

## **Closed Sessions**

### **U.S. DEPARTMENT OF HOMELAND SECURITY**

#### **Homeland Security Science and Technology Advisory Committee (HSSTAC)**

**at**

#### **Lawrence Livermore National Laboratory Livermore, CA**

**August 31 – September 1, 2004**

The HSSTAC convened its third meeting on Tuesday, August 31, 2004, at the Lawrence Livermore National Laboratory in Livermore, CA. The Committee met in closed session pursuant to the provisions of 5 U.S.C. 552b(c)(1)(a) and (c)(9)(B).

The Designated Federal Official, Dr. Ronald D. Taylor, called the meeting to order and, per the Committee's charter, turned the conduct of the meeting to the Chairman, General Larry D. Welch, USAF (Ret.). General Welch reviewed the objectives of this third quarterly meeting, reminded members that the Committee's initial annual report was due to the Under Secretary and then to Congress by the end of January, and also reminded them that the next meeting of the Committee would be on November 15-16, 2004, in Washington, DC, at which time the Committee would finalize its recommendations. As announced in the Federal Register (Vol. 69, No. 158, August 17, 2004), the objectives of this quarterly meeting were: (1) to obtain perspectives from performers of homeland security research and development (R&D) on what they do, what needs to be done, and any special insights they have as to how the Department's Science and Technology Directorate could better access, utilize, and/or develop R&D capabilities; (2) to receive briefings and review subcommittee progress reports; and, (3) to determine any future Committee actions. General Welch noted that on the first day the Committee would hear from the Under Secretary for Science and Technology followed by representatives from Sandia National Laboratories (SNL), Pacific Northwest National Laboratory (PNNL), Los Alamos National Laboratory (LANL), and Lawrence Livermore National Laboratory (LNNL). On the second day the Subcommittees would present their status reports and the Committee would consider any future actions.

#### **Under Secretary for Science and Technology**

Dr. Charles E. McQueary, Department of Homeland Security Under Secretary for Science and Technology, then delivered remarks to the Committee, noting that the Department had supported both the Democratic and Republican Conventions with great success and lessons were learned from the recently concluded Olympic Games in Greece. Dr. McQueary then presented an update of activities within the Science & Technology (S&T) Directorate since the Committee last met in May, noting especially that the Department recently announced three pilot locations for the Regional Technology Integration Initiative.

Dr. McQueary stated that S&T continues to make good progress in the area of interoperability through SAFECOM, which has developed the first comprehensive statement of requirements to address the communications needs of first responders, including voice, data, and video interoperability. S&T is in the process of standing up the Office for Interoperability & Capability, which is dual-hatted with SAFECOM and headed by David G. Boyd; it should be functional on 1 October.

The first four antiterrorism technologies to receive DHS designation and certification under the SAFETY Act have been announced.

The Department continues to build its network of University Centers of Excellence and continues to reach out to industry. S&T hosted its second technology conference in July in San Diego, CA, and another is scheduled for September in New Orleans, LA, which will be a joint conference with the Department of Justice. The focus will be on public safety and incident response.

Dr. McQueary highlighted several areas in which S&T might use the HSSTAC's assistance: intelligence synthesis (sharing of information); first layer of defense against the transport of nuclear materials; technology approaches to ensuring privacy protection; approaches to biometric identification; remote detection of explosives; issues related to integrating new technologies within legacy infrastructures; areas of basic research for homeland security; systems engineering approaches to homeland security solutions and accompanying needs for systems models to decide investment strategies and consequences; and, training for first responders.

Subsequent committee discussions addressed issues related to (1) means by which solicited and unsolicited proposals from industry get considered for DHS funding, (2) training programs for first responders, (3) the federal government's interoperability objectives as well as roles and responsibilities, (4) implementation of the SAFETY Act, (5) demands that the global war on terrorism places on intelligence agencies for information, and (6) alternative approaches to stimulating basic research in areas associated with intelligence.

### **Sandia National Laboratory**

Dr. Miriam E. John, Vice President for Homeland Security at the Sandia National Laboratories, provided SNL perspectives on homeland security R&D as well as insights on how the Department could better access, utilize, and/or develop future R&D capabilities. She discussed SNL's history, organizational structure, and homeland security-related efforts currently underway; identified specific relationships to other labs such as Los Alamos National Laboratory and Lawrence Livermore National Laboratory, and major programs for other federal agencies such as the Department of Defense (including non-proliferation and assessments and Homeland Defense).

Dr. John described SNL's core competencies (e.g., nuclear weapons non-proliferation, military applications, energy, and infrastructure protection). SNL's approach to homeland security is based on systems analysis, systems engineering and technology integration. Dr. John

suggested that partnering must be the key to success of DHS' National Laboratory programs. In deciding which specific business to partner with, SNL issues announcements, holds workshops, and maintains an internal marketing organization. Dr. John concluded her presentation by discussing a series of strategic issues of special importance to SNL.

### **Pacific Northwest National Laboratory**

Dr. Ned Wogman, Director of the Homeland Security Office at PNNL, provided PNNL perspectives on homeland security R&D as well as insights on how the Department could better access, utilize, and/or develop future R&D capabilities. PNNL is operated by Battelle for the Department of Energy. Dr. Wogman described how National needs and PNNL's scientific and technical strengths shape their priorities.

PNNL's core capabilities include nuclear science and engineering, computational science and information technology, systems biology and biotechnology, chemical science and engineering, materials science and engineering, environmental molecular science, environmental sciences and engineering, and engineering integrated systems. Areas where PNNL addresses DHS needs with key capabilities are radiological/nuclear science and technology, information analysis and assurance, and chemical and biological defense.

PNNL has extensive experience partnering with industry, including a special use permit that provides a unique mechanism for working with industry. This mechanism benefits industry by permitting them access to unique instrumentation and facilities.

Dr. Wogman summarized PNNL's approach to allocating its Laboratory Directed Research and Development (LDRD) funds to homeland security initiatives. Current initiatives include systems to detect chemical, biological and radiological materials associated with terrorist threats; radiation detection and analysis capabilities; and, information-based methods and tools that enable interactive exploration and evaluation of multiple hypotheses and scenarios.

### **Los Alamos National Laboratory**

Dr. Wiley Davidson, Center Director for the Los Alamos Center for Homeland Security, provided LANL perspectives on homeland security R&D as well as insights on how the Department could better access, utilize, and/or develop future R&D capabilities. The Center was established to focus and integrate Los Alamos homeland security and homeland defense programs and to engage the Lab's science and technology capabilities to provide solutions to homeland security issues. The Center's FY04 program portfolio includes work for DHS S&T portfolios, as well as for the Department of Transportation, Environmental Protection Agency, Department of Energy, and the Department of Defense. The Homeland Security programs are executed throughout the Laboratory.

Many of LANL's capabilities for radiological and nuclear threat reduction map directly to the Department of Homeland Security's mission objective of reducing such threats. LANL has developed threat characterization, detection, and incident response capabilities for various federal sponsors over the years and maintains a strong technical base that feeds the system

development and deployment process. In addition to activities aimed at reducing nuclear and radiological threats, Center activities also focus on defense against biological threats (e.g., biosurveillance, bioforensics and attribution, technology innovation, threat characterization, and systems approaches). A major effort is applying LANL's expertise in understanding urban infrastructure to provide a risk-informed approach to integrating threat analysis, vulnerability assessment, and consequence management for homeland security. Much of this work is done in conjunction with SNL.

### **Lawrence Livermore National Laboratory**

Dr. Wayne Shotts, Director of the Homeland Security Organization at LLNL, provided LLNL perspectives on homeland security R&D as well as insights on how the Department could better access, utilize, and/or develop future R&D capabilities. Although stockpile stewardship responsibilities constitute LLNL's core mission, homeland security programs leverage capabilities and facilities across the laboratory complex. Dr. Shotts detailed LLNL's support to DHS's missions across the board, noting that the Laboratory provides integrated systems solutions for homeland security covering all dimensions of the problem from indications and warnings to detection and prevention to response and recovery. Specific examples included understanding threats and reducing vulnerabilities; securing the flow of goods and people into the U.S.; securing transportation into the U.S. using technologies with operations to improve border and container security; emergency preparedness and response; and rapidly detecting and identifying biological agents with near-zero false alarms.

Dr. Shotts stated that protecting the nation also depends on effectively engaging private industry. He concluded his remarks noting that counterterrorism and homeland security are major mission elements for LLNL that demand (1) a multi-disciplinary, end-to-end, integrated approach to problem solving; (2) long-term targeted investments by sponsors and by LLNL; (3) engagement with end users such as federal, state, and local officials; and, (4) partnerships with industry, academia, and other National Laboratories.

The day's session adjourned at 5:00 p.m.

The meeting reconvened at 8:00 a.m. on Wednesday, September 1, 2004, at the Lawrence Livermore National Laboratory. The Committee's four subcommittees – Resources & Organization, Programs, Outreach, and Mission & Operations – presented status reports and briefings of their activities and progress since the last meeting and their future plans.

### **Resources & Organization Subcommittee**

The Chairman of the Resources & Organization Subcommittee, Dr. Lawrence T. Papay, briefed the Committee on the specific results of the subcommittee's work that examined options whereby the S&T Directorate (and the Department) could, over the long term, access the scientific and technical capabilities resident in the Department of Energy National Laboratories. Members of the Subcommittee include Dr. Alice P. Gast and Chief Joseph P. Polisar. Dr. Baruch Fischhoff also supported the Subcommittee and participated in the analysis.

As reported, the Subcommittee had met three times to gather information and formulate its ideas. Input was received from members of the DHS Office of Research and Development, DOE Office of Science, the National Nuclear Security Administration and Field Offices, current and former staff from the DOE National Laboratories, M&O contractors, and other experts. The Subcommittee focused on identifying a process (sequence of steps) by which DHS could develop a sustainable program with the laboratories.

Preliminary findings discussed by the Subcommittee suggested that the S&T Directorate needed to: (1) determine its long-term strategic programmatic needs, (2) determine the roles and contributions to be made by each sector, (3) determine which programmatic activities could be accomplished under the existing Work For Others agreement, (4) define the characteristics (staff and competencies) that the ideal labs would have for selective programs which are (a) strategic and (b) of size to warrant a special relationship, and (5) from that determine which of the National Laboratories could be candidates for “cooperative agreements.” Dr. Papay went on to state that as a first step, S&T would need to determine the roles S&T wants the National Labs to play and the appropriate mechanisms to facilitate these roles. After this is accomplished, then S&T could define which activities could be accomplished under the existing Memorandum of Agreement for task-ordered work in the Labs. S&T could then choose one area of clear strategic importance and initiate a cooperative agreement between DHS and DOE for one specific lab. Dr. Papay’s then suggested that the leadership and stewardship of the interface between the National Labs and DHS is an S&T Directorate responsibility and needs to be clarified and strengthened within DHS.

The Subcommittee will explore additional options and present its final recommendations to the Committee at the November 15 meeting.

### **Programs Subcommittee**

The Chairman and members of the Programs Subcommittee briefed the Committee on their reviews of both the Biological Countermeasures and Radiation/Nuclear Countermeasures portfolios. Members of the Programs Subcommittee include Dr. William Happer (Chair), Dr. Ronald M. Atlas, Dr. David R. Franz and Dr. Kenneth I. Shine.

Dr. Atlas briefed the Committee on the Subcommittee’s review of the Biological Countermeasures portfolio. The Subcommittee met on August 9 with DHS staff assigned to the Biological Countermeasures integrated product team as part of the Subcommittee’s efforts to gain an overarching understanding of DHS’ role in preventing, protecting, and responding to release of a biological agent in the U.S. Preliminary findings discussed by the Subcommittee focused on the following areas: critical challenges to S&T, scope of the bioterrorism focus (environmental detection sensors, forensics, and decontamination), budget, Biowatch, agency coordination, quality assurance, facilities, and National Laboratory-industry relations. The S&T Directorate will continue to face multiple critical challenges in implementing effective programs including communication and coordination across programs and agencies. Dr. Atlas stated that evolving operational demands should not detract from the essential capacity building to carry out the R&D activities critical for future needs, especially sensor application. Dr. Atlas described specific interactions between various agencies that have responsibilities within the homeland

security biodefense strategy, such as Department of the Health and Human Services, Environmental Protection Agency, Department of Justice, Department of Defense, Department of Agriculture, and DHS. Discussion included the timeline of a response plan (with special attention to issues associated with decontamination). Within the context of the Biowatch discussion, Dr. Atlas also added that dual-benefit operational programs are important because of their public health significance. DHS S&T programs must be of the highest scientific and technical quality.

Dr. Happer then briefed the Committee on the Subcommittee's review of the Radiation and Nuclear Countermeasures portfolio. Dr. Happer participated in the DHS Office of Research and Development's internal program review on August 1 and 2, and met on August 9 with the DHS Portfolio Manager for the Radiation and Nuclear Countermeasures portfolio. Preliminary findings discussed by the Subcommittee focused on the following areas: the portfolio's budget, system architecture/sensor networks, passive detection technologies, active detection technologies, threat characterization and forensics, incident management and recovery, the Nevada Test Complex and the Environmental Measurements Laboratory. Dr. Happer reported that the DHS budget is a very small fraction of the national budget that is directed toward protecting the nation from nuclear attack. Dr. Happer discussed the technical scope of the program, characterized it as a good initial start, acknowledged that DHS would benefit from leveraging the technical work funded through other agencies (especially DOE), and seconded that DHS S&T programs must be of the highest scientific and technical quality.

### **Outreach Subcommittee**

The Outreach Subcommittee briefed the Committee on issues pertaining to incident communication and opportunities for small businesses. The Outreach Subcommittee's members are Dr. Russell W. Bessette (Chairman), Chief Ernest Mitchell, Dr. Baruch Fischhoff and Mr. Anthony P. Ibarra. In his opening remarks, Dr. Bessette discussed the findings of two GAO reports: "Risk Communication Principles May Assist in Refinement of the Homeland Security Advisory System," March 2004; and "Communication Protocols and Risk Communication Principles Can Assist in Refining the Advisory System," June 2004. Mr. Ibarra then conveyed concerns expressed to him from select members of the small business community over their inability to access DHS contracts. Mr. Ibarra's concerns were noted, however, it was offered that the Science & Technology Directorate does have a Small Business Innovation Research grant program in place that has awarded (through HSARPA) 2.5% of the procurement contract funds to small businesses through fully open competitive processes.

### **Mission & Operations Subcommittee**

Mr. Vincent Vitto, Co-Chair of the Mission & Operations Subcommittee, briefed the Committee on the results of the subcommittee's work to date. The Mission & Operations Subcommittee consists of Dr. Richard T. Roca (Co-Chair), Mr. Vincent Vitto (Co-Chair), Dr. Reginald I. Vachon, Ms. Lillian C. Borrone, Mr. Bran Ferren and Sheriff Ted G. Kamachus. The Mission & Operations Subcommittee met on August 17 with DHS staff to assess the process and methodology used to establish mission and strategic goals, evaluate the approach to threat identification and prioritization, discuss the process used to establish budget priorities and

investment strategies, and assess the FY05 and projected FY06-10 budgets of the S&T Directorate.

Mr. Vitto reacted positively to the Directorate's mission and strategic planning efforts to date. He noted that the current process was in its infancy and faced critical uncertainties related to strategic intent and guidance, use of metrics for threat and vulnerability prioritization, and application of methodologies for scenario-based planning and parametric assessments. Mr. Vitto suggested that the Homeland Security Institute could be involved in the latter effort. He expressed concern about the S&T Directorate becoming too much of an operational execution organization in the absence of agencies responsible for key infrastructure protection. Mr. Vitto went on to say it appeared the S&T mission and strategic objectives effort would not impact S&T budget priorities before FY08 and that FY04-07 budgets would remain the extensions of a "good judgment" approach. Other topics of discussion included ensuring national resilience to terrorism and metrics for casualties, economic impact, and social impact. In relation to S&T's operational responsibilities, the Subcommittee discussed how S&T could work with DHS and other government departments to identify operational responsibilities for people and infrastructure beyond those assigned to Secret Service, Border Patrol, Immigration and Customs Enforcement, Coast Guard and the Transportation Security Administration. Mr. Vitto then discussed the Subcommittee's plans to review the Directorate's efforts related to risk assessment, threat definition, and vulnerability assessment.

General Welch concluded the meeting by directing the subcommittees to prepare their draft "actionable" recommendations by November 1 so that the HSSTAC could discuss them at the November 15-16, 2004, meeting. He reminded the members that the Committee's charter was to make recommendations with respect to the activities of the Under Secretary for Science and Technology. Therefore, within the context of its charter "actionable" was defined as any recommendation that the Under Secretary was empowered to implement. General Welch accepted responsibility for synthesizing the final report and would draw on text provided by the Subcommittees as needed.

General Welch then stated that the Homeland Security Act of 2002 requires one third of the membership turn over each year and agreed to work with Dr. McQueary on re-appointments and new appointments in accordance with legislative requirements and the Committee's charter.

The meeting adjourned at 11:15 a.m.



Larry D. Welch  
General, USAF (Ret.)  
Chairman

Attachments