

FY 2006 NIEHS Director's Statement for Superfund Programs

Department of Human Health Services National Institutes of Health

FY 2006 Budget Request

House Appropriations Subcommittee on Interior, Environment, and Related Agencies

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March 2005

Mr. Chairman and Members of the Committee:

I am pleased to present the President's budget for the National Institute of Environmental Health Sciences (NIEHS) Superfund Programs. The fiscal year (FY) 2006 budget is \$80,289,000, an increase of \$447,000 over the comparable FY 2005 appropriation. The budget request includes \$51,385,000 for the NIEHS Superfund Basic Research Program (SBRP) and \$28,904,000 for the NIEHS Worker Education and Training Program (WETP).

Introduction

In 1986, under the Superfund Amendments and Reauthorization Act, Congress established two Superfund programs to be administered by the NIEHS, an institute of the National Institutes of Health. Both the NIEHS research and worker training programs are now in their seventeenth year and are making remarkable contributions to the nation's public health and safety. I'd like to update you on the status of these programs and highlight a few recent accomplishments.

Both programs will be making new grant awards in 2005, which will result in the investment in new initiatives. In this testimony, I will provide you with a preview of the new directions we will be pursuing. I will also present information on intra and interagency partnerships, as these activities effectively enhance our ability to address pressing

Superfund issues, and I will tell you about some very important accomplishments made by these programs.

Opportunities for New Directions

Both the SBRP and the WETP recently released Request for Applications. These solicitations will result in the award of new grants in the current fiscal year. SBRP and WETP staffs anticipate that not only will many current grantees compete successfully, but that new applicants will also be successful. It is through these competitive processes that the programs retain their vital cutting edge nature. Specifically, the SBRP will not only continue to reinvest in existing research efforts, but will also delve into new areas of research. We anticipate that the program will support a wide range of science from the most basic research focused on cellular regulatory mechanisms to human population-based studies, to studies on ecological health and diversity, to development of new techniques for cleaning up waste, and to novel engineering and mathematical approaches for the safe handling of environmental contaminants.

In the coming year, WETP proposes to support a new Hazmat Disaster Preparedness Training (HDPT) program to foster the development of safety and health training for responders to events involving weapons of mass destruction (WMD). The intent is to prepare a cadre of experienced workers for prevention and response to future terrorist incidents. The development of this program has been coordinated with the Department of Homeland Security (DHS), the U.S. EPA, and the Federal Emergency Management Agency. In addition, a top priority will be to connect the emerging public health preparedness community both within the Department of Health and Human Services and within state public health agencies. We will continue with Hazmat health and safety training protocols, improving our understanding of incident command systems and building training partnerships in the chemical emergency response community.

Partnerships

NIEHS is fully cognizant that collaborating with other federal agencies is important to the success of its two Superfund programs. Specifically, the SBRP actively engages with the U.S. EPA with the intent of ensuring that the research supported by the SBRP fits the need of Superfund practitioners and is used in environmental decision-making. The SBRP also maintains an ongoing dialogue with ATSDR in order to keep this agency apprised of ongoing research as well as to identify potential collaborations. An example of an active collaboration is that SBRP staff is meeting with U.S. EPA staff to discuss SBRP-supported research findings that indicate that waste material from the drinking water treatment

procedures has the potential to leach arsenic into groundwater after it has been sent to sanitary landfills. This is of particular concern as thousands of municipal water treatment systems come into compliance with the new arsenic drinking-water standards and will be shipping their arsenic-bearing solid residuals to the landfills. Accordingly, the SBRP is working with several offices of the U.S. EPA to develop a proactive research and field intervention program that is intended to avert a threat before it occurs. An equally important goal of ongoing partnerships is the commitment to ensuring that there is no overlap between the SBRP and U.S. EPA research investments.

Likewise WETP seeks opportunities to foster strong ties with other federal agencies that are mandated to respond to national emergencies and disasters. WETP has both formal and informal collaborations with the U.S. EPA, the Occupational Health and Safety Administration, the DHS and the Department of Energy. An example of the WETP commitment to working with other agencies, is demonstrated by its sponsorship of a recent national conference, "Training Partnerships for Prevention, Protection and Preparedness: A Conference to Build Stronger Partnerships on Disaster Response Training." The goal of the conference was to strengthen the partnerships that WETP has created with other federal agencies to better protect workers, integrate health and safety training efforts and coordinate program resources for disaster response training.

Past Accomplishments

The SBRP funds large multiproject grants in diverse areas of science such as understanding mechanisms of toxicity of hazardous substances, elucidating the movement of contaminants through water, soil and sediment, conducting epidemiological studies in exposed populations, understanding the ecological effects of exposures and identifying innovative approaches for remediating hazardous substances. One area where the research program has made great strides is in transferring its research investment in phytoremediation - - the use of plants to remove contaminants from groundwater and soil - - into application. Other program scientists are now investigating opportunities for phytostabilization, the use of plants to trap and immobilize recalcitrant contaminants such as metals. This holds great promise as a low cost and low maintenance strategy for hundreds of thousands of abandoned mine sites in the arid southwestern United States.

The WETP has established an effective national framework to develop and provide the comprehensive training needed to address the complex needs of Superfund cleanups and emergency response. The program has long history of providing trained professionals to protect the nation's citizen in a time of crisis. For example, WETP-trained responders safely handled a crisis when ricin, a highly toxic biological agent was found in Senator

Frist's office. The Minority Worker Training Program is producing skilled workers for a traditionally disenfranchised work force. The program, now in its tenth year, has successful job placements of 66% of 2,889 workers trained to date.

Impact of Low Level Benzene Exposure

New findings show that exposure to low levels of benzene can be hazardous to human health. Benzene is a common environmental contaminant. Typical exposure pathways include secondhand cigarette smoke and gasoline vapor. Occupational exposures are also of great concern as benzene is one of the most frequently used chemicals in American industry (e.g., as a solvent and to make plastics, resins, adhesives, synthetic fibers, dyes, detergents, etc.). It is well known that exposure to high levels of benzene can cause leukemia, and accordingly, occupational exposures have been set to one part per million (ppm). However, the effects of exposure to levels below one ppm are uncertain. To investigate this uncertainty, SBRP investigators conducted a study, in conjunction with the National Cancer Institute, to compare shoe factory workers exposed to benzene-containing glue to unexposed clothes-manufacturing workers. They incorporated extensive exposure measurements in their study, testing air samples in the factories, as well as in each worker's home. The researchers found that, compared to controls, workers exposed to less than one ppm benzene had significantly decreased numbers of all types of white blood cells and platelets. These findings indicate that exposures at levels less than one ppm can be detrimental to human health, and based on these findings it has been suggested that a reevaluation of the American workplace standard might be appropriate 1.

Promising Bacterial Product

In another exciting development, SBRP investigators have identified a surfactant (detergent-like substance) from common soil bacteria that is toxic to a class of fungi. These particular fungi are known to cause some of the most economically damaging plant diseases in the world. The fungicidal surfactants, unlike petroleum-synthesized surfactants, are environmentally benign. Not only do the surfactants have application as an agricultural fungicide, but they have potential use in removing heavy metals from soil and clean-up sludge. The use of this technology has been patented and licensed to Jeneil Biosurfants, and in May received a Green Chemistry award from EPA.

WETP-Trained Building Engineers Support First Responders

In February 2004, at Temple University, in Philadelphia, Pennsylvania, there was a gas main fire. The incident shut down major highways and threatened some of the buildings on campus. When the traditional first responders arrived, they anticipated a large explosion, but because building engineers, who had been trained by WETP-supported International Union of Operating Engineers, were already on the scene, such a disaster was averted. Fortunately, these building engineers had previously received Hazmat training. They briefed the incident commander on the actions already taken with regard to the heating, ventilating and air conditioning system and electrical systems. They also alerted the commander as to what was housed in the building, such as an infectious disease laboratory. The building engineers continued to support the incident commander throughout the response, providing information and resources to ensure the safety of the first responders, as well as protecting as much of the property as possible. Because of the preparedness training that the WETP provides workers throughout the nation, numerous incidents, such as this one, are handled successfully and skillfully, thereby reducing loss of life and property.

Summary

The SBRP and the WETP are mature, experienced programs that are contributing important resources to the nation's goals of providing a healthy safe environment for its citizens. Research emanating from the SBRP is delivering on its promise for improving our ability to handle hazardous wastes, while the important training conducted by the WETP ensures that trained workforces are available in the event of any disaster or terrorist attack and to handle the day-to-day cleanup of hazardous materials in the environment.

1 REVKIN, ANDREW, Broad Study Suggests a Lower Tolerance for Exposure to Benzene
NYT, December 4, 2004