

National Institute of Environmental Health Sciences  
Division of Extramural Research and Training  
Center for Risk and Integrated Systems/Superfund Research Program

**NATIONAL ADVISORY ENVIRONMENTAL HEALTH SCIENCES COUNCIL**

September 11, 2012

Concept Clearance

Occupational and Safety Training Education Programs in Emerging Technologies

**Introduction**

The Superfund Research Program (SRP) is recognized for its programs in emerging technologies to detect, characterize, monitor, and remediate hazardous substances at contaminated sites, to ultimately protect human health and the environment. The SRP has also had a strong focus on training the next generation of graduate and post-graduate professionals in both basic and translational research and training in environmental and occupational settings.

The SRP is mandated to establish and support training which may include: (1) short courses and continuing education for State and local health and environment agency personnel engaged in handling hazardous substances and other professionals involved in evaluating, managing and handling hazardous substances; and (2) graduate or advanced training in environmental and occupational health and safety and in the public health and engineering aspects of hazardous waste control. Over the past two decades, the SRP has met these mandates by contributing its support, by way of National Institute for Occupational Safety and Health (NIOSH)/ Centers for Disease Control and Prevention (CDC) grant applications, to various University Education and Research Centers (ERCs) that provide interdisciplinary graduate training and continuing education in occupational safety and health areas of industrial hygiene, as well as other related occupational safety and health fields. In addition, the SRP's 2010 Strategic Plan states the importance of training the next generation of researchers and professionals and the development of new technologies and approaches to protect human health and the environment from the risks of hazardous substances (<http://www.niehs.nih.gov/research/supported/srp/about/register/index.cfm>).

In February, 2012, the SRP released a Request for Information (RFI) to seek input on the design and need for training programs in emerging technologies used in occupational and safety health settings for training and education of industrial hygienists, graduate students, and other professionals. This RFI was aimed at gathering information on critical gaps, challenges, and potential strategies to address the needs for training in occupational exposure and hazards related to emerging technologies and how to best train and protect workers from these hazards through continuing education, short courses, and advanced training. Responses were sought

from institutes and organizations with established programs in occupational and safety training, the extramural community, scientific training societies, the general public, educators, environmental health researchers, health professionals, policy makers, and industrial hygienists. Responses to the RFI indicated that there was a considerable need for education and training in emerging technologies as Universities and industry continue to promote and become aware of the development of emerging products and technologies, especially of processes involved in large-scale operations. Other comments included:

- the need for interdisciplinary training that focuses on the fundamental properties and design (e.g., engineering, physics, and chemistry) of novel materials;
- the need for training on state and federal regulations as new technologies develop, and on the ethical, societal, and economic impacts of emerging technologies;
- the need for communicating best practices that addresses advanced control technologies and the proper use and disposal of Personal Protective Equipment (PPE) used in emerging industries;
- the need for continued education on the lifecycle of novel chemicals/products/hazardous waste;
- the need for training in the use of existing and novel exposure measurement tools (e.g., how to measure exposure from all routes, biomonitoring, measurement of internal dose, and environmental monitoring methods).

For additional information about the RFI and responses to the RFI, please see: <http://www.niehs.nih.gov/research/supported/srp/training/niosh/index.cfm>.

### **Research Goals and Scope**

The SRP intends to develop a Funding Opportunity Announcement (FOA) for Institutes of Higher Education to develop high quality course curricula on the health and safety management practices in the areas of emerging technologies (e.g., hazardous waste products, green chemistry, and sustainable remediation). Industrial hygienists, graduate students, and other professionals involved in the clean-up and enforcement of hazardous waste sites would be included in this program and would use these new curricula. Examples of the types of curricula may include web-based training modules, short courses, continuing education, and full academic courses. Applicants may also be encouraged to collaborate with other Institutions of Higher Education. The overall goals of these programs are to: (1) ensure that trainees become knowledgeable and proficient in emerging technologies that can be applied to their profession and/or research projects; (2) create an infrastructure that supports education and training in emerging technologies affecting the handling and clean-up of hazardous substances; and (3) promote dissemination of this training to increase the number of well-trained industrial hygienists, graduate students, and other professionals with the interdisciplinary skills required in these developing fields. This program will also expand and complement existing educational and training programs in occupational and safety health training.

This funding announcement for Occupational and Safety Training Education Programs in Emerging Technologies will contribute to a coordinated series of activities designed to enhance the visibility of the SRP and NIEHS interests and to stimulate research and educational efforts in the field of emerging technologies. Additional activities to be undertaken include the sponsorship of symposia at grantee meetings, applicable society annual meetings, the SRP Annual Meeting, and the development of workshops, publications, and webinars.

### **Mechanism and Justification**

This funding announcement will utilize the R25 grant mechanism, which is defined by NIH as a mechanism to support the development of creative and innovative research education programs for the development of biomedical, behavioral, and clinical researchers, or for public education and outreach on health-related research to a variety of audiences. SRP has allocated \$750,000 annually for the support of up to 4 programs.