

Talking Points – AAAS Colloquium on Science and Technology Policy

Lunch – Friday, April 11, 2003 12 noon

### Opening

Thank you, Professor Branscomb, for that kind introduction and thank you, Dr. Leshner, for inviting me to talk at today's luncheon at the AAAS Colloquium on Science and Technology Policy. I would also like to thank the AAAS Directorate of Science Policy for affording me the opportunity to address this meeting.

I am aware that this Colloquium, over nearly three decades, has become a major communications link between the government and the scientific and technical communities of the country. It is an important opportunity, among other things, to discuss trends and current ideas in the government regarding the Nation's research and development efforts.

I am always pleased to visit with the community of scientists and engineers, which is, after all, my professional community, too. I am delighted to be able to share with you some of my thoughts on the role of science and technology in homeland security.

During his remarks upon launching the Department of Homeland Security, President Bush noted that the Science and Technology Directorate was established "so we can apply some of our nation's best minds to the task of protecting our people." This is a good occasion to let you know about our efforts in this regard. After all, I am speaking to some of those minds now, and we would like to get your help.

### DHS and DHS Science & Technology Directorate Structure and Mission

As it has been widely reported by the media, the creation of the Department of Homeland Security or DHS is the most significant transformation of the U.S. government since 1947, when President Truman merged the various branches of the U.S. Armed Forces into the Department of Defense to better coordinate the nation's defense against military threats.

The mission of the Science and Technology Directorate is

Serve as an advocate and lead for developing and deploying countermeasures for the nuclear, biological, chemical, and radiological threats

Conduct research, development, test, evaluation, and timely transition into the field of new operational capabilities

Provide a rapid, efficient, and disciplined process for systems development and procurement for the Department

Support other operational directorates within the Department

S&T is tasked with researching and organizing the scientific, engineering and technological resources of our nation and leveraging these existing resources into technological tools to help protect the homeland. In this endeavor, universities, the private sector, and the federal laboratories are all important partners.

One of the most important factors S&T must consider in achieving its goals and harnessing the nation's scientific power is real world applications. We must always be asking how the system in question will operate in the real world. What are the consequences of an alarm? What are the potential problems to the system? How will a particular technology affect overall system efficiency? Thus, we all must become operations analysts and systems engineers as well as scientists.

I think this point is useful to emphasize, particularly since there is sometimes difficult for the academic world and government laboratories to be directly connected to the operational world. We do, indeed, need to develop instrumentation and systems that work well under operating conditions and can be deployed, at least initially, rather quickly. Even though early deployments may not constitute the ultimate solution, it is vital we improve our defenses against terrorist acts in short order.

Following rapid initial deployments, we intend to use a "spiral development" process to upgrade systems as we develop them further, applying lessons learned in the field.

#### DHS Science & Technology Directorate Activities

That said, let me now talk about three areas of the Science and Technology Directorate's activities: Intramural, Industrial, and Educational.

#### Intramural Activities

There is an intramural capability within the Department and in S&T specifically. The idea behind this is to have a multidisciplinary cadre of scientists and engineers who identify with DHS, and, importantly, for whom the new Department feels ownership. This internal research component will provide a venue where people can have rewarding careers in addressing homeland security issues in an intellectually stimulating environment.

A key component of our intramural activities is a National Laboratory for Homeland Security. This single laboratory consists of components from several of the national laboratories. We also have within the Department the Transportation Security Administration's Technology Security Laboratory; the Environmental Measurements Laboratory, specializing in low-level measurements of nuclear radiation; and also R&D capabilities from the U.S. Coast Guard, the U.S. Secret Service, and from the former Immigration and Customs Services.

A further part of DHS' intramural activity revolves around life sciences research. This includes activities at NIH and CDC for developing new diagnostics, treatments and vaccines; and capabilities from USDA that research pathogens and diagnostics relevant to agriculture.

#### Industrial Activities

A second segment of S&T's activities is engaging the industrial base of our Nation.

As discussed in the President's National Strategy for Homeland Security, we have created a capability for soliciting innovative ideas from industry and from academia as well, developing, and demonstrating them. This will be done within a component within S&T called "HSARPA." This very Washington acronym stands for the Homeland Security Advanced Research Projects Agency. And this agency will be responsible for jumpstarting and facilitating early R&D efforts to help address critical needs in homeland defense's scientific front.

Another initiative in our industrial activities will be promoting standards.

Our industrial activities will also include some exciting efforts to push science and technology out of the lab and into the real world.

We will partner with the Technical Support Working Group, which has had many years of success working with the Departments of Defense and State, to perform rapid prototyping, to take technologies that are off the shelf, or nearly so, and put them in the hands of the user,.

#### Educational Activities

A third segment of our activities is educational activities, which, I assume will be of special interest to many of you.

DHS has a general mandate from Congress to support United States leadership in science and technology, and we feel it is particularly important to assure that our best minds have the opportunity to enter into careers and perform research in fields that are important to the homeland security R&D enterprise. In order to achieve this goal, we will fund postgraduate and postdoctoral fellowship programs, and create scholarships in support of this mandate.

In addition, our S&T Directorate will join the AAAS Fellowship Program, offering positions each year to a small number of scientists and engineers interested in serving their country by applying their knowledge of science and technology to the Nation's homeland defenses.

The fellowship program begins this fall, and the interview and selection process will take place soon. We are very excited at the prospect of adding some of the highly qualified applicants to our staff.

I would like to thank the AAAS for helping us get this program underway in such short order.

S&T will also establish Centers of Excellence in our academic institutions to create critical mass and interdisciplinary synergy.

And, as I said before, HSARPA will engage the academic community through grants and contracts in support of its programs.

### S&T Key Initiatives

Now, with all this in mind, let me tell you about some of the key initiatives we have begun in the near term within the new Department.

#### Border Protection and Monitoring

One of the highest priorities is border protection and monitoring. A crucial objective in this area is to prevent the entry into our homeland of a nuclear device, or the illicit assembly of a working device within our borders. In order to achieve this mission we are working to create a multilayered capability.

#### Biological Protection

A second key initiative we have begun is in biological protection.

We are working closely with CDC to develop a surveillance system that monitors clinical laboratories, emergency rooms, sales of over-the-counter drugs, for indications of anomalous public health events.

We are deploying the current generation of sensors, and developing new sensors, for placement in areas of high traffic density to monitor for the release of pathogens and agents. The President announced in the State of the Union Address, the Biowatch Program, the first effort in this area.

#### Information Analysis

A final key initiative that we are involved in now is information analysis.

DHS is vitally interested in information analysis tools. The idea of pulling together actionable evidence of hostile intent from whiffs of information gleaned from a variety of sources is an appealing one, but not obvious how to accomplish.

We need to conduct research in cybersecurity, so that we can protect our vital information systems, and track down the perpetrators of attacks.

DHS staff must look hard at our ability to detect explosives, not just in airports, but in vehicles on the road.

In addition, we need to better understand our vulnerabilities and the technical capabilities of the threat, and thus prioritize our risks so that we can better allocate our resources, and plan our research agenda.

These are just a few of the areas and key initiatives we are working on and there will be much more to come as the new department becomes fully operational.

#### Closing

As you can see, homeland security and the new Department, provide a rich new focus for scientific work.

We look forward to engaging the scientific and technical communities, and, in particular, look forward to enlisting in this fight the capabilities of the “great minds” of these communities, many of whom are present or represented here today.

I appreciate your invitation to speak today at the AAAS Colloquium on Science and Technology Policy and thank you for your hospitality and attention.