



Superfund-Related Activities: The Superfund Research Program and the Worker Training Program



CONGRESSIONAL JUSTIFICATION
FY 2023

Department of Health and Human Services
National Institutes of Health

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DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

National Institute of Environmental Health Sciences (NIEHS)

Department of the Interior, Environment, and Related Agencies Appropriations

NIEHS Superfund-Related Activities (NIEHS-SF)

FY 2023 Budget Table of Contents

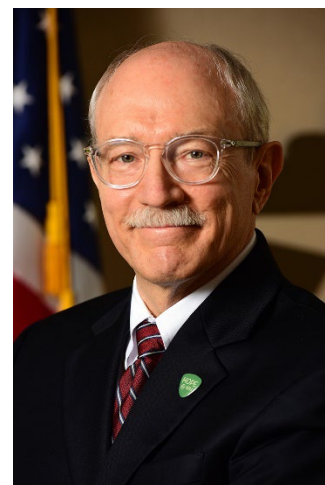
Director's Overview	3
IC Fact Sheet	5
Major Changes in the Budget Request	7
Budget Mechanism Table	8
Appropriations Language	9
Summary of Changes	10
Budget Graphs	11
Organization Chart	12
Budget Authority by Activity Table	13
Justification of Budget Request	14
Appropriations History	24
Authorizing Legislation	25
Amounts Available for Obligation	26
Budget Authority by Object Class	27
Salaries and Expenses	28
NIH Detail of Full-Time Equivalent (FTE) Employment by IC	29
NIH Budget Mechanism Total	30
NIH Budget Request by IC	31

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Director's Overview

The NIH, NIEHS Hazardous Substance Basic Research and Training Program, or Superfund Research Program (SRP), and the Worker Training Program (WTP) were created under the Superfund Amendments and Reauthorization Act (SARA) of 1986 to meet the need for innovative strategies and technologies to provide solutions to the magnitude and complexity of Superfund assessment and remediation. SRP and WTP are interdependent and collectively referred to as the “NIEHS Superfund Program.”

Both SRP and WTP laid the groundwork through previous research, training, and communication to successfully respond to the COVID-19 pandemic. SRP, for instance, found that some environmental exposures can worsen COVID-19 thus helping to further the understanding of the virus, and WTP launched the COVID-19 Recovery Centers that promote health, safety, and recovery training for essential workers and their communities.



Rick Woychik, Ph.D.,
NIEHS Director

Long-term investments have moved basic research, training, and partnerships to beneficial applications allowing SRP and WTP grantees to respond quickly to the needs associated with the pandemic. By leveraging partnerships, establishing programs to interact with communities more quickly, and developing technological flexibilities SRP and WTP have helped our nation begin the recovery process. At the same time, these programs have continued to advance their core mission of research and worker training activities associated with the Nation's Hazardous Substance Superfund Program. WTP, which trains workers to safely work in hazardous environments and respond in emergency situations, continued its work supporting communities' capacity to respond to disasters. Meanwhile SRP continued providing practical science for solutions to protect human health by funding peer-reviewed, competitively awarded grants to more than 1,300 researchers at 120 institutions and small businesses.

SRP and WTP recognized the necessity for considering health disparities in research and medicine during the pandemic. Grantees from both programs continued work with vulnerable and minority populations across the country. SRP assisted minority communities to better understand COVID-19 vaccines and fostered more equitable access as well as helped decrease vaccine hesitancy. WTP grantees were able to continue to offer courses and employment for socioeconomically disadvantaged individuals due to strong COVID-19 infection control protocols during training.

WTP received \$10 million in the Coronavirus Preparedness and Response Supplemental Appropriations Act of 2020 (P.L. 116-123) for worker-based training to prevent and reduce COVID-19 exposure of healthcare workers, first responders, and other essential workers at high risk. This includes creating the COVID-19 Recovery Centers, promoting partnerships with local businesses and community organizations, training essential workers, and coordinating resources for those impacted by high rates of COVID-19. Other activities funded with these appropriations as well as regular Superfund-related appropriations included the development of a large selection of online training tools and resources, such as COVID-19 awareness training curricula, technical webinars, and a workplace checklist.¹

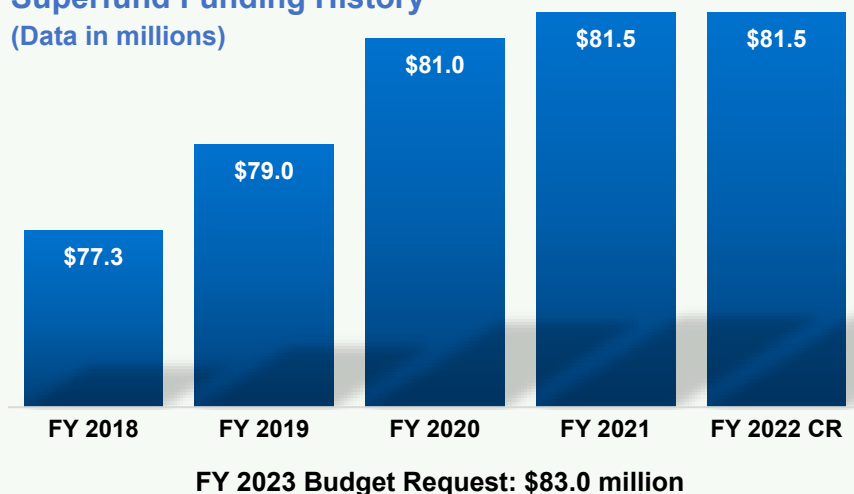
¹ tools.niehs.nih.gov/wetp/covid19worker/

While adapting to and continuing innovative and significant research and training during the pandemic, SRP and WTP also worked to combat climate change and disasters. SRP grantees developed a therapeutic sorbent technology that can bind to hazardous chemicals in the body after exposure, reducing their uptake and bioavailability. WTP grantees trained thousands of workers across the nation over the past year in firefighting, wildfire disciplines, and emergency response such as debris and ash cleanup, wildland-urban interface, wildfire smoke safety, and disaster preparedness.

Overview of the Program

The National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health (NIH), Superfund-Related Activities seek scientific solutions and training advancements to health and environmental problems associated with hazardous waste and disaster response. This program consists of two interdependent components: The Superfund Research Program (SRP) and the Worker Training Program (WTP). The Superfund Amendments and Reauthorization Act (SARA) of 1986 created SRP and WTP within NIEHS.

Superfund Funding History (Data in millions)



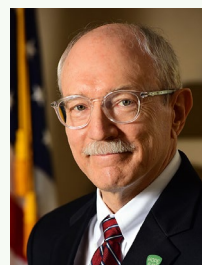
Recent Accomplishments

SRP:

- Commercialized a platform to break down trichloroethylene (TCE) through the small business program.
- Developed a clay-based sorbent that can reduce exposure to metals and pesticides.
- Uncovered how the water contaminant NDMA is linked to cancer.
- Discovered that certain fatty acids in COVID-19 patients may predict the disease severity and Identified an inhibitor that may offer an opportunity for treatment.

WTP:

- COVID-19 response – funded innovative efforts to provide virtual or physically distanced in-person training to workers.
- Developed courses focused on workers with higher risk of injury and opioids occupational exposure.
- Trained workers on firefighting and wildfire consequences such as on debris and ash cleanup, wildland-urban interface, wildfire smoke safety, and disaster preparedness.
- ECWTP celebrated 25 years of job training for un- and under-employed individuals in environmental justice communities.



Rick Woychik, Ph.D., was named Director of NIEHS in June 2020. He received his Ph.D. from Case Western University and postdoctoral training at Harvard Medical School.

Facts and Figures

SRP:

- 58 currently funded grants (FY21)
- Awarded grants to over 1,300 researchers at over 120 institutions and small businesses
- Grantees have patented over 160 inventions
- Grantees have published over 11,000 research articles

WTP:

- 23 currently funded grants (FY21)
- Trained over 3.7 million workers since 1987
- Environmental Careers Worker Training Program (ECWTP): Annual investment of \$3.5 million generates a \$100 million return
- Trained more than 90,000 workers who face potential exposure to COVID-19





Future Initiatives

SRP: The SRP is exploring how environmental contaminants affect the immune system and relationships between pollutants and susceptibility to COVID-19 and other infectious diseases. New research projects incorporate novel materials science and bioremediation to clean up emerging contaminants and newly funded training programs will develop curricula on health and safety management practices of emerging technologies. Grantees will expand research on how exposure burdens combine to create health disparities and best ways to communicate environmental health risks to the public. Future initiatives include advancing data sharing and data science and using machine learning and artificial intelligence tools to improve health.

WTP: The WTP is committed to creating a national workforce that can protect themselves, co-workers, and communities from environmental hazards and that have the skills needed for jobs that engage in environmental cleanup, infrastructure building, and green jobs. The program's grantees implement training activities through a wide variety of partnerships representing businesses, government, local unions, worker centers, and community organizations. WTP will also continue reaching vulnerable populations to give them skills that lead to successful employment and support their health and safety needs under the continuing COVID-19 pandemic, opioid crisis, national emergencies and climate-related disasters, and wildfires.



Program Highlights:

SRP: Discovered new mechanisms involved in liver cancer, suggesting novel targets for new therapies



WTP: 2021: trained over 130,000 workers in more than 7,800 courses for nearly 1 million contact hours

SRP: Scientists developed poplar trees to remove trichloroethylene (TCE) from groundwater, saving an estimated \$9.5 million



WTP: Trained thousands of workers for recovery from U.S. natural and man-made disasters, including: World Trade Centers, western wildfires, and Hurricanes Katrina, Sandy, Harvey, and Ida

SRP: Grantees linked low levels of PCBs to obesity-associated atherosclerosis and discovered that diets high in vitamin E and healthy omega-3 fatty acids can reduce cell damage caused by PCBs



WTP: ECWTP selected for White House Justice40 pilot program; has an average 70 percent employment rate

SRP: SRP-supported small businesses have commercialized PFAS water filtration units and are testing a mobile PFAS-destruction unit to clean up soil and water



Major Changes in the Budget Request

Major changes by budget mechanism and/or budget program detail are briefly described below. The FY 2023 President's Budget level for NIEHS Superfund is \$83.0 million, which is \$1.5 million above the FY 2022 CR level.

Research Project Grants (-\$0.03 million, total \$2.7 million):

Research project grants awarded on a competing basis in FY 2021 will receive noncompeting continuation awards in FY 2023. No additional competing RPGs are anticipated to be awarded in FY 2023.

Research Center Grants (+\$1.8 million, total \$44.8 million):

NIEHS plans to support a total of 22 Research Center awards in the area of Comparative Medicine in FY 2023, an increase of 1 award from the FY 2022 CR level.

Budget Mechanism Table

NATIONAL INSTITUTES OF HEALTH

Superfund

Budget Mechanism * (Dollars in Thousands)

Mechanism	FY 2021 Final		FY 2022 CR		FY 2023 President's Budget		FY 2023 +/- FY 2022	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount
<u>Research Projects:</u>								
Noncompeting	1	\$123	10	\$2,582	10	\$2,553	0	-\$29
Administrative Supplements	(2)	\$65	(2)	\$100	(2)	\$100	0	\$0
<u>Competing:</u>								
Renewal	0	\$0	0	\$0	0	\$0	0	\$0
New	10	\$2,840	0	\$0	0	\$0	0	\$0
Supplements	0	\$0	0	\$0	0	\$0	0	\$0
Subtotal, Competing	10	\$2,840	0	\$0	0	\$0	0	\$0
Subtotal, RPGs	11	\$3,028	10	\$2,682	10	\$2,653	0	-\$29
SBIR/STTR	10	\$2,918	9	\$2,537	10	\$2,603	1	\$65
Research Project Grants	21	\$5,945	19	\$5,219	20	\$5,255	1	\$36
<u>Research Centers</u>								
Specialized/Comprehensive	0	\$0	0	\$0	0	\$0	0	\$0
Clinical Research	0	\$0	0	\$0	0	\$0	0	\$0
Biotechnology	0	\$0	0	\$0	0	\$0	0	\$0
Comparative Medicine	21	\$42,017	21	\$42,991	22	\$44,781	1	\$1,790
Research Centers in Minority Institutions	0	\$0	0	\$0	0	\$0	0	\$0
Research Centers	21	\$42,017	21	\$42,991	22	\$44,781	1	\$1,790
<u>Other Research:</u>								
Research Careers	0	\$0	0	\$0	0	\$0	0	\$0
Cancer Education	0	\$0	0	\$0	0	\$0	0	\$0
Cooperative Clinical Research	0	\$0	0	\$0	0	\$0	0	\$0
Biomedical Research Support	0	\$0	0	\$0	0	\$0	0	\$0
Minority Biomedical Research Support	0	\$0	0	\$0	0	\$0	0	\$0
Other	31	\$28,983	30	\$28,680	25	\$28,302	-5	-\$378
Other Research	31	\$28,983	30	\$28,680	25	\$28,302	-5	-\$378
Total Research Grants	73	\$76,946	70	\$76,891	67	\$78,339	-3	\$1,448
<u>Ruth L Kirschstein Training Awards:</u>	<u>FTTPs</u>		<u>FTTPs</u>		<u>FTTPs</u>		<u>FTTPs</u>	
Individual Awards	0	\$0	0	\$0	0	\$0	0	\$0
Institutional Awards	0	\$0	0	\$0	0	\$0	0	\$0
Total Research Training	0	\$0	0	\$0	0	\$0	0	\$0
Research & Develop. Contracts	0	\$0	0	\$0	0	\$0	0	\$0
SBIR/STTR (non-add)	(0)	(\$0)	(0)	(\$0)	(0)	(\$0)	(0)	(\$0)
Intramural Research	0	\$0	0	\$0	0	\$0	0	\$0
Res. Management & Support	0	\$4,554	0	\$4,609	0	\$4,696	0	\$87
SBIR Admin. (non-add)	(0)	(\$0)	(0)	(\$0)	(0)	(\$0)	(0)	(\$0)
Construction		\$0		\$0		\$0		\$0
Buildings and Facilities		\$0		\$0		\$0		\$0
Total, Superfund	0	\$81,500	0	\$81,500	0	\$83,035	0	\$1,535

* All items in italics and brackets are non-add entries.

Appropriations Language

NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

For necessary expenses for the National Institute of Environmental Health Sciences in carrying out activities set forth in section 311(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9660(a)) and section 126(g) of the Superfund Amendments and Reauthorization Act of 1986, \$83,035,000.

Summary of Changes

NATIONAL INSTITUTES OF HEALTH Superfund

Summary of Changes

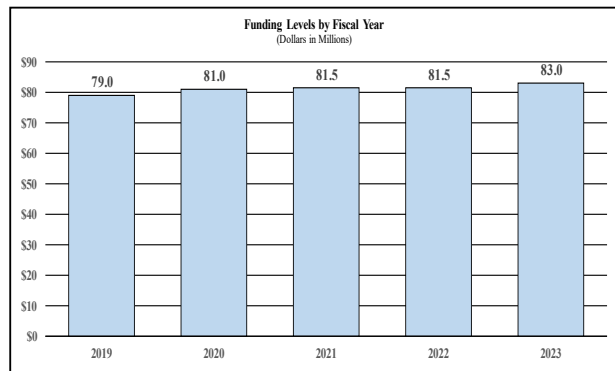
(Dollars in Thousands)

FY 2022 CR	\$81,500
FY 2023 President's Budget	\$83,035
Net change	\$1,535

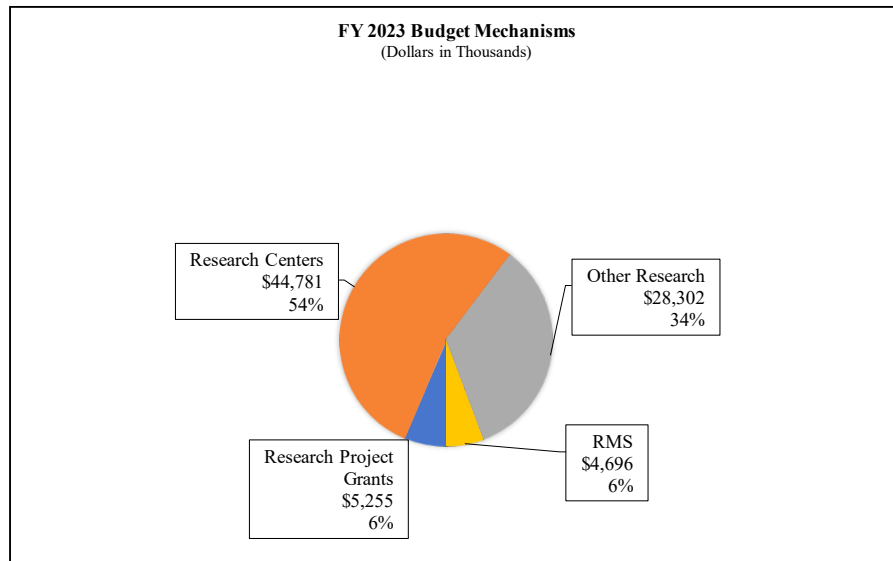
CHANGES	FY 2022 CR		FY 2023 President's Budget		Built-In Change from FY 2022 Enacted	
	FTEs	Budget Authority	FTEs	Budget Authority	FTEs	Budget Authority
<u>A. Built-in:</u>						
<u>1. Intramural Research:</u>						
a. Annualization of January 2022 pay increase & benefits		\$0		\$0		\$0
b. January FY 2023 pay increase & benefits		\$0		\$0		\$0
c. Paid days adjustment		\$0		\$0		\$0
d. Differences attributable to change in FTE		\$0		\$0		\$0
e. Payment for centrally furnished services		\$0		\$0		\$0
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		\$0		\$0		\$0
Subtotal						\$0
<u>2. Research Management and Support:</u>						
a. Annualization of January 2022 pay increase & benefits		\$1,932		\$2,003		\$13
b. January FY 2023 pay increase & benefits		\$1,932		\$2,003		\$65
c. Paid days adjustment		\$1,932		\$2,003		-\$7
d. Differences attributable to change in FTE		\$1,932		\$2,003		\$0
e. Payment for centrally furnished services		\$1		\$1		\$0
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		\$2,676		\$2,692		\$59
Subtotal						\$129
Subtotal, Built-in						\$129
CHANGES	FY 2022 CR		FY 2023 President's Budget		Program Change from FY 2022 Enacted	
	No.	Amount	No.	Amount	No.	Amount
<u>B. Program:</u>						
<u>1. Research Project Grants:</u>						
a. Noncompeting	10	\$2,682	10	\$2,653	0	-\$29
b. Competing	0	\$0	0	\$0	0	\$0
c. SBIR/STTR	9	\$2,537	10	\$2,603	1	\$65
Subtotal, RPGs	19	\$5,219	20	\$5,255	1	\$36
2. Research Centers	21	\$42,991	22	\$44,781	1	\$1,790
3. Other Research	30	\$28,680	25	\$28,302	-5	-\$378
4. Research Training	0	\$0	0	\$0	0	\$0
5. Research and development contracts	0	\$0	0	\$0	0	\$0
Subtotal, Extramural		\$76,891		\$78,339		\$1,448
6. Intramural Research	0	\$0	0	\$0	0	\$0
7. Research Management and Support	0	\$4,609	0	\$4,696	0	-\$43
8. Construction		\$0		\$0		\$0
9. Buildings and Facilities		\$0		\$0		\$0
Subtotal, Program	0	\$81,500	0	\$83,035	0	\$1,406
Total built-in and program changes						\$1,535

Budget Graphs

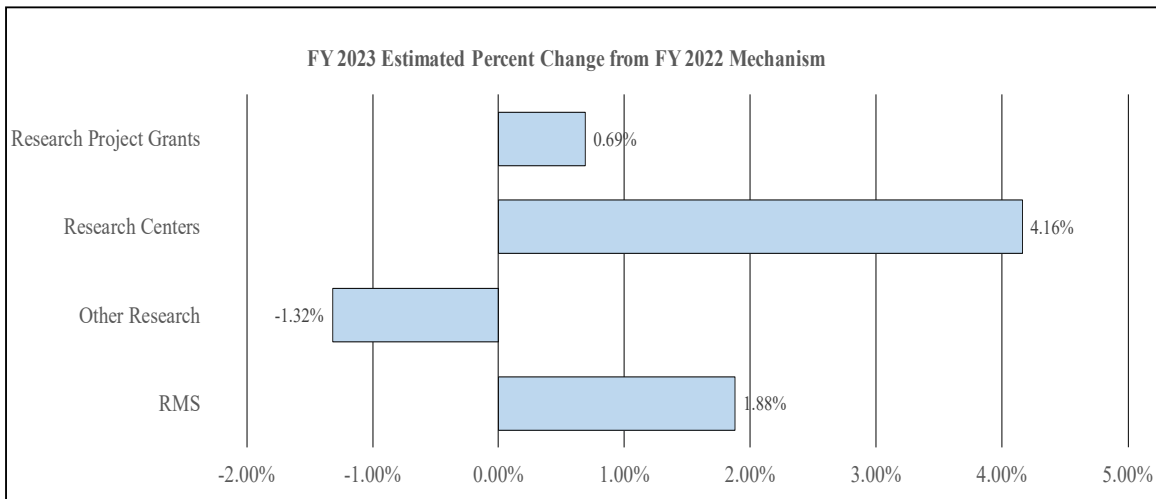
History of Budget Authority and FTEs:



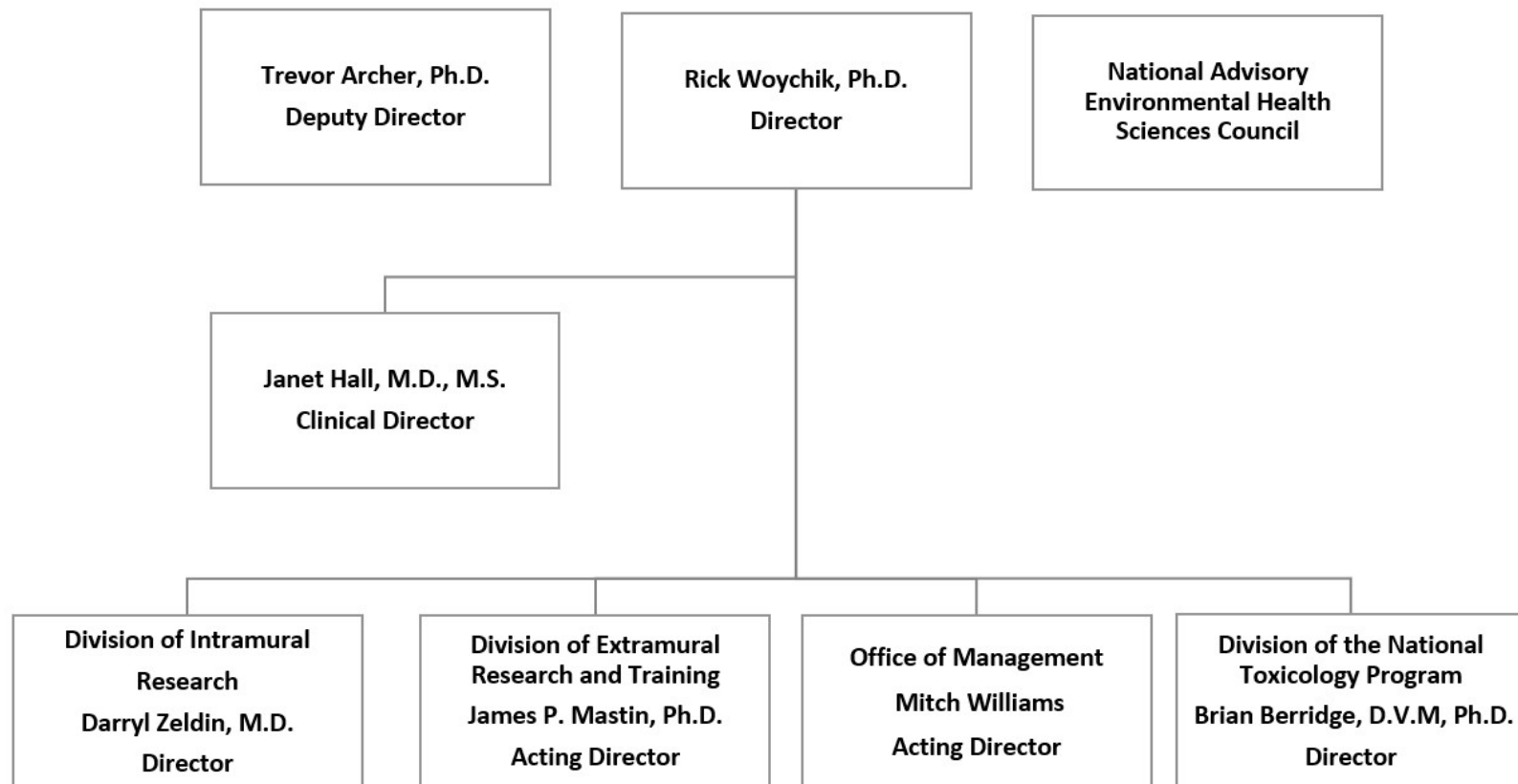
Distribution by Mechanism:



Change by Selected Mechanisms:



NATIONAL INSTITUTES OF HEALTH
National Institute of Environmental Health Sciences
Organization Structure



Organization Chart

Budget Authority by Activity Table

NATIONAL INSTITUTES OF HEALTH Superfund

Budget Authority by Activity * (Dollars in Thousands)

	FY 2021 Final		FY 2022 CR		FY 2023 President's Budget		FY 2023 +/- FY 2022 CR	
<u>Extramural Research</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
<u>Detail</u>								
Superfund Research		\$50,261		\$50,210		\$51,155		\$946
Worker Training Program		\$26,685		\$26,681		\$27,184		\$503
Subtotal, Extramural		\$76,946		\$76,891		\$78,339		\$1,448
Intramural Research	0	\$0	0	\$0	0	\$0	0	\$0
Research Management & Support	0	\$4,554	0	\$4,609	0	\$4,696	0	\$87
TOTAL	0	\$81,500	0	\$81,500	0	\$83,035	0	\$1,535

* Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

Justification of Budget Request

Superfund

Authorizing Legislation: Section 311(a) of the Comprehensive Environmental, Response, Compensation, and Liability Act of 1980, as amended, and Section 126(g) of the Superfund Amendments and Reauthorization Act of 1986

Budget Authority (BA):

	FY 2021 Final	FY 2022 CR	FY 2023 President's Budget	FY 2023 +/- FY 2022
BA	\$81,500,000	\$81,500,000	\$83,035,000	+\$1,535,000

FTEs are included with the regular NIEHS appropriation.

Program funds are allocated as follows: Competitive Grants/Cooperative Agreements; Contracts; Direct Federal/Intramural and Other.

Overall Budget Policy: The FY 2023 President's Budget request for NIEHS Superfund is \$83.0 million, an increase of \$1.5 million or 1.9 percent compared with the FY 2022 CR level.

Program Descriptions

NIH/NIEHS Superfund Research Program (SRP)

NIH In A Changing World: Science to Enhance Human Health

SRP funds university-based grants to support basic biological, environmental, and engineering processes aimed at finding real and practical solutions to human health challenges associated with exposures to hazardous substances. SRP provides practical, scientific solutions to protect our health, environment, and communities.

SRP: Previous research that laid the groundwork to respond to the pandemic

Building upon previous research enabled SRP to launch an efficient response to the pandemic. In North Carolina (NC), for instance, SRP grantees expanded the scope of research involving two communities exposed to per- and polyfluoroalkyl substances (PFAS) to better understand the human health effects of COVID-19. Exposure to PFAS can hamper the immune system's ability to fight diseases like viruses. SRP researchers began investigating the likely health impacts of multiple PFAS exposures to more fully understand how PFAS plays a role in exacerbating COVID-19 illness.



DUKE SRP CENTER GRANTEE ABIGAIL JOYCE.

CREDIT: MADI POLERA, NC STATE UNIVERSITY

Other groundwork such as program development and continuous innovation played a significant role in allowing SRP researchers to determine that certain fatty acids in the blood of COVID-19 patients may predict the severity of adult respiratory distress syndrome (ARDS), which is the second leading cause of death in COVID-19 patients. Through this research, SRP scientists found that the fatty acids may also offer a target for treatment.

In response to the rapidly evolving nature of the pandemic, SRP provided supplemental funding to its Centers to expand upon the foundation established under their existing SRP grants to meet immediate needs to address the public health crisis. SRP used the NIH's Rapid Acceleration of Diagnosis for Underserved Populations (RADx-Up) Initiative to encourage researchers to develop and implement technologies for COVID-19 testing in

underserved populations. These projects provided grantees the opportunity to leverage the SRP Center infrastructure, thereby contributing to the national response to public health emergencies.

SRP: Quickly pivoted to address COVID-19 and health equity

Air and water quality along with other environmental factors are important drivers of health and well-being, and adverse exposures often negatively impact vulnerable populations and minorities causing further health disparities among these Americans. As a result, SRP encourages investigators to address environmental health concerns among populations facing environmental health disparities as described in its 2020 Strategic Plan.

Heeding this call and by leveraging longstanding community partnerships, SRP-funded researchers at Texas A&M initiated a series of community engagement events to demystify COVID-19. The Center identified vaccination hesitancy as a health equity issue that community partners needed assistance with, and quickly mobilized a coordinated and sustained multi-pronged effort to engage and help. Bringing the information to these communities was key in gaining the trust and understanding of Hispanic and Black residents and fostering equitable access to the vaccine.



TEXAS A&M SRP CENTER TRAINEES IN AN EJ COMMUNITY IN HOUSTON, TX.

CREDIT: TEXAS A&M SRP CENTER

The 23 tribes in the state of New Mexico (NM) represent approximately 11 percent of its population. Yet, in 2020 through early 2021, American Indians represented over half of the total positive COVID-19 cases in NM. The virus has impacted tribal communities at a greater level than any other racial and ethnic population in the state. As a result, SRP grantees at the University of New Mexico developed and distributed brochures and learning modules for tribal communities related to the risks of COVID-19 and how to reduce risks, expectantly decreasing the spread of the deadly and highly contagious virus among NM American Indians. This is just one example of the work by SRP grantees working with communities in the Southwest United States to help raise the level of health among minority groups.



UNIVERSITY OF NEW MEXICO GRANTEES TOOK SAMPLES FROM SOIL AND PLANTS IN THE PUEBLO OF LAGUNA. CREDIT: CHRIS SHUEY, SOUTHWEST RESEARCH AND INFORMATION CENTER

SRP grantees are also lending their expertise in data integration and online tool development to explore how COVID-19 spreads and why some communities may be more vulnerable than others to higher COVID-19 infection. For example, SRP grantees developed NC ENVIRO-SCAN, a screening methodology and resource that can be used to help identify North Carolina (NC) counties that are disproportionately burdened by exposure to inorganic arsenic (iAs), social stressors, and COVID-19 risk. Through a collaboration of SRP-funded researchers and other scientists, NC ENVIRO-SCAN allows users to visualize trends to access environmental contaminants, sociodemographic information, environmental justice indicators, and health outcomes throughout NC. These indicators can be viewed individually, side-by-side on two maps, or overlayed onto the same map, allowing users to identify new patterns relevant to their concerns.

SRP: Addressing health disparities

The SRP has for many years worked with American Indians and established collaborative partnerships to reduce health disparities among this group.

For example, the Navajo Nation (NN), in the Southwestern United States, has approximately 523 abandoned uranium mines (AUMs) on its land. Previous health studies have articulated numerous human health hazards associated with AUMs.

To better understand the spatial dynamics of contaminant exposure across the NN, SRP scientists adopted geospatial and computational methods to develop a more sophisticated environmental risk map illustrating the potential for AUM contamination. This study is an entirely novel application and a crucial first step toward informing future epidemiologic studies and ongoing remediation efforts to reduce exposure to AUM waste.

In Maine, SRP researchers at the Massachusetts Institute of Technology and the Sipayik Environmental Department, a tribal government department, partnered to co-launch a

participatory science project to analyze municipal and private well drinking water quality in households in three communities. The objective was to provide households with information about metals, primarily lead and arsenic, in their drinking water, and to improve public education, community partnerships, and local scientific capacity. The project found great success as objectives were met and the community's enthusiasm for the study didn't stop with the end of the project. Participants expressed interest in continuing the partnership and measuring other substances in their municipal drinking water.

Oregon State University SRP Center researchers collaborated with the Swinomish Indian Tribal Community to use personal passive sampling wristbands to measure exposure to polycyclic aromatic hydrocarbons (PAHs). Through this community-based participatory research project, the researchers observed differences in PAH exposure for individuals who participated in different activities or lived at different distances from oil refineries. At the end of the study, participants reported being more aware of their potential exposure to PAHs and felt empowered to take steps to reduce their exposure.

SRP: Combating climate change and disasters

Climate change involves a range of adverse effects, including the release of hazardous chemicals into floodwaters and nearby communities after a disaster such as a hurricane. To help combat the resulting potential adverse health outcomes, researchers at the Texas A&M University SRP Center developed a therapeutic sorbent technology that can bind to hazardous chemicals in the body after exposure, reducing their uptake and bioavailability. Built on decades of research, these broad-acting enterosorbent materials can be added to food or water and ingested by humans and animals to reduce harmful contaminant exposures following natural disasters, chemical spills, and other emergencies.

SRP researchers had also worked to ease the aftereffects of environmental disasters, such as in 2015 when 3 million gallons of acid mine drainage was accidentally discharged from the Gold King Mine Spill (GKMS) into the San Juan River in Colorado. For centuries the Navajo people have relied on the San Juan River for agricultural, recreational, spiritual, and cultural purposes. The SRP risk research highlights the importance for scientists and disaster responders to consider cultural and spiritual impacts when responding to environmental disasters and conducting risk assessments among Indigenous communities.

SRP: Importance of investment in the future

SRP grantees at the University of Rhode Island report that seabird tissue samples contain high levels of both legacy and emerging PFAS. Their results reflect the shift toward production of new PFAS to replace legacy chemicals. Study results confirm the persistence of legacy PFAS and reflect how emerging PFAS are also affecting wildlife and our environment.

SRP grantees have developed novel, slow-release oxidant-paraffin candles that dissolve and degrade chlorinated contaminants in underground aquifers. The grant recipient, small business AirLift Environmental, worked with partners at the University of Nebraska-Lincoln to optimize this groundwater cleanup method and demonstrated its effectiveness in a field study. The Nebraska (NE) Department of Environment and Energy approved the use of aerated oxidant candles so they can be installed in multiple locations across the state. One of the largest aquifers in the world, the Ogallala Aquifer, located in Nebraska, makes this advancement of significant importance to many communities there.

A new strategy to design nanomaterials to better filter contaminants from water overcomes previous limitations, according to an SRP study. To improve the usefulness of graphene oxide nanosheets for filtering contaminants from liquid, the researchers modified how the sheets assemble to create shorter vertical nanochannels. This approach reduces the distance water must pass through while optimizing the amount of contact it has with the membrane. In proof-of-concept tests, the team demonstrated that water vapor could easily pass through the new membrane while excluding harmful chemicals.

Superfund Research Program

Understanding and Communicating Risk to Improve Health

Communicating scientific results and health risks is vitally important to reduce harmful exposures and improve health. SRP grantees understand this significance and work to coordinate and communicate with local communities.

For example, SRP grantees launched a campaign to communicate environmental health risks to Puerto Rican communities, and to decrease the risk of preterm births. Preterm birth is a major public health problem in Puerto Rico where the rates are among the highest worldwide. The SRP Puerto Rico Test site for Exploring Contamination Threats (PROTECT) study has a goal of communicating risks about environmental contaminants to local communities and what people can do to reduce exposure. As a part of this overall program, grantees of the PROTECT Responde campaign disseminate PROTECT's research findings to the community and provide forums for community interaction.



ONE OF THE FLYERS USED IN THE PROTECT RESPONDE KIT.

In another example, SRP grantees developed an interactive web tool in partnership with the California Community Water Center. The web tool helps communities and decision makers identify areas where water quality may be a health risk particularly in vulnerable communities where households rely on private, unregulated groundwater wells for water.

A recent SRP workshop brought together grantees, partners, and colleagues from across the United States to discuss strategies to communicate potential health risks with the goals of preventing and reducing exposures and improving health. Key topics included engaging communities and promoting equity in risk communication, designing health messages, and translating research into communication tools. Building on the workshop, SRP held a four-part webinar series focused on methods to tailor messages, tools, and campaigns to communicate environmental health risks and meet the needs of specific communities. The webinar series drew more than 400 participants from academia, industry, government, and Tribal and community members.

Budget Policy: The FY 2023 President's Budget request for the Superfund Research Program (SRP) is \$51.2 million, an increase of \$0.9 million or 1.9 percent compared with the FY 2022 CR level.

NIH/NIEHS Worker Training Program (WTP)

NIH In A Changing World: Science to Enhance Human Health



ANIDES MORALES AND OTHER UNIVERSITY OF ARIZONA RESEARCHERS VISITED THE U.S.-MEXICO BORDER IN FEBRUARY 2019 TO DOCUMENT LOCATION AND FLOWS OF TRANSBORDER SEWAGE OVERFLOWS. CREDIT: MONICA RAMIREZ-ANDREOTTA, UNIVERSITY OF ARIZONA

WTP provides the nation with a workforce trained in the safe handling of hazardous materials and waste. This includes thousands of workers employed at Superfund sites. WTP funds training conducted in all regions of the country through a network of non-profit organizations. These organizations are committed to protecting workers and their communities by creating and delivering high-quality safety and health curricula. The program has built a national workforce that can protect themselves, co-workers, and communities from environmental hazards as well as respond to natural and man-made disasters.

WTP: Previous work that laid the foundation to respond to the pandemic

WTP is an exceptional program established through the development of professional resources, an expert national network, and a cadre of trainers. The WTP Ebola Biosafety and Infectious Disease Response Training Program and prior biosafety work permitted an experienced and skilled response to the COVID-19 pandemic. The curricula, lessons learned, and expertise developed under the WTP Ebola program provided a strong foundation to efficiently support grantees across the country to deliver COVID-19 training and engage in outreach activities to vulnerable populations.

Decades of partnerships with first responders and healthcare worker organizations allowed workers to use the skills they learned in emergency response and hazardous materials training during COVID-19. For example, the Alabama Fire College Workplace Safety Training (AFC WST) Program delivers Emergency Response Incident Command System (ICS) courses to hundreds of public safety personnel across the Southeast every year, teaching responder organizations about standardized on-scene emergency management that provides structure to disaster response communication and logistics. When Jefferson County (AL) and the City of

Birmingham set up their ICS Unified Command for a regional response to COVID-19, they relied heavily on what they had been taught over decades by AFC WST.

WTP has long been at the forefront of developing and publishing online resources for workers, businesses, and communities. During the pandemic, WTP established new training methods, curricula and guidance documents, and shared lessons learned in an efficient manner to provide critical and timely information to workers and communities. Additionally, the WTP developed resources on vital issues such as vaccines and air filtration as well as health and safety guidance for businesses and employees.



AFC WST DELIVERS AN INCIDENT COMMAND SYSTEM COURSE FOR EMERGENCY MANAGEMENT STAFF

WTP: Quickly pivoted to address COVID-19 and promote health equity

The Environmental Career Worker Training Program (ECWTP) provides training to increase opportunities for individuals from disadvantaged and underserved communities to obtain careers in environmental cleanup, construction, hazardous waste removal, and emergency response. During COVID-19, ECWTP grantees were able to continue to offer courses and employment for individuals due to strong COVID-19 infection control protocols and innovative methods during training. Adapting during the pandemic to continue to reduce health inequities has been a theme for the ECWTP grantees. They have found success through training courses being delivered with a combination of classroom and online methods. ECWTP grantees quickly modified in-person courses to a virtual learning environment at the beginning of the COVID-19 pandemic. To account for health and safety concerns, grantees also made other adjustments for training space and recruitment. “The method of delivery is important for the populations that we serve,” noted one trainer. “We must have interesting and interactive online content to engage our participants. We are not just training to train, but we want to be effective and train with purpose. That is how we will continue to make an impact.” Since 1995, the ECWTP has trained approximately 13,000 workers with an average 70 percent employment rate.



ECWTP STUDENTS IN A HAZARDOUS MATERIALS COURSE IN BREVARD COUNTY, FLORIDA THROUGH THE SUSTAINABLE WORKPLACE

WTP, in coordination with the Interagency Federal Working Group on Environmental Justice (EJ), sponsored *Environmental Justice, Natural Disasters, & COVID-19 Virtual Town Halls*. The purpose of the meetings was to gain a better understanding of how natural disasters and COVID-19 impact minority, low-income, overburdened, and underserved communities, and how

the federal government can better provide support to these communities to prepare and respond to their needs before, during, and after natural disasters. The comments from the Virtual Town Hall meetings will be used to prepare a report for the Federal Interagency Working Group on EJ on how the federal government can better address environmental justice as it relates to preparedness for, response to, and recovery after natural disasters, and the implications of COVID-19.

WTP: Addressing health disparities

Through well-established partnerships, WTP grantees work with Native Alaskans and rural Alaskan communities providing programs in job training and life skills and preparing them to conduct environmental mediation work in their villages. For example, a long-time partnership between the University of Washington (under the Western Region Universities Consortium) and Zender Environmental's Rural Alaska Community Environmental Job Training (RACEJT) Program provides job training and life skills programs for Native Alaskans, preparing them to conduct environmental mediation work in their villages.

Likewise, through WTP funding, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and Oregon Klamath Tribes participated in training provided by AFC WST. AFC WST provides training to members and employees of American Indian tribes nationwide and trained members of CTUIR who are emergency responders and hazardous waste workers, enabling these workers to handle emergencies on and surrounding tribal land. Also, during the COVID-19 pandemic, members of the Klamath Tribes joined an online emergency response awareness training class that helped to augment their safety while continuing their important emergency response work.

WTP: Combatting climate change and disasters

WTP funds training on a wide variety of climate change and disaster subjects. For instance, grantees train workers about firefighting and wildfire consequences such as debris and ash cleanup, wildland-urban interface, wildfire smoke safety, and disaster preparedness. WTP provides skills and critical knowledge to construction workers, day laborers, and volunteers who clean up wildfire ash and debris and who, after training, know how to handle lead, asbestos, flammable liquids, and other hazards. Training courses are delivered to firefighters and emergency response teams and outdoor workers exposed to particulates and other hazards.

WTP disaster safety training occurred in many areas in response to hurricanes, including Texas, Florida, North Carolina, and Puerto Rico. Grantees help workers and communities clean up and rebuild safely, address mental health resiliency issues after hurricanes, and build local capacity to deliver future training. WTP provides tools, resources, and education to help protect the health of workers and volunteers exposed to mold, chemical contamination, and other hazards. One

trainee said, “Disaster response is challenging at best, with a vast ecosystem of responders, from workers and survivors who step up to help, to nonprofits and government agencies. Being a part of the NIEHS family has provided critical support to grassroots communities.”

Through the Disaster Relief Act (2019) WTP awarded seven grantees supplemental funding to support training of workers and communities affected by a variety of natural disasters. Training was delivered in 8 states to more than 1,200 workers. Over 600 workers in 27 courses were trained in California. These courses were held throughout the state, including El Dorado, Los Angeles, Orange, and Riverside counties. Additionally, courses were also delivered in Florida, Louisiana, and North Carolina.



RECENT TRAINEE OF THE WESTERN REGION UNIVERSITIES CONSORTIUM FIGHTING A WILDFIRE NEAR MT BAKER, CA PHOTO FROM A TRAINEE OF WESTERN REGION UNIVERSITIES CONSORTIUM, CREDIT: WHATCOM COUNTY FIRE DISTRICT (CA)

WTP: Importance of investment in the future

Additional health and safety training approaches are necessary to address concerns for the hazardous waste workforce that involve emergent technologies, materials, and chemicals. Investments in occupational hazards associated with emerging industries and the risks workers and communities face as a consequence are critically important, and WTP aims to ensure that the workforce and public is protected from these dangers.

WTP will continue to invest in creating a national workforce that has the skills needed for jobs that engage in environmental cleanup, infrastructure building, and green jobs. Additionally, the COVID-19 pandemic has taught WTP that developing alternative ways to train and communicate with grantees, workers, businesses, and communities is vital. WTP will also continue to invest in tools and technologies to reach the largest number of workers to help protect our nation.

Budget Policy: The FY 2023 President’s Budget request for the Worker Training Program (WTP) is \$27.2 million, an increase of \$0.5 million or 1.9 percent compared with the FY 2022 CR level.

Research Management and Support (RMS)

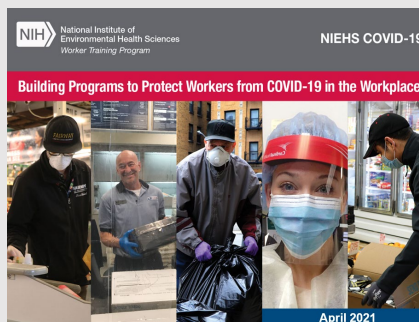
The RMS allocation provides administrative, logistical, and scientific support in the review, award, and monitoring of SRP research grants and WTP training grants. Other RMS functions include program planning, coordination, and evaluation, as well as liaison with other Federal agencies, stakeholders, and the public. For example, RMS supported SRP staff in the development of the new SRP Strategic Plan through research, data collection, and organizational support. RMS support also funded research translation efforts to communicate research findings to a larger audience. RMS also supports the National Clearinghouse for Worker Safety and Health Training, a national resource for curricula, technical reports, and weekly news that provides technical assistance to hazardous waste workers, WTP staff, program awardees, and the public; this resource included specific activities in 2021 on disaster response coordination for COVID-19.

Budget Policy: The FY 2023 President's Budget request for Research Management and Support is \$4.7 million, an increase of \$0.1 million or 1.9 percent compared with the FY 2022 CR level.

Worker Training Program

WTP: COVID-19 Activities

Since the beginning of the pandemic, health care and other essential workers have faced significant risk of exposure. Fortunately, the WTP has provided exceptional training on COVID-19 including training more than 90,000 personnel in approximately 3,900 courses totaling over 275,000 contact hours.



NIEHS WTP COVID-19 Awareness Curriculum April 2019

WTP training empowers workers to protect themselves from COVID-19 as they protect surrounding communities from potential disaster and emergency threats while reducing environmental contamination risks. WTP grantee the New England Consortium-Civil Service Employees Association (TNEC-CSEA), for example, trained more than 3,200 workers in its COVID-19 online courses. These courses reached workers and supervisors from a variety of sectors, including health care, construction, manufacturing, retail, environmental remediation, state and local government organizations, and schools.

One training audience for TNEC-CSEA has been a wide variety of personnel from UMass Lowell. From June to September 2020, TNEC delivered COVID-19 training for these individuals as the university opened research-related activities in mid-2020. This is an example of how WTP grantees supported workplaces across the country in reopening or continuing operations during the pandemic.

WTP's National Clearinghouse for Worker Safety and Health Training has created training tools to aid in the development of courses or materials that provide health and safety guidance on COVID-19. Some of the WTP Clearinghouse's COVID-19 activities include:

- Implementing a COVID-19 needs assessment to understand grantee challenges and lessons learned early in the pandemic.
- Developing technical briefs and fact sheets on various aspects of COVID-19 health and safety.
- Updating COVID-19 training curricula that reflects the newest science and guidance that helped business owners and workers return to work.

Appropriations History

NATIONAL INSTITUTES OF HEALTH Superfund

Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2014	\$79,411,000			\$77,349,000
Rescission				\$0
2015	\$77,349,000			\$77,349,000
Rescission				\$0
2016	\$77,349,000	\$77,349,000	\$77,349,000	\$77,349,000
Rescission				\$0
2017 ¹	\$77,349,000	\$77,349,000	\$77,349,000	\$77,349,000
Rescission				\$0
2018	\$59,607,000	\$75,370,000		\$77,349,000
Rescission				\$0
2019	\$53,967,000	\$80,000,000	\$78,349,000	\$79,000,000
Rescission				\$0
2020	\$66,581,000	\$80,000,000	\$81,000,000	\$81,000,000
Rescission				\$0
2021	\$73,688,000	\$83,000,000	\$81,500,000	\$81,500,000
Rescission				\$0
2022	\$83,540,000	\$83,540,000	\$84,540,000	\$81,500,000
Rescission				\$0
2023	\$83,035,000			

¹ Budget Estimate to Congress includes mandatory financing.

Authorizing Legislation

NATIONAL INSTITUTES OF HEALTH Superfund

Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2022 Amount Authorized	FY 2022 CR	2023 Amount Authorized	FY 2023 President's Budget
Environmental Protection Agency's Hazardous Substance Superfund	CERCLA Section 311(a)	42§9660 Section 9660(a)	Indefinite	\$81,500,000	Indefinite	\$83,035,000
	SARA Section 126(a)	Section 9660(a)	Indefinite		Indefinite	
Total, Budget Authority				\$81,500,000		\$83,035,000

Amounts Available for Obligation

NATIONAL INSTITUTES OF HEALTH

Superfund

Amounts Available for Obligation ¹
(Dollars in Thousands)

Source of Funding	FY 2021 Final	FY 2022 CR	FY 2023 President's Budget
Appropriation	\$81,500	\$81,500	\$83,035
Subtotal, adjusted appropriation	\$81,500	\$81,500	\$83,035
OAR HIV/AIDS Transfers	\$0	\$0	\$0
Subtotal, adjusted budget authority	\$81,500	\$81,500	\$83,035
Unobligated balance, start of year	\$0	\$0	\$0
Unobligated balance, end of year (carryover)	\$0	\$0	\$0
Subtotal, adjusted budget authority	\$81,500	\$81,500	\$83,035
Unobligated balance lapsing	-\$12	\$0	\$0
Total obligations	\$81,488	\$81,500	\$83,035

¹ Excludes the following amounts (in thousands) for reimbursable activities carried out by this account:
FY 2021 - \$10,803 FY 2022 - \$14,000 FY 2023 - \$14,000

Budget Authority by Object Class

NATIONAL INSTITUTES OF HEALTH Superfund

Budget Authority by Object Class¹ (Dollars in Thousands)

	FY 2022 CR	FY 2023 President's Budget	FY 2023 +/- FY 2022
Total compensable workyears:			
Full-time equivalent	0	0	0
Full-time equivalent of overtime and holiday hours	0	0	0
Average ES salary	\$0	\$0	\$0
Average GM/GS grade	0.0	0.0	0.0
Average GM/GS salary	\$0	\$0	\$0
Average salary, Commissioned Corps (42 U.S.C. 207)	\$0	\$0	\$0
Average salary of ungraded positions	\$0	\$0	\$0
OBJECT CLASSES	FY 2022 CR	FY 2023 President's Budget	FY 2023 +/- FY 2022
Personnel Compensation			
11.1 Full-Time Permanent	\$1,144	\$1,187	\$43
11.3 Other Than Full-Time Permanent	\$222	\$231	\$8
11.5 Other Personnel Compensation	\$37	\$38	\$1
11.7 Military Personnel	\$0	\$0	\$0
11.8 Special Personnel Services Payments	\$0	\$0	\$0
11.9 Subtotal Personnel Compensation	\$1,404	\$1,456	\$53
12.1 Civilian Personnel Benefits	\$529	\$547	\$18
12.2 Military Personnel Benefits	\$0	\$0	\$0
13.0 Benefits to Former Personnel	\$0	\$0	\$0
Subtotal Pay Costs	\$1,932	\$2,003	\$71
21.0 Travel & Transportation of Persons	\$0	\$0	\$0
22.0 Transportation of Things	\$0	\$0	\$0
23.1 Rental Payments to GSA	\$0	\$0	\$0
23.2 Rental Payments to Others	\$0	\$0	\$0
23.3 Communications, Utilities & Misc. Charges	\$0	\$0	\$0
24.0 Printing & Reproduction	\$0	\$0	\$0
25.1 Consulting Services	\$11	\$11	\$0
25.2 Other Services	\$2,446	\$2,458	\$11
25.3 Purchase of Goods and Services from Government Accounts	\$216	\$221	\$4
25.4 Operation & Maintenance of Facilities	\$0	\$0	\$0
25.5 R&D Contracts	\$0	\$0	\$0
25.6 Medical Care	\$0	\$0	\$0
25.7 Operation & Maintenance of Equipment	\$2	\$2	\$0
25.8 Subsistence & Support of Persons	\$0	\$0	\$0
25.0 Subtotal Other Contractual Services	\$2,675	\$2,691	\$16
26.0 Supplies & Materials	\$0	\$0	\$0
31.0 Equipment	\$2	\$2	\$0
32.0 Land and Structures	\$0	\$0	\$0
33.0 Investments & Loans	\$0	\$0	\$0
41.0 Grants, Subsidies & Contributions	\$76,891	\$78,339	\$1,448
42.0 Insurance Claims & Indemnities	\$0	\$0	\$0
43.0 Interest & Dividends	\$0	\$0	\$0
44.0 Refunds	\$0	\$0	\$0
Subtotal Non-Pay Costs	\$79,568	\$81,032	\$1,464
Total Budget Authority by Object Class	\$81,500	\$83,035	\$1,535

¹ Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

Salaries and Expenses

NATIONAL INSTITUTES OF HEALTH

Superfund

Salaries and Expenses

(Dollars in Thousands)

Object Classes	FY 2022 CR	FY 2023 President's Budget	FY 2023 +/- FY 2022
<u>Personnel Compensation</u>			
Full-Time Permanent (11.1)	\$1,144	\$1,187	\$43
Other Than Full-Time Permanent (11.3)	\$222	\$231	\$8
Other Personnel Compensation (11.5)	\$37	\$38	\$1
Military Personnel (11.7)	\$0	\$0	\$0
Special Personnel Services Payments (11.8)	\$0	\$0	\$0
Subtotal, Personnel Compensation (11.9)	\$1,404	\$1,456	\$53
Civilian Personnel Benefits (12.1)	\$529	\$547	\$18
Military Personnel Benefits (12.2)	\$0	\$0	\$0
Benefits to Former Personnel (13.0)	\$0	\$0	\$0
Subtotal Pay Costs	\$1,932	\$2,003	\$71
Travel & Transportation of Persons (21.0)	\$0	\$0	\$0
Transportation of Things (22.0)	\$0	\$0	\$0
Rental Payments to Others (23.2)	\$0	\$0	\$0
Communications, Utilities & Misc. Charges (23.3)	\$0	\$0	\$0
Printing & Reproduction (24.0)	\$0	\$0	\$0
<u>Other Contractual Services</u>			
Consultant Services (25.1)	\$11	\$11	\$0
Other Services (25.2)	\$2,446	\$2,458	\$11
Purchase of Goods and Services from Government Accounts (25.3)	\$216	\$221	\$4
Operation & Maintenance of Facilities (25.4)	\$0	\$0	\$0
Operation & Maintenance of Equipment (25.7)	\$2	\$2	\$0
Subsistence & Support of Persons (25.8)	\$0	\$0	\$0
Subtotal Other Contractual Services	\$2,675	\$2,691	\$16
Supplies & Materials (26.0)	\$0	\$0	\$0
Subtotal Non-Pay Costs	\$2,675	\$2,691	\$16
Total Administrative Costs	\$4,607	\$4,694	\$87

NIH Detail of Full-Time Equivalent (FTE) Employment by IC

Institutes and Centers	FY 2021 Actual	FY 2022 Estimate	FY 2023 Estimate
NCI.....	3,097	3,245	3,320
NHLBI.....	863	966	966
NIDCR.....	241	252	252
NIDDK.....	666	691	706
NINDS.....	554	607	632
NIAID.....	2,078	2,180	2,180
NIGMS.....	180	184	209
NICHD.....	535	591	602
NEI.....	285	290	290
NIEHS.....	642	672	685
NIA.....	483	520	600
NIAMS.....	229	238	242
NIDCD.....	134	140	140
NIMH.....	567	589	589
NIDA.....	389	398	398
NIAAA.....	215	238	238
NINR.....	83	111	111
NHGRI.....	347	375	385
NIBIB.....	97	124	129
FIC.....	58	61	61
NIMHD.....	68	140	210
NCCIH.....	78	90	100
NCATS.....	237	277	298
NLM.....	659	741	741
OD.....	968	1,087	1,162
ARPA-H.....	---	---	75
Central Services:			
OD - CS.....	823	851	870
CC.....	1,949	2,035	2,035
CSR.....	422	450	464
CIT.....	227	247	247
ORS.....	507	537	539
ORF.....	731	752	830
Subtotal Central Services¹	4,659	4,872	4,985
<i>PHS Trust Fund (non-add)²</i>	<i>4</i>	<i>4</i>	<i>4</i>
<i>CRADA (non-add)³</i>	<i>8</i>	<i>8</i>	<i>8</i>
Total.....	18,412	19,679	20,306

¹ Reflects FTE associated with Central Services positions whose payroll costs are financed from the NIH Management Fund and the NIH Service and Supply Fund.

² PHS Trust Fund positions are incorporated within the IC's Direct-funded civilian FTE category and are treated as non-add values.

³ CRADA positions are distributed across multiple ICs and are treated as non-add values.

NIH Budget Mechanism Total

(Dollars in Thousands) ^{1,2,3}	FY 2021 Final ^{8,9}		FY 2022 Continuing Resolution (CR) ^{9,10}		FY 2023 President's Budget ⁹		FY 2023 +/- FY 2022 CR	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Projects:								
Noncompeting	28,492	\$15,937,228	29,502	\$17,090,998	29,301	\$17,543,339	-201	\$452,341
Administrative Supplements ³	(2,912)	483,523	(2,326)	331,645	(2,285)	356,660	(-41)	25,015
Competing	11,258	\$6,748,930	9,806	\$5,603,786	11,878	\$6,804,460	2,072	\$1,200,674
Subtotal, RPGs	39,750	\$23,169,681	39,308	\$23,026,429	41,179	\$24,704,459	1,871	\$1,678,030
SBIR/STTR	1,863	1,176,827	1,837	1,158,777	1,950	1,228,333	113	69,556
Research Project Grants	41,613	\$24,346,508	41,145	\$24,185,206	43,129	\$25,932,792	1,984	\$1,747,585
Research Centers:								
Specialized/Comprehensive	1,024	\$2,034,952	1,047	\$2,047,849	1,122	\$2,173,695	75	\$125,846
Clinical Research	71	421,204	68	418,049	53	313,820	-15	-104,230
Biotechnology	61	92,492	59	89,489	60	92,791	1	3,302
Comparative Medicine	48	143,583	48	140,554	47	138,903	-1	-1,651
Research Centers in Minority Institutions	21	78,151	21	78,241	25	86,489	4	8,248
Research Centers	1,225	\$2,770,381	1,243	\$2,774,182	1,307	\$2,805,697	64	\$31,515
Other Research:								
Research Careers	4,684	\$880,798	4,736	\$903,266	4,851	\$923,027	115	\$19,762
Cancer Education	68	17,633	25	17,650	30	21,439	5	3,789
Cooperative Clinical Research	249	487,472	244	447,241	279	483,142	35	35,901
Biomedical Research Support	138	103,688	113	88,872	118	91,872	5	3,000
Minority Biomedical Research Support	282	95,012	263	82,094	137	50,957	-126	-31,137
Other	2,183	1,356,525	2,309	1,340,933	2,329	1,345,505	20	4,572
Other Research	7,604	\$2,941,127	7,690	\$2,880,055	7,744	\$2,915,942	54	\$35,887
Total Research Grants	50,442	\$30,058,017	50,078	\$29,839,444	52,180	\$31,654,431	2,102	\$1,814,987
Ruth L. Kirchstein Training Awards:	FTTPs		FTTPs		FTTPs		FTTPs	
Individual Awards	4,196	\$200,745	4,238	\$207,387	4,264	\$212,933	26	\$5,546
Institutional Awards	12,792	725,697	13,570	776,198	13,845	819,746	275	43,548
Total Research Training	16,988	\$926,442	17,808	\$983,585	18,109	\$1,032,679	301	\$49,094
Research & Develop. Contracts <i>(SBIR/STTR) (non-add)³</i>	2,427 <i>(103)</i>	\$3,355,475 <i>(60,525)</i>	2,450 <i>(102)</i>	\$3,420,727 <i>(58,412)</i>	2,576 <i>(101)</i>	\$3,568,852 <i>(62,482)</i>	126 <i>(-1)</i>	\$148,125 <i>(4,070)</i>
Intramural Research		\$4,538,642		\$4,638,391		\$4,763,453		\$125,062
Res. Management & Support		2,049,666		2,145,807		2,255,892		110,084
<i>Res. Management & Support (SBIR Admin) (non-add)³</i>		<i>(7,493)</i>		<i>(10,362)</i>		<i>(10,467)</i>		<i>(105)</i>
<i>Office of the Director - Appropriation^{3,4}</i>		<i>(2,521,605)</i>		<i>(2,519,401)</i>		<i>(2,728,665)</i>		<i>(209,264)</i>
<i>Office of the Director - Other</i>		1,573,180		1,579,186		1,764,361		185,174
<i>ORIP (non-add)^{3,4}</i>		<i>(299,885)</i>		<i>(299,985)</i>		<i>(305,765)</i>		<i>(5,781)</i>
<i>Common Fund (non-add)^{3,4}</i>		<i>(648,539)</i>		<i>(640,230)</i>		<i>(658,539)</i>		<i>(18,309)</i>
ARPA-H		0		0		5,000,000		5,000,000
Buildings and Facilities ⁵		229,400		230,000		330,000		100,000
<i>Appropriation³</i>		<i>(199,400)</i>		<i>(200,000)</i>		<i>(300,000)</i>		<i>(100,000)</i>
Type 1 Diabetes ^{6,7}		-150,000		-141,450		-141,450		0
Program Evaluation Financing ⁶		-1,271,505		-1,271,505		-1,271,505		0
Subtotal, Labor/HHS Budget Authority		\$41,309,318		\$41,424,186		\$48,956,713		\$7,532,527
Interior Appropriation for Superfund Research		81,500		81,500		83,035		1,535
Total, NIH Discretionary Budget Authority		\$41,390,818		\$41,505,686		\$49,039,748		\$7,534,062
Type 1 Diabetes ⁷		150,000		141,450		141,450		0
Pandemic preparedness		0		0		12,050,000		12,050,000
Total, NIH Budget Authority		\$41,540,818		\$41,647,136		\$61,231,198		\$19,584,062
Program Evaluation Financing		1,271,505		1,271,505		1,271,505		0
Total, Program Level		\$42,812,323		\$42,918,641		\$62,502,703		\$19,584,062

¹ All Subtotal and Total numbers may not add due to rounding.

² Includes 21st Century Cures Act funding and excludes supplemental financing.

³ All numbers in italics and brackets are non-add.

⁴ Number of grants and dollars for the Common Fund and ORIP components of OD are distributed by mechanism and are noted here as non-adds. Office of the Director - Appropriation is the non-add total of these amounts and the funds accounted for under OD - Other.

⁵ Includes B&F appropriation and monies allocated pursuant to appropriations acts provisions such that funding may be used for facilities repairs and improvements at the NCI Federally Funded Research and Development Center in Frederick.

⁶ Number of grants and dollars for mandatory Type 1 Diabetes (T1D) and NICMS Program Evaluation financing are distributed by mechanism above; therefore, T1D and Program Evaluation financing amounts are deducted to provide subtotals for Labor/HHS Budget Authority.

⁷ Amounts in FY 2022 and FY 2023 reflect a reduction of \$8.550 million for Budget Control Act sequestration.

⁸ Reduced by a Secretary's Transfer of \$123.177 million.

⁹ Reduced by a transfer of \$5.0 million from OD to the HHS Office of Inspector General.

¹⁰ Reflects the annualized amounts provided in the continuing resolution ending 3/11/2022. Appropriation from the 10-Year Pediatric Research Initiative Fund is reduced as limited by fund balances.

NIH Budget Request by IC

(Dollars in Thousands) ¹	FY 2021 Final ^{5,6}	FY 2022 CR ⁶	FY 2023 President's Budget ⁶
NCI.....	\$6,539,696	\$6,559,852	\$6,713,851
NHLBI.....	\$3,653,700	\$3,664,811	\$3,822,961
NIDCR.....	\$483,387	\$484,867	\$513,191
NIDDK ²	\$2,275,530	\$2,273,425	\$2,347,530
NINDS.....	\$2,503,517	\$2,513,393	\$2,768,043
NIAID.....	\$6,048,849	\$6,069,619	\$6,268,313
NIGMS ³	\$2,986,253	\$2,991,417	\$3,097,557
NICHHD.....	\$1,588,197	\$1,590,337	\$1,674,941
NEL.....	\$833,012	\$835,714	\$853,355
NIEHS ⁴	\$893,722	\$896,175	\$1,015,091
NIA.....	\$3,888,220	\$3,899,227	\$4,011,413
NIAMS.....	\$632,382	\$634,292	\$676,254
NIDCD.....	\$496,578	\$498,076	\$508,704
NIMH.....	\$2,099,736	\$2,103,708	\$2,210,828
NIDA.....	\$1,475,867	\$1,479,660	\$1,843,326
NIAAA.....	\$553,216	\$554,923	\$566,725
NINR.....	\$174,411	\$174,957	\$198,670
NHGRI.....	\$614,163	\$615,780	\$629,154
NIBIB.....	\$409,493	\$410,728	\$419,493
NIMHD.....	\$390,413	\$390,865	\$659,817
NCCIH.....	\$153,616	\$154,162	\$183,368
NCATS.....	\$852,853	\$855,421	\$873,654
FIC.....	\$83,761	\$84,044	\$95,801
NLM.....	\$460,746	\$463,787	\$471,998
OD.....	\$2,521,605	\$2,519,401	\$2,728,665
ARPA-H.....	---	---	\$5,000,000
Pandemic preparedness.....	---	---	\$12,050,000
B&F.....	\$199,400	\$200,000	\$300,000
Total, NIH Program Level.....	\$42,812,323	\$42,918,641	\$62,502,703
Special Type 1 Diabetes Research (mandatory).....	-\$150,000	-\$141,450	-\$141,450
Pandemic preparedness (mandatory).....	---	---	-\$12,050,000
PHS Program Evaluation.....	-\$1,271,505	-\$1,271,505	-\$1,271,505
Interior Appropriation (Superfund Research).....	-\$81,500	-\$81,500	-\$83,035
Total, NIH Labor/HHS Budget Authority.....	\$41,309,318	\$41,424,186	\$48,956,713

¹ Includes funding derived by transfer from the NIH Innovation Account under the 21st Century Cures Act.

² Includes Type 1 Diabetes mandatory funding as shown later in the table.

³ Includes Program Evaluation financing as shown later in the table.

⁴ Includes Interior Appropriation for Superfund Research activities as shown later in the table.

⁵ Amounts for FY 2021 reflect HIV/AIDS transfers across ICs under the authority of the Office of AIDS Research.

⁶ Reflects directive transfer of \$5.0 million from OD to the HHS Office of Inspector General.