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**Statement of
George Gray, Ph.D.
Assistant Administrator for Research and Development and EPA Science Advisor
United States Environmental Protection Agency
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Committee on Science
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Mr. Chairman and Members of the Committee, I am pleased to be here today to discuss the Fiscal Year (FY) 2007 budget request for the Environmental Protection Agency (EPA). The President's FY 2007 budget request of \$788.3 million for EPA science and technology reflects the Administration's strong commitment to carrying out EPA's mission to protect human health and the natural environment. The request demonstrates the President's continued commitment to providing the resources needed to address our Nation's highest priorities, which include continued support for homeland security and protecting our environment while sustaining our economy's growth. This request includes \$557.2 million for the Office of Research and Development (ORD) to continue the work of providing the sound science that informs the Agency's decisions.

EPA shares in the responsibility for being good stewards of tax dollars. In keeping with the principles of good stewardship, the President has included \$7.3 billion dollars to support the work of the Environmental Protection Agency and our partners in his budget. This budget fulfills presidential environmental commitments and maintains the goals laid out in EPA's strategic plan, while spending tax dollars more effectively.

This budget reflects a continued focus on emerging issues, as well as on our body of base work. As we are confronted with new opportunities and new challenges, such as computational toxicology or the impacts of manufactured nanomaterials on human

health, we make new or increased investments. In areas where the major science and technology questions have been answered and where additional spending would not be cost effective, we scale back or even cease work. The work at ORD laboratories, research centers, and offices across the country helps improve the quality of air, water, soil, and the way we use resources. Applied science at ORD builds our understanding of how to protect and enhance the relationship between humans and the Earth's ecosystems.

As we prepare for tomorrow's environmental challenges, EPA will meet the President's charge by focusing on three principles. The first is results and accountability. The second principle is innovation and collaboration. The third principle is using the best available science to accelerate environmental protection. These three principles are consistent with the President's mandate to create a government that is citizen-centered, results-oriented, and market-based. The best available science principle is the one that I am focusing on today. The President and Administrator Johnson share my commitment to sound science.

This focus on science is evident in additional funds in this year's budget for researching the impacts on human health of manufactured nanomaterials, enhancements to health hazard assessment, and expansion of the effective computational toxicology program. Two additional areas on which I'd like to focus on in my testimony are water infrastructure and EPA's homeland security responsibilities.

But before I do, I would like to address how the President's FY 2007 budget request continues to enable ORD to both develop and apply the latest scientific methods and provide the best available science to inform the Agency's , and others', environmental decision-making. One important way is by working with our partners

within the Agency – the Program and Regional Offices - - to ensure our research program is responsive to their policy needs. Another is to coordinate and thereby leverage our research efforts with other Federal agencies through the Committee on Environmental and Natural Resources. Lastly, through our Science to Achieve Results (STAR) research, ORD draws upon the expertise in our colleges and universities in the environmental sciences, and through our fellowship programs, continues to develop that expertise.

An example that combines all of these approaches is our computational toxicology program, which I will address in more detail later. By developing new methods to test the environmental performance of chemicals, this research effort draws upon the recent developments in the fields of genomics, to which our federal and private sector partners - - academia and industry - - contribute greatly, to address the policy needs of EPA's Office of Prevention, Pesticides, and Toxic Substances. Clearly, by taking advantage of all of the approaches above, ORD continues to make a significant contribution to our understanding of the environment, and the President's fiscal year 2007 budget request will enable us to continue to make such important contributions.

I believe that the fiscal year 2007 request is adequate to continue providing the sound science needed to address the nation's critical environmental problems and risks.

FY 2007 President's Budget

Nanotechnology

Nanotechnology, the manipulation of matter at the atomic and molecular scales where unique phenomena enable novel applications, is likely to have profound effects on the world economy and on our quality of life. EPA is optimistic about nanotechnology's

potential to improve environmental monitoring, pollution control and remediation techniques. However, EPA is also mindful of our responsibility to consider nanotechnology's environmental and health implications, so that the American economy can safely realize the nanotechnology revolution.

To meet this responsibility better, the President's Budget includes an increase of \$4 million, which includes an additional \$1 million from exploratory grants, for ORD to study the impacts of manufactured nanomaterials on human health and the environment and nanotechnology's potential beneficial environmental uses. Our research will be guided by an EPA white paper on nanotechnology currently undergoing external peer review and an interagency environmental and health research needs document being prepared under the National Nanotechnology Initiative. EPA's nanotechnology research has, to date, primarily been conducted through the Science to Achieve Results grants program. The President's FY 2007 investment in nanotechnology research at EPA will allow us to establish an in-house effort to complement our existing grants program. Together, these programs can help lay the scientific foundation for EPA's understanding of nanotechnology.

Enhancing Health Hazard Assessment

One of the goals of the Administration is to enhance the transparency and inclusiveness of the chemical risk assessment process utilizing the Integrated Risk Information System (IRIS). IRIS is an internet database containing information on human health effects that may result from exposure to various chemicals in the environment. IRIS was initially developed for EPA staff in response to a growing demand for consistent information on chemical substances for use in risk assessments,

decision-making and regulatory activities. It has since grown into the premier national and international source for such qualitative and quantitative risk information. The information in IRIS is intended for those without extensive training in toxicology, but with some knowledge of health sciences.

The heart of IRIS is its collection of health hazard assessments covering individual chemicals. These chemical assessments contain descriptive and quantitative information on hazard identification and dose-response information for both cancer and non-cancer effects. The benefits of the IRIS database lie principally in the quality of its health hazard assessments, the provision of quantitative risk information, and the consistency provided by a single database among the various clients for this information.

Computational Toxicology

Since FY 2002, EPA has been involved in a forward looking, results-oriented, targeted research effort to address the question of “when and how” to test chemicals for hazard identification and improve quantitative dose-response assessment. One objective of this research is to develop approaches for prioritizing chemicals for subsequent screening and testing using novel technologies derived from computational chemistry, molecular biology and systems biology, all while decreasing our use of tests on animals. Those three scientific disciplines form the core of our computational toxicology research program.

In 2005, ORD established a National Center for Computational Toxicology (NCCT). Utilizing cutting-edge research techniques, NCCT scientists are providing leadership in efforts to improve understanding of the fate and transport of pollutants and of the toxicity and risks posed by environmental contaminants.

Our computational toxicology (comptox) work has begun to show promise to reduce the reliance on animal toxicity testing. For example, this past year, with successful development of an *in vitro* assay for the evaluation of the effects of chemicals on steroidogenesis, the committee advising the Agency on the Endocrine Disruptors Screening Program (EDSP) recommended that validation work on the rat assay be halted, and that full attention be paid to the new *in vitro* assay. This represents the first substitution of an *in vitro* assay in place of an *in vivo* assay by the EDSP.

Water Infrastructure

The President's budget request includes \$7 million for a water infrastructure research initiative. This effort will identify new and innovative approaches for managing the nation's water infrastructure, especially for upgrading and improving the performance of deteriorating wastewater collection systems and drinking water distribution systems. The U.S. Conference of Mayors in its 2005 National City Water Survey rated "aging water resources infrastructure" as the top priority. This is a widespread, national problem facing large and small communities alike. A diverse set of innovative, technologically advanced engineered solutions will build on the Agency's multi-tiered effort to address the nation's aging water infrastructure.

Homeland Security

EPA shares the responsibility to support the President's top priority: the safety and security of the American people. ORD science plays a vital role in developing the means to mitigate the effects on human health and the environment in the aftermath of attacks using chemical, biological, and radiological agents. Specific priorities include providing tools and training to help communities protect their water infrastructure

through detection, containment, and decontamination in water systems; the development and evaluation of decontamination and disposal methods for contaminated and decontaminated materials from the inside of buildings and outdoors; development and refinement of sampling and analytical methods for chemical, biological, and radiological contaminants both in air and water; and the preparation of risk assessment methods for both short-term and medium-term exposures from chemical, biological, and radiological contaminants.

These priorities were developed using threat scenarios and informed scientific and technical judgment. A threat scenario includes a specific type of attack targeted against a situation or setting. As a result, EPA works with the Department of Homeland Security to evaluate thousands of possible combinations of facility types and methods and means of attack. Priority scenarios identified through this process are those that are considered more likely to happen than others or that are more likely to cause widespread or significant harm. EPA also uses informed scientific and technical judgment to help identify priorities. EPA solicits input from scientific and technical experts such as the National Academy of Sciences, and the Science Advisory Board, Agency decision makers, and stakeholders such as the Department of Homeland Security, the Department of Defense, and information users—such as first responders—directly affected by a threat or attack. The results of both approaches are used to identify priorities and refine them as necessary over time.

Conclusion

By uniquely combining human health and ecological research in one Federal agency employing world-class research scientists, ORD has made, and will continue to make, significant contributions to developing a better understanding of environmental risks to both human health and ecosystems. The results of this research have consistently and effectively informed EPA's environmental decision making as well as that of others, leading to environmental policies based on sound science at the federal, state, tribal and local levels.

The President's FY 2007 budget request for ORD continues this tradition of excellence, by emphasizing the best available cutting-edge science and technology, collaboration and innovation, with an orientation on results.

Thank you for this opportunity to tell you about the exciting work we conduct in ORD, especially in the areas of nanotechnology, the IRIS database, computational toxicology, water infrastructure and homeland security. These are but a few highlights from our portfolio of science and technology work. I am happy to answer your questions about these or any ORD matters.