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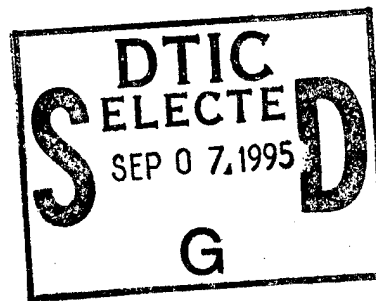
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United States Senate

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ENVIRONMENTAL  
TECHNOLOGY

Comments on S. 2632, the  
'National Environmental  
Technologies Agency Act'

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Mr. Chairman and Members of the Committee:

We appreciate the opportunity to appear here today to present our views on Senate Bill 2632 which would establish a National Environmental Technologies Agency to promote the development and commercial application of environmentally safe technologies and to improve the nation's competitiveness in meeting the growing global demand for such technologies. The agency would do this through loans, grants, and other financial assistance to private industry, universities, nonprofit research centers, and other entities. S. 2632 also provides the agency broad authority to coordinate activities aimed at restoring and protecting the environment, including all federal environmental research and the exchange of technological information.

Over the years, we have testified before this and other congressional committees on important environmental issues, including the need for better management of environmental cleanup technologies. Consequently, the Committee requested that we draw on our past work to comment on three areas: (1) the importance of innovative technologies, (2) S. 2632 and provisions of the bill that might be clarified to avoid potential problems, and (3) any existing government organizations that could assist in accomplishing the bill's objectives. Enactment of S. 2632 is a matter of policy for the Congress to determine. Our comments are offered to assist this Committee's deliberations on the matter.

In summary, innovative technologies are needed to help clean up our environment and to protect it in the future. The combined public and private cleanup effort in the United States alone may cost more than half a trillion dollars over the next 30 years. Moreover, environmental cleanup is no longer just a domestic issue. The recent environmental summit in Rio de Janeiro emphasized the growing global dimensions of environmental problems and the potential markets for innovative technologies.

The introduction of S. 2632 highlights the importance of developing new environmental technologies. However, it also raises some fundamental questions that the Congress may wish to address before committing considerable federal resources to a new agency. For example, what are the research and development needs? What are the needs for the transfer of technology? What are the regulatory barriers to more widespread use? Clearly, the answer to these questions might suggest a number of ways in which the federal government might provide the most effective support for the environmental technologies industry. In this light, I would note that the Congress has asked the Congressional Research Service and the Office of Technology Assessment to further study some of these questions and, when it is completed, their work may help suggest the most appropriate federal response.

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In addition to these fundamental questions, the bill's provisions could be revised to clarify the priorities for the technologies the new Agency would promote, what coordination authority it would have, who would oversee its activities, and how it would be funded.

Finally, while we have not evaluated them, government organizations exist that could assist in achieving the bill's objectives. The Congress may wish to consider the roles of these organizations and how their charters might be expanded to include promoting development of innovative environmental technologies.

I would now like to address in more detail the three areas we were asked to comment on.

### Importance of Innovative Environmental Technologies

The dimensions and potential costs of cleaning up our environment are so great that, without innovative technologies, we may find the solutions cost prohibitive and impacting on our ability to address other national needs. In a June 1991 report, we pointed out that controlling pollution and complying with environmental regulations has cost the Nation about \$1 trillion thus far, and that the annual costs should be expected to rise from \$115 billion today to \$160 billion by the end of the decade.<sup>1</sup> Federal agencies--particularly the Departments of Energy (DOE) and Defense (DOD) and the Environmental Protection Agency (EPA)--will bear an increasingly larger share of these costs as they turn to the cleanup and restoration of long-neglected facilities.

The technological problems and staggering growth in the costs of DOE's efforts to clean up the nuclear weapons complex provide an excellent example of the need for innovative technologies to deal with environmental problems. From fiscal year 1992 to 1993, DOE's cleanup budget grew from \$4.3 billion to \$5.3 billion, or by about 24 percent. The estimate of the total cost to clean up the complex has grown from about \$100 billion just 4 years ago to as much as \$160 billion today.

Through numerous reports and congressional testimonies in recent years, we have pointed out that technological problems have plagued DOE's clean-up efforts. For example, in testimony before this Committee in February of this year, we restated our concerns about the technical problems that DOE is experiencing in trying to sample the high-level radioactive wastes in the single-shell and

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<sup>1</sup>Environmental Protection: Meeting Public Expectations with Limited Resources (GAO/RCED-91-97, June 18, 1991).

double-shell storage tanks at its Hanford facility.<sup>2</sup> In our June 1991 report on DOE's plans to pretreat the high-level waste in the Hanford double-shell tanks, we pointed out a number of technical problems that eventually led DOE to cancel these plans.<sup>3</sup> Moreover, in its November 1991 report, DOE's Advisory Committee on Nuclear Facility Safety stated that cost-effective technologies do not yet exist for cleaning up many of the DOE sites.<sup>4</sup>

Similarly, we noted in June 1992 testimony that there are also signs of problems with the effectiveness of Superfund technologies.<sup>5</sup> For example, some clay "caps" that were built to isolate contaminated soil have failed to do so because, over time, they have cracked and allowed contaminants to migrate from the site. Also, an EPA study of one of the most common Superfund remedies--the pumping and treating of groundwater--raises serious questions about the effectiveness of this technology. After examining 19 sites where pumping and treating techniques had been used for up to 10 years, the study concluded that the contamination had been reduced, but not to target levels. More disturbingly, once the pumps were turned off, contaminant concentrations rose again since the contamination sources had not been eliminated.

In addition to solving the nation's environmental problems, innovative environmental technologies provide an opportunity for U.S. companies to expand in both domestic and foreign markets. In a recent report, the Organisation for Economic Co-operation and Development (OECD) estimated the value of the current world market for environmental equipment and services at about \$200 billion annually, and projected that it would grow at an annual rate of 5 to 6 percent, reaching \$300 billion by the year 2000.<sup>6</sup> OECD estimated the United States' share to be \$78 billion (or 39 percent) in 1990, growing by 5 percent annually to about \$113 billion by the year 2000.

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<sup>2</sup>Nuclear Weapons Complex: Major Safety, Environmental, and Reconfiguration Issues Facing DOE (GAO/T-RCED-92-31, Feb. 25, 1992).

<sup>3</sup>Nuclear Waste: Pretreatment Modifications at DOE Hanford's B Plant Should Be Stopped (GAO/RCED-91-165, June 12, 1991).

<sup>4</sup>Final Report on DOE Nuclear Facilities (Advisory Committee on Nuclear Facility Safety to the Secretary of Energy, Nov. 1991).

<sup>5</sup>Superfund: Current Progress and Issues Needing Further Attention (GAO/T-RCED-92-56, June 11, 1992).

<sup>6</sup>The OECD Environment Industry: Situation, Prospects and Government Policies (Organisation for Economic Co-operation and Development, OCDE/GD [92]1).

## Clarifying Certain Provisions of S. 2632

Turning to specific provisions of the bill, I would note that we recently reviewed DOE's technology development program for environmental cleanup.<sup>7</sup> We found that DOE had not established clear performance goals and other key management tools before implementing the program. As a result, the Department had difficulty clearly discerning what its objectives were, how it might best achieve them, and when it might achieve them. Also, it had difficulty identifying the level of funding needed and the expected benefits from its investments.

Obviously, DOE's radioactive and mixed wastes pose some unique environmental technology concerns. However, the management processes for identifying technological needs, implementing programs to develop innovative technologies, and properly managing their applications are the same regardless of the nature of the contaminants. To avoid problems such as these, further clarification of certain provisions of S. 2632 would, in our view, be useful.

- Setting Priorities for Technology Development: The bill has a number of provisions assigning responsibility to the agency to (1) identify the need for, and promote the development of, innovative environmental technologies; (2) support continuing research and development of advanced technologies; and (3) promote continuing development of a technological industrial base in the United States. This responsibility is very broad, and it would help ensure program success if the bill were to establish priorities for addressing these activities. For example, which technologies would be funded first (e.g., cleanup or prevention), and at what stages of development would they be funded (e.g., research, design, or testing)?
- Coordination: The bill states that the agency would coordinate both the planning and the exchange of technological information by the "departments, agencies, and independent establishments of the United States relating to restoration and protection of the environment." However, the bill does not clearly state how the agency would carry out these responsibilities. To avoid confusion and potential conflicts, the bill might specify what authority the agency would have to (1) ensure that federal agencies do not duplicate efforts to develop technology, (2) direct the use of the agencies' research and development budgets, (3) ensure that all parties share

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<sup>7</sup>Cleanup Technology: Better Management for DOE's Technology Development Program (GAO/RCED-92-145, Apr. 10, 1992).

technological information, and (4) ensure that technologies are transferred.

- Oversight: The bill would require that any funded research project be "subject to merit review" and be "shown to have scientific and technical merit," but it does not specify how this review would be accomplished. We believe that the bill should require the agency to have adequate management controls to ensure that (1) the most needed and promising technologies are selected for funding, (2) measurable performance goals, overall cost estimates, and decision points are established to monitor program progress, and (3) the administrator and the Comptroller General, or any of their duly authorized representatives, have access to pertinent records of any recipient of federal assistance under this bill.
  
- Funding: The bill would create an "Environmental Advanced Research Projects Revolving Fund," to consist of funds "appropriated or credited to it from time to time." The administrator of the agency could use these funds (as provided in appropriations acts) to provide loans, grants, and other financial assistance to carry out the purposes of the bill. Revolving funds are specifically authorized by law to use revenues or collections generated by a government business-type activity to sustain its operations. Normally, revolving funds are expected to be self sustaining and the monies can be obligated without further congressional action. It is not clear whether S. 2632 intends these activities to be "business-type" or the revolving fund to be self sustaining. We have previously recommended that the Congress study the full financial implications of each new proposal before establishing any additional revolving funds.<sup>8</sup>

#### Existing Government Organizations

As part of its deliberations on this bill, the Committee may wish to consider the roles of existing government organizations and how their roles might be changed to help achieve the objectives of S. 2632. Although we have not evaluated these organizations, we have, as requested, identified several that could assist in achieving the bill's objectives.

Among the organizations that could help promote the bill's objectives is the Federal Remediation Technologies Roundtable, which was established in May 1990 to build a more collaborative atmosphere among federal agencies in the areas of environmental

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<sup>8</sup>Revolving Funds: Full Disclosure Needed for Better Congressional Control (PAD-77-25, Aug. 30, 1977).

technology development and technology information exchange. The Roundtable is chaired by EPA's Technology Innovation Office, which provides a centralized forum to share the lessons that each agency is learning in developing new technologies and to transfer this information to other users. An early focus of the Roundtable was the compilation and dissemination of information on innovative hazardous waste treatment technologies already in use. This effort resulted in three documents published in May 1991.<sup>9</sup> The Roundtable is attended by representatives of EPA, DOE, numerous departments and organizations of DOD, the Department of the Interior, contractor organizations, and others. Although the Roundtable focuses solely on hazardous-waste-site remediation technologies, consideration could be given to expanding its charter to cover all innovative environmental technologies.

EPA or the Department of Commerce could also help to achieve the bill's objectives. The EPA's charter could be expanded beyond its regulatory role to include the development and promotion of environmental technologies. Similarly, the Department of Commerce, which is responsible for promoting business development within the United States and abroad, could be tasked with special responsibilities in promoting development of environmental technologies.

#### Summary

In summary, Mr. Chairman, promoting the development of innovative environmental technologies by U.S. firms can help further the quality of our environment and assist those firms to become more competitive in the marketplace. Although S. 2632 highlights the need for innovative environmental technologies, it also raises some fundamental questions that the Congress may wish to address before committing considerable federal resources to a new agency. In any case, no matter how the Congress decides to proceed, we believe some of the bill's provisions could be clarified to avoid potential problems and help ensure success. Finally, the Congress may want to consider the roles of existing government organizations and how they should be integrated to promote the development and deployment of innovative environmental technologies.

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<sup>9</sup>Accessing Federal Data Bases for Contaminated Site Clean-Up Technologies (EPA/540/8-91/008, May 1991); Bibliography of Federal Reports and Publications Describing Alternative and Innovative Treatment Technologies for Corrective Action and Site Remediation (EPA/540/8-91/007, May 1991); and Synopses of Federal Demonstrations of Innovative Site Remediation Technologies (EPA/540/8-91/009, May 1991).

Mr. Chairman, this concludes my prepared remarks. We will be happy to respond to any questions you may have.

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