training and advisory needs of the region and nation.

#### Changes in Curriculum

During the project period the OSH Department has undergone a continuous program review which has resulted in changes in course content throughout the curriculum. The following is a list of changes in the curriculum as a direct or indirect result of the training program:

- a. Upgrading of course requirements and content for OSH undergraduate and graduate students.
- b. The undergraduate curriculum has been revised to provide a better program in each of the two safety options and meet RAC/ABET criteria. The Occupational Safety and Health option has been tailored to improve the safety management aspects of the program through the addition of a management course and modification of technical requirements; while the Environmental Safety and Health option has been tailored to meet technical requirements.
- c. University-wide university studies requirements have been restructured to allow for more flexibility to permit individual departments to select courses more beneficial to their major. This has been beneficial to the Occupational Safety and Health program since it permits students to complete more science-oriented



- courses as part of their university studies requirements.
- d. The new environmental option is now fully RAC/ABET accredited for students wanting a safety educational background with an environmental emphasis. Many employers hiring students from our department are requesting a combination of skills in both of these technical areas.
  - e. Two new courses have been developed and added to the curriculum.
    - Prevention of Musculoskeletal Disorders in the Workplace (OSH 353)
    - Applied Workplace Ergonomics (OSH 663)
  - f. Laboratory improvements include: acquiring more instruments for the Industrial Hygiene Lab, establishing the Occupational Safety and Health's Computer Lab, and more hands-on and open lab policies.

#### Program Enhancement

The progress and success of the Department of Occupational Safety and Health during the reporting period has continued to strengthen the training of undergraduate and graduate students in occupational safety and health. This has and will continue to be accomplished by providing learning situations designed to help them become more effective entry-level and advanced professionals. NIOSH funding during the project period has provided stability in the growth and development of a quality OSH program.

In 1998 the OSH Department had its B.S. and M.S. programs successfully reaccredited by RAC/ABET Related Accreditation Commission of the Accreditation Board for Engineering and Technology. We are proud to be one of only two universities in the country who have both their B.S. and M.S. occupational safety and health programs accredited by RAC/ABET.

With the changes in the course curriculum, a higher quality of students has been entering and graduating from the program. With increased emphasis on the internship program, students are obtaining more experiential learning, allowing them to be better prepared for the real-world work environment.

The expansion and enhancement of OSH courses continues at Paducah Community College, Paducah, KY and at Ft. Campbell, Ft. Campbell, KY. Expansion of courses at the Madisonville, KY and Hopkinsville, KY community colleges has also begun. Plans are presently underway for the development of a distance learning OSH masters degree program. Weekend graduate level courses have been initiated. It is anticipated that one graduate level weekend course will be regularly offered.

New faculty have been added to the staff, both in general safety and in specialized areas, allowing the program to offer a wider

variety of courses. The addition of new faculty has allowed us to decrease class sizes to provide a higher quality, and more personalized education to the students.

The following is a brief list of essential program enhancements accomplished with the aid of training related expenses:

- a. Increased involvement of the internship coordinator and the two intern/co-op supervisors in visiting intern sites and observe and improve the internship experience (**travel funds and personnel funds**).
- b. Development of numerous seminars and expansion of OSH Training Center programs designed to address current occupational safety and health issues (**consultant funds**).
- c. On-going faculty and student academic and professional development to keep abreast of rapid changes in the occupational safety and health industry (**faculty and trainee travel funds**).
- d. Improvement and upgrade of laboratory and computer equipment and software within the OSH department (**equipment funds**).
- e. Establishment of stronger ties with industry and government agencies so that we have more on-campus interaction (**personnel and travel funds**).
- f. Expansion of OSH degree programs to off campus sites (**travel funds**).

As indicated above, the Murray State University Occupational Safety and Health program continues to be a growing, vibrant program. Improvements, including strengthening the curriculum, internship program, and faculty and student development, are aimed at fortifying a solid program.

#### Faculty - Department of Occupational Safety and Health

The following table illustrates the core and supporting program faculty as well as their specific areas of competencies:

#### Department of Occupational Safety and Health (1999-2000 Academic Year)

##### Core Faculty

Dr. David Kraemer	Chair/General Safety/Intern Coordinator
Dr. Bassam Atieh	Industrial Hygiene/Biostatistics
Mr. Thomas Begley	Environmental Safety

Dr. Tracey Bernard	Ergonomics/Human Factors
Dr. Linda Bouck	Motor Fleet Safety/Loss Control
Mr. David Fender	Safety Mgmt./Systems Safety
Dr. Randal Keller	Toxicology/Epidemiology/Occup. Diseases
Dr. George Nichols	Construction/General Safety

#### Adjunct Faculty

Mr. Larry Anderson	Fire Safety
Mr. Jeff Steen	Hazardous Materials Training
Ms. Debbie Peck	Emergency Medical Training
Ms. Alice Nordine	Emergency Medical Training
Mr. Keith Potter	Industrial Hygiene/General Safety
Mr. Thomas Freeman	Fire Safety

#### Supporting Faculty

Dr. Dwayne Driskill	Agriculture Safety
Mr. James Vaughan	Professional Development

#### OSH Training Center

Dr. David G. Kräemer	Director, OSH Training Center
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#### OSH Department Advisory Committee

The Program Director utilized the department's advisory committee for advise in maintaining a high quality, relevant program. Many significant contributions to curriculum improvement and program development have been generated over the years by the department's advisory committee which meets at least once a year. The committee consists of individuals representing a wide variety of expertise, backgrounds and organizations.

#### Final Comments

As previously indicated, the Murray State University Occupational Safety and Health program continued to be a growing, vibrant program. Improvements, including strengthening the curriculum, internship program, and faculty and student development, were aimed at fortifying a solid program.

Major accomplishments in this reporting period include change in curriculum, program enhancement, growth in numbers and breadth of faculty, improvement in recruitment, increased numbers and placement of interns and graduates, expansion of seminars and continuing education output, and expansion of OSH degree programs to off campus sites.

#### C. PUBLICATIONS

There have been no publications resulting from the grant.



DEPARTMENT OF HEALTH & HUMAN SERVICES

# Memorandum

Date March 6, 2001  
From Principal Engineer, OECSP  
Subject Final Progress Report for entry into NIOSHTIC/NTIS for  
NIOSH Training Grant No. T03 CCT 410451  
To William Bennett, IRB, EID (C-28)

The enclosed report has been received from the Program Director to document work performed during the specified grant project period. The following information applies to the designated Training Project Grant (TPG):

Title: Combined Undergraduate and Graduate Training Program

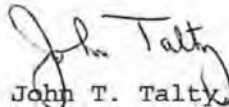
Project Director: David G. Kraemer, Ph.D.  
Department of Occupational Safety and Health  
Murray State University  
Murray, KU 42071-3347

Grant No.: T0<sup>3</sup> CCT 410451

Project Period: 7/1/95 - 6/30/2000

Please place the report in DIDS and I also recommend it for entry into NIOSHTIC and submission to NTIS.

Thanks for your assistance.

  
John T. Talty P.E., DEE

cc: S. Board/B. Kuchinski, OECSP

Enclosure

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