

Testimony of

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before the

House Committee on Homeland Security
Subcommittee on Cybersecurity, Infrastructure Protection, and Security Technologies

at its hearing entitled

The DHS and DOE National Labs: Finding Efficiencies and Optimizing Outputs in
Homeland Security Research and Development

April 19, 2012

Mr. Chairman and members of the Committee, thank you for the opportunity to testify today. My name is Daniel Morgan. I am a Specialist in Science and Technology Policy at the Congressional Research Service. My prepared testimony begins with an overview of the Department of Homeland Security (DHS) laboratories; the department's use of the Department of Energy (DOE) laboratories; the statutory origins for both of these in the Homeland Security Act of 2002 (P.L. 107-296); and related policies subsequently established by other legislation and by DHS and DOE themselves. It then discusses three specific issues that the committee asked CRS to address:

- the alignment of the missions of the DHS and DOE laboratories with the overall DHS mission;
- the planning and prioritization of DHS's use of the DHS and DOE laboratories; and
- the efficiency and cost-effectiveness of that use.

The DHS Laboratories

The Department of Homeland Security (DHS) has a number of laboratories that conduct research and development (R&D), testing and evaluation, and other activities. Most notably, the department's Directorate of Science and Technology (S&T) has the following five major facilities:

- *Plum Island Animal Disease Center (PIADC)*. Located off the coast of Long Island, New York, PIADC defends against foreign animal diseases by performing diagnostic tests; developing diagnostic tools, vaccines, and antivirals; and training veterinarians to recognize diseases of concern. The PIADC was established in

1952. DHS has plans to construct a new facility, the National Bio- and Agro-Defense Facility (NBAF) in Manhattan, Kansas, to replace PIADC and to engage in expanded activities. In February 2012, however, DHS announced that it is assessing whether and for what purpose a facility like NBAF should be built. The assessment will include a review of alternatives to the current plans.
- *National Biodefense Analysis and Countermeasures Center (NBACC)*. Located at Fort Detrick in Frederick, Maryland, the NBACC has two parts: the National Biological Threat Characterization Center (NBTCC), which aims to understand the science of biological threats, and the National Bioforensic Analysis Center (NBFAC), which aims to identify and attribute the use of biological threats in terrorist and criminal incidents. Construction of the NBACC facility began in FY2006 and was completed in FY2010. Final certification of the high-containment laboratories occurred in September 2011. These laboratories operate at the highest level of biocontainment, known as biosafety level 4 (BSL-4), which allows NBACC to perform R&D on pathogens for which no vaccine or treatment exists. Unlike the other S&T Directorate laboratories, NBACC is operated as a federally funded research and development center (FFRDC) by a contractor, Battelle National Biodefense Institute, LLC.
 - *Transportation Security Laboratory (TSL)*. Located in Atlantic City, New Jersey, the TSL performs research, development, and validation of solutions to detect and mitigate threats against transportation, especially the threat of improvised explosive devices. The TSL also provides certification testing for Explosive Detection Systems.
 - *National Urban Security Technology Laboratory (NUSTL)*. Located in New York City, NUSTL is the new identity of the former Environmental Measurements Laboratory (EML). The primary mission of the EML was monitoring low-level radiation. The NUSTL mission is to test, evaluate, and analyze homeland security capabilities and serve as a technical authority for first responders and state and local entities as they integrate homeland security technologies into urban operational use.
 - *Chemical Security Analysis Center (CSAC)*. Located at the Edgewood Area of Aberdeen Proving Ground in Maryland, the CSAC aims to provide a scientific basis for the awareness and attribution of chemical threats. The CSAC was established in interim facilities in FY2006 and moved to permanent facilities in FY2009.

These laboratories generally do not receive appropriations directly. Their construction, operation, and maintenance are funded through the S&T Directorate's Office of National Laboratories out of a dedicated Laboratory Facilities budget line item. The FY2012 appropriation for Laboratory Facilities is \$176.5 million. Total expenditures at the laboratories are greater than this, however. The costs of particular projects and programs carried out at the laboratories are funded through the directorate's technical divisions out of funds that also support work at other federal and nonfederal facilities. The appropriations for these activities do not specify how much will be spent at the DHS laboratories. In addition, some of the laboratories receive funds from other agencies, such as the Department of Agriculture.

The S&T Directorate and other DHS components also have several smaller laboratories and laboratory-like centers. For example, the Domestic Nuclear Detection Office (DNDO) has an Algorithm Test Bed at the Applied Physics Laboratory of Johns Hopkins University, and the U.S. Coast Guard has a Research and Development Center in New London, Connecticut.

The DOE National Laboratories

In addition to these laboratories of its own, DHS makes use of the national laboratories of the Department of Energy. The Department of Energy has more than 20 laboratories and technical centers in locations around the United States.¹ All are government-owned, but most are operated by contractors. Some focus on a single field of research, while others are multipurpose. Three—Lawrence Livermore National Laboratory, Los Alamos National Laboratory, and Sandia National Laboratories—are commonly referred to as the weapons laboratories because of their work on nuclear weapons, but the weapons laboratories also do work in other areas. The National Nuclear Security Administration, a semiautonomous agency within DOE, is responsible for the three weapons laboratories. The DOE Office of Science has responsibility for 10. Four other DOE offices are responsible for one each.

The DOE national laboratories generally do not receive appropriations directly. Rather, Congress appropriates funds for specific programs, and DOE then determines whether those funds are spent at a national laboratory or in some other fashion (such as a contract with a private-sector company or a grant to a university). The annual DOE budget documents do, however, report how DOE funds were allocated to each laboratory in the previous year and provide projected allocations for the coming year. The funding of the various national laboratories is quite disparate, ranging from the \$25 million DOE anticipates spending at Ames Laboratory in Iowa in FY2012 up to the \$1.95 billion it expects to spend at Los Alamos National Laboratory. Total DOE expenditures at the national laboratories in FY2012 is expected to be \$10.8 billion. In addition, other organizations, such as DHS, the Department of Defense and other federal agencies, state and local governments, and private companies, can fund work at the national laboratories through the DOE Work for Others program and other mechanisms.

DHS funds activities at 10 of the 17 DOE national laboratories: Argonne National Laboratory, Brookhaven National Laboratory, Idaho National Laboratory, Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, Pacific Northwest National Laboratory, Sandia National Laboratories, and Savannah River National Laboratory. In addition, DHS funds activities at the Nevada National Security Site and the Oak Ridge Institute for Science and Education, DOE facilities that are not categorized as national laboratories. Total DOE expenditures at these 10 facilities in FY2012 is expected to be \$9 billion. From FY2007 to FY2010, according to DOE, annual DHS expenditures at DOE

¹ The term *national laboratories* has long been used to refer to the major DOE laboratories. Since 2005, the term has been defined in statute (Energy Policy Act of 2005, P.L. 109-58, Sections 2(3) and 991). Seventeen DOE facilities are designated as national laboratories.

facilities ranged between \$400 million and \$475 million. In each of those years, the facility receiving the most DHS funding was Pacific Northwest National Laboratory, and the facility receiving the second-most was either Lawrence Livermore National Laboratory or Sandia National Laboratories.²

While the S&T Directorate and the Domestic Nuclear Detection Office are among the heaviest DHS users of DOE facilities, they are by no means the only ones. Both Customs and Border Protection and the National Protection and Programs Directorate are also often heavy users, spending more than DNDO in some years. Between FY2007 and FY2010, at least another six DHS components also sponsored work, though at lower levels. The title of today's hearing refers to research and development. The DHS work conducted at DOE facilities is not limited to research and development. Indeed, in some years, research and development account for less than half of the total, with the majority of work for DHS made up of operations support and other types of activity.³

Statutory Origins of DHS Use of Laboratories

The Homeland Security Act of 2002, which established DHS, provided specifically for both DHS-owned laboratories and DHS use of the DOE laboratories.

Statutory Origins of the DHS Laboratories

Four of the five major S&T Directorate laboratories described above became part of DHS at its establishment, under specific statutory provisions of the Homeland Security Act.

First, the Plum Island Animal Disease Center was transferred to DHS from the Department of Agriculture by Section 310 of the act. Congress has also given statutory direction regarding this facility's planned successor, NBAF, in each homeland security appropriations act since FY2009. These additional provisions include mandates for safety and security risk assessments, requirements for outside review of those assessments, and authority for DHS to use receipts from the sale of Plum Island to offset NBAF construction and PIADC decommissioning costs.

Second, the National Biodefense Analysis and Countermeasures Center, referred to in the Homeland Security Act as the National Bio-Weapons Defense Analysis Center, was transferred to DHS from the Department of Defense by Section 303 of that act. At the time, it was in the early planning stages and did not yet exist as an actual facility. For the first few years of DHS's existence, the NBACC program conducted research without a dedicated DHS-owned facility through partnerships and agreements with other federal and private institutions. Construction of the NBACC facility began in June 2006. As noted above, NBACC is operated by a contractor as a federally funded research and

² Department of Energy, *Homeland Security Activities at Department of Energy Facilities*, issued annually. The dollar amounts given here are for work conducted through the Work for Others program. The annual reports do not identify the customer for other types of non-DOE-funded work, such as work performed under cooperative research and development agreements (CRADAs). These other types appear to represent only a small fraction of the total.

³ Department of Energy, *Homeland Security Activities at Department of Energy Facilities*, issued annually, and additional information provided to CRS by DHS and the DOE national laboratories.

development center. The Homeland Security Act provides specific authority for DHS to establish or contract with FFRDCs in Section 305.

Third, the Transportation Security Laboratory was previously the Aviation Security Laboratory of the Federal Aviation Administration. It became part of the Transportation Security Administration (TSA) when Congress created the TSA in November 2001.⁴ The following year, the Homeland Security Act incorporated TSA into the new Department of Homeland Security. Section 424 of that act required that TSA be maintained as a distinct entity for two years, but in September 2003, Congress directed DHS to consolidate the department's R&D functions in the S&T Directorate.⁵ Following this direction, DHS implemented the transfer of TSL from TSA to the S&T Directorate in FY2006.

Fourth, the Environmental Measurements Laboratory, now NUSTL, was transferred to DHS from DOE by Section 303 of the Homeland Security Act.

The fifth laboratory, CSAC, was established without specific statutory direction. The Under Secretary for S&T has the authority to establish additional laboratories under Section 308(c)(2) of the Homeland Security Act. He or she also has the general authority and responsibility under Section 302 to carry out R&D and related activities through both intramural and extramural programs.

Most of the smaller laboratories and laboratory-like centers were also established under general authorities without specific statutory direction. Pre-existing facilities in other components, such as the Coast Guard R&D Center, became part of DHS under the Homeland Security Act when their parent organization was incorporated into the new department, but they are not specifically named in the act. Regarding DHS components other than the S&T Directorate, Section 306(b) of the Homeland Security Act specifically directed that the establishment of the S&T Directorate did not preclude other components from carrying out their own R&D and related activities.

Statutory Origins of DHS Use of the DOE Laboratories

The Homeland Security Act (in Section 309) also provided specifically for DHS use of the DOE national laboratories and sites. Note that the inclusion of the words "and sites" extends the provisions to facilities that are not designated as national laboratories. For example, the same statutory provisions apply to DHS use of the Nevada National Security Site.

Section 309 authorizes DHS use of DOE facilities through the Work for Others program, joint sponsorship arrangements, direct contracts with a laboratory's managing contractor, cooperative research and development agreements (CRADAs), licensing agreements, or any other method provided by law. In practice, it appears that Work for Others has been the primary method DHS has actually used. Section 309 makes additional specific provisions for each of these mechanisms as well as for cost reimbursement, interagency

⁴ Aviation and Transportation Security Act (P.L. 107-71).

⁵ H.Rept. 108-280, p. 56. This was the conference report on the Department of Homeland Security Appropriations Act, 2004 (P.L. 108-90).

coordination, and other matters. In February 2003, three months after passage of the act, DHS and DOE entered into a memorandum of agreement to establish a framework for implementing this section.⁶ The memorandum addresses three types of DOE capability available to DHS:

- DHS use of the resources and expertise of the DOE national laboratories and other sites, including production plants;
- DOE assets making up the Nuclear Incident Response Team, which come under DHS operational control in certain circumstances; and
- DHS intelligence activities using DOE intelligence personnel, information, technology, and systems.

The first of these three capabilities is the focus of today's hearing.

Subsection 309(a)(2) of the Homeland Security Act gives DHS a special statutory relationship with the DOE laboratories that allows DHS-funded work to have the same priority as work funded by DOE itself. Work funded by DHS is to be performed "on an equal basis to other missions at the laboratory and not on a noninterference basis with other missions of such laboratory or site."⁷ This language is in contrast with most Work for Others projects, which are conducted on the condition that they may not interfere with DOE activities. Provisions similar to this statutory language are repeated in the 2003 memorandum of agreement.

Another aspect of the special relationship is provided by Subsection 309(e), which directs that DHS not be subject to administrative charges or personnel costs in excess of those that would be charged to DOE for similar work. In particular, the memorandum of agreement and the implementing DOE directive clarify that work for DHS is not subject to the 3% federal administrative charge usually imposed on Work for Others participants to defray DOE's costs of managing and overseeing the Work for Others program.⁸ This 3% federal administrative charge is a DOE charge, not part of the performing laboratory's overhead charges. Laboratory overhead charges generally apply to DHS projects the same as to any other project.

Subsection 309(g) of the act established the Office of National Laboratories (ONL) within the S&T Directorate and made it responsible for "coordination and utilization of the Department of Energy national laboratories and sites under this section in a manner to create a networked laboratory system for the purpose of supporting the missions of the Department." This makes ONL one of the few offices within the S&T Directorate that was specifically established by statute. The directorate has subsequently expanded the scope of ONL's responsibilities to encompass the construction and operation of the S&T Directorate's own laboratories. This additional role is not mentioned in statute.

⁶ A copy of this memorandum is online at http://www.doecaa.org/Docs/DOE-DHS_MOA.pdf.

⁷ Homeland Security Act of 2002 (P.L. 107-296), Sec. 309(a)(2).

⁸ DOE Order O 484.1, *Reimbursable Work for the Department of Homeland Security*, approved August 17, 2006, amended March 14, 2011, <https://www.directives.doe.gov/directives/0484.1-BOrder-ac1/view>. This order replaced DOE Notice N 481.1A, which is referred to in the 2003 memorandum of agreement.

A DHS management directive establishes policies and procedures for DHS components engaging with the DOE national laboratories and other FFRDCs.⁹ As part of that process, the ONL, acting on behalf of the Under Secretary for Science and Technology, reviews contract statements of work to ensure that they comply with the terms and conditions of the laboratory's prime contract with DOE. This review is designed to increase coordination among the components of DHS. It does not provide ONL with the ability to prevent issuance of a contract or other agreement. The ONL does not provide oversight of contracts after they have been issued.

The statute authorizes a broad scope for DHS use of DOE facilities. In particular, such work is not limited to R&D, or to the S&T Directorate. This is consistent with the patterns of use described above. DHS work at DOE laboratories is not entirely free of restrictions, however. There are certain categories of DHS work for which the DOE laboratories may not compete. The DOE implementing directive states that the DOE national laboratories may not respond to DHS requests for proposals (RFPs) or other DHS solicitations that involve head-to-head competition with the private sector.¹⁰ They may, however, under certain conditions, respond to broad area announcements (BAAs) and other competitive solicitations that do not involve head-to-head private-sector competition.¹¹

Some of the early proposals that led to the Homeland Security Act would have transferred one of the DOE laboratories to DHS ownership. These proposals were rejected. Instead, Section 308(c) authorizes DHS to establish an intramural headquarters laboratory, if the Secretary so chooses, and provides criteria and procedures for the selection of such a facility. To date, a headquarters laboratory has not been established. In the early years of the department, there was a proposal to designate certain DOE laboratories as intramural for DHS purposes, and the rest as extramural. This proposal too was ultimately rejected.

Alignment of Laboratory Missions with DHS Missions

The committee asked CRS to address the alignment of the laboratories' missions with the DHS mission overall.

The DHS laboratories are focused on particular topics of specific interest to DHS. The Plum Island Animal Disease Center also hosts an active R&D program for the Department of Agriculture, and other DHS laboratories work collaboratively with the Department of Defense and the Federal Bureau of Investigation. In general, though, the missions of the DHS laboratories are aligned with specific DHS programs and mission needs. How that mission alignment is reflected in the organization of the S&T Directorate

⁹ Department of Homeland Security, *Establishing or Contracting with Federally Funded Research and Development Centers (FFRDCs) and National Laboratories*, MD 143-04, May 25, 2007. This management directive replaced a similar directive (MD 10400) dated April 25, 2006. With respect to the use of DOE national laboratories, the content of the two directives is effectively the same.

¹⁰ DOE Order O 484.1, Sec. 4j.

¹¹ DOE Order O 484.1, Sec. 4k.

has varied from time to time as the directorate has been reorganized. For example, the PIADC and the NBACC, which now report to the Office of National Laboratories, formerly reported to the Chemical and Biological Countermeasures Division. It is not clear whether these organizational changes within the directorate have had any impact on the missions of the laboratories, or whether they were intended only to improve management efficiency.

The situation with respect to the DOE laboratories is more complex. The capabilities of the DOE laboratories are vast and varied, and their missions are inherently much broader than the work they do for DHS. While the Homeland Security Act directs that their work for DHS is to be performed on an equal basis with their other missions, DOE remains their primary funder, as well as the overseer of their management and operating contracts. In practice, therefore, DOE retains the primary role in setting their overall strategic directions. Their capabilities include many topics directly relevant to homeland security, especially because of DOE's long-standing *national* security mission. The DOE laboratories were not established with a *homeland* security mission in mind, so their capabilities may not encompass every needed topic. This could be a consideration for the committee in identifying areas where DHS should have its own capabilities.

As noted above, the statutory responsibility of the Office of National Laboratories is to coordinate DHS use of DOE facilities for the purpose of supporting DHS missions. This coordinating role could contribute to alignment between laboratory missions and DHS missions. However, as already noted, the office's gatekeeping and oversight roles are limited. While it serves as one point of contact between DHS and the DOE laboratories, it is not the only point of contact. Any DHS component can contract with a DOE laboratory to do work.

In 2007, the S&T Directorate announced an alignment of the DOE laboratories with the directorate's research divisions. This alignment was not one-to-one. Each division was aligned with multiple laboratories, and several of the laboratories were aligned with multiple divisions. At the time, DHS stated that the alignment would help DHS and DOE staff to develop more enduring professional relationships and a better mutual understanding of each other's capabilities and needs. It is unclear whether this organizational alignment had an impact on the alignment of missions. The S&T Directorate's divisions have since been reorganized, so the divisional alignment with the DOE laboratories may or may not still be in effect.

Planning and Prioritization

The committee also asked CRS to address the planning and prioritization of DHS work at the DHS and DOE laboratories.

Within the constraints mentioned above, the DOE laboratories can compete for some types of DHS funding. In such cases, DHS planning and prioritization are at the program level, and the selection of a proposal from a DOE laboratory comes at the end of the process when awards are made. Program-level planning and prioritization have been examined frequently by this committee and others, as well as by independent

organizations such as the Government Accountability Office, the National Academy of Public Administration, and the National Academy of Sciences. Among the issues these examinations have raised are the adequacy of the S&T Directorate's strategic planning; the effectiveness of its portfolio review process; the sufficiency of the department's risk analysis efforts and the extent to which those efforts inform R&D priorities; and the mechanisms for ensuring alignment between the S&T Directorate's R&D priorities and the needs of its customers, including other DHS components as well as state and local first responders.

The planning and prioritization of work at the DHS-owned laboratories and work funded through non-competitive awards to the DOE laboratories raise a number of additional questions for the committee to consider:

- Has DHS developed a strategic plan for the DHS laboratories?¹²
- Has it developed a strategic plan for its use of the DOE laboratories?
- What is the appropriate content for such plans?
- What mechanisms are in place to ensure that they are implemented?
- How does DHS determine whether to assign work to a DHS laboratory, a DOE laboratory, or another organization, such as a private-sector company or a university?
- What policies, procedures, and criteria are in place to guide these decisions?¹³
- How does the Office of National Laboratories ensure DHS-wide coordination of planning and prioritization?
- How do DOE and DHS planning efforts fulfill the Homeland Security Act's mandate (in Section 309(h)) to ensure that all homeland security research, development, test, and evaluation activities conducted by DOE, whether funded by DOE, DHS, or any other organization, are fully coordinated between DOE and DHS to minimize duplication of effort and maximize the effective application of federal resources?

Efficiency and Cost-Effectiveness

Finally, the committee asked CRS to address the efficiency and cost-effectiveness of DHS's use of the DHS and DOE laboratories.

At the DOE laboratories, work is generally done on a cost-reimbursement basis, with overhead rates and other conditions determined by the laboratory's management and operating contract with DOE. Management efficiency, cost, and related issues have been

¹² There are strategic plans for at least some of the individual laboratories. For example, see Department of Homeland Security, Science and Technology Directorate, National Urban Security Technology Laboratory, *National Urban Security Technology Laboratory Strategic Plan FY2009-FY2013*; and Battelle National Biodefense Institute, *National Biodefense Analysis and Countermeasures Center (NBACC) Strategic Plan*, June 2009.

¹³ In 2004, the S&T Directorate reported on four criteria for choosing to execute work at DHS and DOE laboratories: inherent federal responsibility, maintenance of enduring capabilities, limited private-sector interest, and leveraging of other government investments. A number of other policies described in the 2004 report have since changed. It is unclear whether the four criteria are still in effect. See Department of Homeland Security, Science and Technology Directorate, *Utilization of the National Laboratories: Report to Congress in Response to House Report 108-541 to the Fiscal Year 2005 Department of Homeland Security Appropriations Bill*, October 2004.

discussed from time to time throughout the history of the DOE laboratories.¹⁴ Congress and the Administration have addressed these through a variety of mechanisms, including the recompetition of management and operating contracts and the establishment of performance-based fees. Many questions remain unanswered, however. A recent report by the DOE Inspector General raised the following concerns:¹⁵

- Can DOE sustain all its current facilities?
- Are there opportunities for consolidation and realignment?
- Are laboratory efforts aligned with agency priorities?
- Are laboratory missions clear and well coordinated?
- Is the laboratory complex appropriately sized?
- Could alternatives to the usual management and operating contracts enhance efficiency and economy?
- To reduce overhead costs, should DOE make more use of non-DOE facilities, such as universities and nonprofit research centers?

Under current circumstances, DOE is probably more able to address issues of cost and efficiency at the DOE laboratories than is DHS. Although the Homeland Security Act gives DHS special status with respect to work at the DOE laboratories, it does not give DHS a direct role in their management.

While many studies of the DOE laboratories have addressed efficiency and cost-effectiveness, there has not been comparably detailed scrutiny of the management of the DHS-owned laboratories. However, an extensive body of related work exists that could provide relevant insights:

- There is an academic literature on mechanisms for measuring R&D productivity and effectiveness.¹⁶ Some of this work could assist DHS in developing metrics for the efficiency and cost-effectiveness of its laboratories.
- Federal organizations such as the Government Accountability Office and the agency Inspectors General have often assessed the laboratories of other

¹⁴ See, for example, General Accounting Office, *DOE's National Laboratories: Adopting New Missions and Managing Effectively Pose Significant Challenges*, GAO/RCED-94-113, February 1994; Secretary of Energy Advisory Board, Task Force on Alternative Futures for the DOE National Laboratories, *Alternative Futures for the DOE National Laboratories*, February 1995; Department of Energy, *Report of the Department of Energy for the Interagency Federal Laboratory Review in Response to Presidential Review Directive NSTC-1*, March 1995; General Accounting Office, *Department of Energy: Uncertain Progress in Implementing National Laboratory Reforms*, GAO/RCED-98-197, September 1998; National Research Council, *Preliminary Assessment of DOE Facility Management and Infrastructure Renewal*, 2004; and National Research Council, *Maintaining High Scientific Quality at Los Alamos and Lawrence Livermore National Laboratories*, 2004.

¹⁵ Department of Energy, Office of Inspector General, *Management Challenges at the Department of Energy*, DOE/IG-0858, November 2011.

¹⁶ See, for example, Mark G. Brown and Raynold A. Svenson, "Measuring R&D Productivity," *Research Technology Management*, November-December 1998, pp. 30-35; Martin Karlsson, Lars Trygg, and Bengt-Olof Elfström, "Measuring R&D Productivity: Complementing the Picture by Focusing on Research Activities," *Technovation*, 2004, pp. 179-186; and Albert Sciarretta, et al., "A Methodology for Assessing the Military Benefits of Science and Technology Investments," Center for Technology and National Security Policy, National Defense University, September 2008.

- agencies.¹⁷ These assessments may contain lessons learned that could be applied to the DHS laboratories.
- Outside organizations have also conducted assessments of the laboratories of other agencies. The National Academy of Sciences, for example, issues periodic evaluations of the National Institute of Standards and Technology (NIST) and the Army Research Laboratory (ARL), and from time to time undertakes similar assessments for DOE, the Environmental Protection Agency, and other agencies.¹⁸

There are some general considerations for congressional policymakers in comparing the potential for efficiency and cost-effectiveness between the DHS laboratories and the DOE laboratories. First, the DOE laboratories are generally operated by contractors rather than directly by the government. This may provide some opportunities for management and personnel flexibility that are not available to most DHS laboratories. On the other hand, to the extent that the operating contractors of the DOE laboratories earn fees over and above the costs they incur, that may increase their cost relative to the government-operated DHS laboratories. Second, the DOE laboratories have an extensive and long-established infrastructure of facilities, equipment, and personnel. This may allow them to perform some types of work without the cost of acquiring additional infrastructure, but it may increase the ongoing costs of maintaining the DOE laboratory infrastructure. Third, because the DOE laboratory system is much larger than that of DHS, it may enjoy economies of scale, and it may have more capacity to adjust to fluctuations in utilization if the resources available to DHS increase or decrease. If DHS expenditures at the DOE laboratories decrease, however, any additional infrastructure that the laboratories have invested in to meet DHS needs may not be applicable to DOE's own needs. It seems likely that these general considerations will be outweighed by the specific circumstances of individual laboratories and projects.

Concluding Remarks

Thank you again for the invitation to testify today. I look forward to answering any questions you may have.

¹⁷ See, for example, Government Accountability Office, *Department of Energy: Additional Opportunities Exist for Reducing Laboratory Contractors' Support Costs*, GAO-05-897, September 2005; Department of Defense, Office of the Inspector General, "Evaluation of the Department of Defense Forensic Laboratories," September 16, 1998; and Lawrence Berkeley National Laboratory, *DOE Best Practices Pilot Study*, LBNL/PUB-865, February 2002.

¹⁸ See, for example, the assessments of NIST and ARL listed on the website of the Academy's Laboratory Assessments Board, http://sites.nationalacademies.org/DEPS/LAB/DEPS_047831; and National Research Council, *Evaluating Research Efficiency in the U.S. Environmental Protection Agency*, 2008.