Closed Sessions

U.S. DEPARTMENT OF HOMELAND SECURITY

Homeland Security Science and Technology Advisory Committee (HSSTAC)
August 23-24, 2005
Atlanta, GA

The HSSTAC convened its seventh meeting on Tuesday, August 23, 2005, in Atlanta, GA. The Committee met in closed session pursuant to the provisions of 5 U.S.C. 552b (c)(7), and (c)(9)(B).

The Designated Federal Official, Ms. Brenda Leckey, 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 quarterly meeting as announced in the *Federal Register* (70 FR 46182). The objectives of this quarterly meeting were to: (1) identify how the Department of Homeland Security (DHS) Science and Technology (S&T) Directorate Portfolios are designed to meet DHS objectives; (2) receive a report from the Under Secretary for S&T on how the prior year's HSSTAC recommendations are being/will be implemented; (3) receive a report from the Under Secretary for S&T on the planned Departmental reorganization and priorities; and (4) receive Subcommittee reports.

General Welch opened by reminding the Committee members that the meetings will focus on Portfolios and operational needs, but that the Committee must understand from the Portfolio Manager where the programs are going. For example, what part is explorative, how are they to connect with operational entities, who is their operational end-user? General Welch continued by explaining that he had looked at the recent DHS reorganization and that it was not immediately apparent that the changes affect the relationships between the Directorates. He emphasized that the Committee needs to understand how the S&T Portfolios are linked with operational efforts.

Standards Portfolio Brief

Dr. Bert Coursey, Standards Portfolio Manager, briefed the mission of the Standards Portfolio – to develop and coordinate the adoption of national standards and appropriate evaluation methods to meet homeland security mission needs. The Standards Portfolio's strategic objectives are to: (1) identify requirements and prioritize needs for homeland security standards; (2) develop, adopt, and recommend standards and guidance necessary for homeland security mission needs; (3) develop metrics and protocols for component and systems test and evaluation; and (4) coordinate standards development with other Federal government and international partners.

Questions arose during the discussion about how DHS determines "how clean is clean" when recovering from a biological, chemical or radiological attack. Another issue discussed was

whether the Standards Portfolio acts as an Underwriters' Laboratory (UL) that assesses a product and gives a seal of approval. Dr. Coursey explained that in the future, the Standards Portfolio goal is to set a standard and certify products that meet the criteria. Dr. Roca inquired about whether the Standards Portfolio, in addition to establishing compliance, also tests products. Dr. Coursey replied that he would like to move towards a UL-like organization, where vendors pay for testing and the Portfolio sets standards for future equipment. Dr. Roca asked to confirm that the Portfolio: (1) sets product requirements, (2) identifies best practices, (3) sets certification requirements, (4) assists in product design (feature setting). Dr. Roca also asked if the Portfolio has a method by which a DHS operational entity comes to the Portfolio for assistance in setting standards. Dr. Coursey replied that there is a method – the Integrated Product Teams.

High Explosives Countermeasures Portfolio Brief

Dr. Fred Roder, High Explosives Countermeasures Portfolio Manager, briefed the mission of the High Explosives Countermeasures Portfolio, to develop technical capabilities to detect, interdict, and mitigate the consequences of the use of explosives and other conventional means (non-chemical, biological, radiological, nuclear) in terrorist attacks against the population, mass transit, civil aviation, and critical infrastructure without impeding the flow of commerce. The strategic objectives are to: (1) reduce the risk of a successful attack on critical infrastructure, including all forms of transportation, from explosives and other conventional means; (2) reduce the risk to the population from explosive devices; and (3) detect and interdict the illicit movement and use of explosives and explosive devices within or inbound to the U.S.

Discussion included the status of the Transportation Security Laboratory in the Department's consolidation with the Transportation Security Administration, as well as traditional methods of bomb detection in the aviation security area. Committee members expressed concern regarding the need to have a system-wide approach to aviation security. Dr. Roder then discussed sensitive information pertaining to the impact that countermeasures have on saving lives from an explosion. Dr. Fischhoff inquired about programs that consider the level of sophistication of the bombers.

Under Secretary for Science and Technology

Dr. Charles E. McQueary, Under Secretary for S&T, first greeted the Committee members and thanked them for the time they give to provide advice in an effort to make the Nation more secure. Dr. McQueary noted that since the previous meeting three months ago in San Diego, acts of terrorism seem to be escalating. He mentioned that we have seen suicide bombings move from the Middle East to the streets and subways of London, and back again with the Sharm el-Sheik attacks in Egypt. Dr. McQueary praised the U.K. for showing the world a remarkable and strategic poise in responding to these events – something the U.S. must be prepared to emulate. He commended British law enforcement and intelligence for their extraordinary work in piecing together the events of the July 7 attacks and the failed attempts two weeks later that led to multiple arrests of suspected terrorists and their enablers.

Dr. McQueary stated that the stakes are high, and everyone at DHS is acutely aware of the public responsibility entrusted in them. DHS must marshal the resources of industry,

academia and government and effectively coordinate the National effort to find new and better ways to protect the citizens from acts of terror. Dr. McQueary continued by stating that at both DHS and S&T, a number of changes are afoot that he believes will make us operationally stronger and better prepared to meet the challenges of our protective mission.

S&T Organizational Changes

The Under Secretary explained recent organizational changes. This was the first meeting without Dr. Ronald Taylor, the first director of S&T's Office of Studies and Analysis. Dr. Taylor came to S&T as a detailee on assignment from the National Academies of Science. He returned to the Academies to accept a position as Associate Executive Officer of its National Research Council. Dr. Taylor held two positions at S&T, providing executive leadership of the HSSTAC as well as the Homeland Security Institute (HSI). Dr. McQueary explained that Dr. Taylor played a historic role during the critical formative stages of both the HSSTAC and the HSI, and S&T greatly benefited from the expert guidance, dedication and professionalism he brought to these assignments. Dr. McQueary expressed his gratitude for Dr. Taylor's many contributions to the Advisory Committee, the S&T Directorate and the Department.

Dr. McQueary introduced the Committee to Dr. Taylor's successor, Dr. Laurie Henrikson. Dr. Henrikson is a detailee from The Aerospace Corporation; Dr. McQueary asked him to join S&T as the new Director of the Office of Studies and Analysis, with concurrent duties as Executive Agent of the HSI and Executive Director of the HSSTAC. For most of his professional career, Dr. Henrikson has been associated with The Aerospace Corporation, a not-for-profit Federally Funded Research and Development Center (FFRDC) that addresses National problems, primarily in the area of national security space and space-related systems. Dr. Henrikson was invited to attend the meeting as an observer.

The Office of Studies and Analysis — which previously resided within the S&T Office of Plans, Programs & Budgets — will now report directly to Dr. McQueary. This office will retain its independent status.

Dr. McQueary announced other senior management changes, such as Mr. John Kubricky's appointment as Acting Director of the Homeland Security Advanced Research Projects Agency (HSARPA). Mr. Kubricky will continue his role as Director of the Office of Systems Engineering & Development. Dr. McQueary stated that since Mr. Kubricky joined S&T in October 2003, his primary focus has been on integrating proven technologies into systems for demonstration, operational test and evaluation, and pre-production prototypes. Mr. Kubricky is replacing Vayl Oxford whose work with the Domestic Nuclear Detection Office (DNDO) requires a full-time effort. The DNDO continues to coordinate with S&T but reports directly to Secretary Chertoff.

Ms. Carol Dunham is the new Chief Financial Officer of S&T and reports directly to the Under Secretary. Ms. Dunham came from DHS Headquarters where she served as Director of the Strategic Operational Plans and Assessments Division. As part of her responsibilities, Ms. Dunham oversees the strategic planning and budgeting functions that formerly resided with the Office of Plans, Programs and Budgets.

The Office of Plans, Programs and Budgets is now titled Plans, Programs and Requirements; and Dr. Kirk Evans is the Acting Director. Dr. Evans' previous role was Director of the HSARPA Mission Support Office. Dr. Evans will work with S&T Portfolio Managers, Program Managers, and Ms. Dunham to ensure full implementation of a comprehensive program that is geared to produce technology solutions for homeland security customers. In addition, the External Affairs and Internal Communications functions, formerly housed in the Office of Plans, Programs and Budgets, now report to S&T Chief of Staff, Mr. Vic Tambone.

Second Stage Review Overview

On July 13, Secretary Chertoff announced the results of his Second Stage Review, an intensive top to bottom review of DHS — of all programs, priorities and dollars spent — following the Department's first two years of operation. The changes the Secretary is implementing were founded on this principle: the structure of the Department of Homeland Security is aimed at serving our protective mission — and not the other way around. Dr. McQueary stated that the Secretary announced some steps to realign the Department and sharpen its focus to prepare the Department better to fulfill its mission in the years ahead.

Given all the changes, it is important to note that the S&T Directorate remains in tact because Secretary Chertoff recognizes that the Nation's scientific and technical capabilities are key weapons in the arsenal to combat terrorism — and vital to the efforts to stay many steps ahead of our adversaries.

Dr. McQueary stated that the policies and programs of the S&T Directorate leave the organization uniquely positioned to support the Department's strategic focus on using risk analysis as a tool for weighing threats, vulnerabilities and consequences of a given threat — and to help determine the proper allocation of homeland security resources to address the threats. He informed the Committee that they can expect risk management to play an important role in the Department's decision-making process concerning focus areas and allocation of funds.

Dr. McQueary noted that S&T is a service organization for the Department. S&T is currently examining its structure to be sure that it matches up with the new structure of the Department when it is officially implemented on October 1. Dr. McQueary has been working closely with S&T senior staff to ensure that the Directorate is aligned, through a targeted customer-service focus, with the risk assessment priorities and organizational structure that came out of the Second Stage Review.

According to Dr. McQueary, Secretary Chertoff identified six key imperatives that will drive DHS policy initiatives in the months ahead. They include:

(1) Increasing preparedness, with an emphasis on addressing threats that present the most catastrophic consequences,
(2) Strengthening border security and interior enforcement and reforming immigration processes,
(3) Hardening transportation security without sacrificing mobility,

(4) Enhancing information sharing with our partners, particularly with state, local and tribal governments and the private sector,
(5) Improving DHS stewardship through stronger financial controls and management, and
(6) Re-aligning the DHS organization to maximize performance.

Dr. McQueary explained that the first imperative has to do with addressing the threats of greatest consequence. He supports the Secretary's advocacy of using risk analysis to weigh the threat, vulnerability and consequences of a given threat and to help determine focus areas and the proper allocation of homeland security resources to address them.

The Secretary's second imperative is aimed at strengthening border security and interior enforcement and improving our immigration system. Dr. McQueary acknowledged that gaining full control of our borders to prevent illegal immigration and security breaches is essential to this effort.

Improvements in transportation security are also integral to Secretary Chertoff's plans. Strengthening rail security — including the development of next-generation technology to detect explosives as well as continued advances in chemical, biological and radiological threat detection and response — is a priority. The Department will also continue its efforts to enhance capabilities in aviation security and passenger identity screening. Improving the security of the supply chain and the movement of cargo in the global, maritime environment is another key concern of the Department.

Another imperative on the Secretary's list is enhancing information sharing, with an emphasis on forging stronger communications links between and among federal, state and local officials and private sector infrastructure owners. The goal is to build a richer intelligence base and to promote greater situational awareness.

Dr. McQueary emphasized that the Secretary also said that as a steward of the public trust, DHS must closely monitor its procurement and contracting practices and enhance financial controls overall. In addition, the Department needs to enhance human capital policies and information technology systems.

Following the discussion of the six key initiatives, Dr. McQueary explained the organizational changes the Secretary announced to support his plans for realigning the Department:

- The Border and Transportation Security (BTS) and the Information Analysis and Infrastructure Protection (IAIP) Directorates will no longer exist. Their components have been reassigned within the DHS structure.
- An Under Secretary for Policy will lead the formation of a new, department-wide policy office.
- The Emergency Preparedness & Response (EP&R) Directorate will become the Preparedness Directorate. Its Under Secretary will consolidate existing preparedness planning, training and funding activities. A Chief Medical Officer [Dr. Jeffrey

Runge] has been appointed to coordinate with federal agencies and state governments on medical preparedness issues.

- The Federal Emergency Management Agency (FEMA), formerly part of the EP&R Directorate, will function independently but in coordination with the new Preparedness Directorate and return to its historic role of response and recovery.
- Infrastructure Protection will become one of six main offices under the Preparedness Directorate.
- The former IAIP Assistant Secretary for Information Analysis will serve as Chief Intelligence Officer tasked with improving DHS management of intelligence and information sharing.
- A new Operations Coordination Office will help ensure that intelligence and policy functions are translated into action.
- Transportation Security Administration, Customs and Border Protection, Citizenship and Immigration Services, and Immigration and Customs Enforcement are no longer part of a directorate and will report directly to the Secretary.

Finally, Dr. McQueary thanked the Committee for its recommendations [in the January 2005 Report to Congress] and informed them that each one of the recommendations is being carefully considered. Dr. McQueary stated that his staff is preparing a complete response to the many points raised in the report.

At this point the floor was opened for discussion. The Committee expressed concern about whether or not the DNDO would maintain its own research and development function, how the S&T Directorate would interact with the Chief Medical Officer, and how other Directorates envision their interaction with the S&T Directorate. Dr. Fischhoff was concerned about what DHS defines as risk-based assessment. Dr. McQueary explained that HSI is presently working on a comprehensive strategy for determining DHS funding priorities based upon risk. Mr. Vitto then readdressed his concern about setting the standard of "how clean is clean" when recovering from an attack. He stated it should be based on science; and Dr. McQueary agreed that it must be communicated to the public in language they understand.

Chemical Countermeasures Portfolio Brief

Dr. Randy Long, Portfolio Manager of the Chemical Countermeasures Portfolio, briefed the Committee. The Portfolio's mission is to enhance and coordinate the Nation's capability to anticipate, prevent, protect, respond to, and recover from chemical threat attacks through innovative research, development, and transition of capabilities. Strategic objectives are to: (1) develop a national chemical defense architecture; (2) enhance rapid recovery from chemical attacks; (3) develop pre-event assessment, discovery, and interdiction capabilities for chemical threats; (4) minimize loss of life and economic impact from chemical attack; and (5) enhance the capability to identify chemical attack sources.

The briefing touched on threats and vulnerabilities, system studies, program content, interagency efforts that shaped the program, mission area analysis for homeland security, and components' expressions of need. Dr. Long began by explaining the history of terrorist use of chemical weapons and the chemical threat spectrum. He then began a discussion regarding

sensitive information. Discussion also included whether or not the countermeasures effort focuses solely on interdiction and warning, as opposed to controlling the source material. Further discussion pertained to how the Portfolio measures consequences and prioritizes risk, as well as the Portfolio's operational clients.

Border & Transportation Security Portfolio Brief

Ms. Jeanne Lin, Portfolio Manager of the BTS Portfolio, briefed on the mission of the BTS Portfolio – to develop and transition capabilities to improve the security of our nation's borders and transportation systems without impeding the flow of commerce and travelers. The strategic objectives are to: (1) prevent entry of terrorists, criminals and illegal aliens; (2) interdict terrorist instruments and contraband at the earliest opportunity; (3) improve the security of U.S. transportation systems; and (4) facilitate the flow of commerce and travelers – identify, disrupt and dismantle entities that threaten the U.S. Prior to 9/11, the strategic objective was law enforcement; now the strategic objective is prevention of terrorism.

Ms. Lin began by providing facts about the mission of the Nation's BTS Directorate. The U.S. has 5,525 miles of border with Canada and 1,989 miles with Mexico. The Nation's maritime border includes 95,000 miles of shoreline, and a 3.4 million square mile "Exclusive Economic Zone." Each year more than 500 million people cross the borders into the U.S., some 330 million of who are non-citizens. Ms. Lin explained that the Department must find ways to detect and react more effectively to threats to our border and transportation systems while facilitating the flow of people and goods. She then described the ports of entry in Canada and the Caribbean, border checkpoints between the ports of entry, and employees involved.

Ms. Lin then discussed the transportation challenges, such as the operational demands and threats. Following that, she described the Portfolio strategy which includes being the conduit for technology portfolios, conducting studies and analyses, inserting capabilities into existing BTS programs, working with customers in a collaborative and cooperative environment, involving industry and academia, and developing architectures and integrating systems. Ms. Lin then described certain initiatives, such as the Arizona Border Control Initiative and concluded the briefing by describing the capability-based planning process used in the Portfolio.

Following the brief, Dr. Roca inquired about the role S&T plays in technology development with BTS; i.e., does S&T serve as a technology evaluator, or just a developer. Dr. McQueary explained that he insists that the operator purchase the end product because he does not want S&T to develop a technology that no one will use.

Before adjourning for the day, the Chairman discussed with the Committee members the overall DHS strategy. General Welch remarked that he is not sure how all these programs fit together – the linkage between operational concepts to perform missions to research and development needs is not clear. He stated that he would like to better understand how research and development, capability needs, concepts of operations and threat-based planning are considered at a DHS level. He continued by stating that DHS should think about a whole set of threats and design capability needs to address the vulnerabilities.

General Welch convened the second day's meeting by stating that the Committee is concerned about the relevance of the work, the identification of operational needs and technology development. Dr. Fischhoff expressed concern about how DHS handles public communications, since public affairs professionals are not experts in the relevant fields of science. He suggested that perhaps the incoming Chief Medical Officer could act as a change agent for making the information passed to the public be based on science.

Biological Countermeasures Portfolio Brief

Dr. John Vitko, Portfolio Manager of the Biological Countermeasures Portfolio, briefed the Committee on the progress of the Portfolio's programs. The mission of the Biological Countermeasures Portfolio is to provide the understanding, technologies, and systems needed to anticipate, deter, protect against, detect, mitigate, and recover from possible biological attacks on this Nation's population, agriculture or infrastructure. Strategic objectives of the Portfolio are to: (1) develop an integrated national biodefense architecture against all biological threats with emphasis on high consequence events; (2) provide decision makers and responders with knowledge and decision support tools needed to anticipate, prevent, prepare for and respond to events; (3) develop and transition to deployment needed technologies and systems for threat assessment, protection, early detection, attack assessment, forensic analysis, agricultural security, and response and recovery; (4) support our partnering agencies, with their leads in public health, agriculture, food, water security, decontamination, and criminal investigations; (5) coordinate with partnering agencies in the intelligence and defense communities; and (6) where appropriate, incorporate bio-defense as part of an integrated chemical, biological, radiological, nuclear, and explosives defense across civil and military sectors.

Dr. Vitko began the briefing by discussing the President's *Biodefense for the 21st Century* which lays out an integrated strategy involving threat awareness, prevention and protection, surveillance and detection, and response and recovery. Dr. Vitko then explained the various roles of government agencies in combating and responding to a biological attack. He stated that the Department of State handles the international aspects; Health and Human Services handles medical countermeasures, mass casualty care and anticipates future threats; the Environmental Protection Agency (EPA) leads decontamination; and DHS is in charge of assessment, critical infrastructure protection, attack warning, forensic analysis, response planning and risk communication. Dr. Vitko then explained the three types of threat information his Portfolio receives, which are consequence-based, intelligence-based and feasibility-based. Following a discussion regarding risks assessed by the Portfolio, Dr. Vitko discussed the Bio-Threat Characterization Center, the Biodefense Knowledge Center, the National Biosurveillance Integration System, the Bio Watch program and the National Bio-Forensics Analysis Center.

Upon completion of the brief, Dr. Fischhoff asked Dr. Vitko how the EPA fits into the response plan. Dr. Vitko used the Brentwood facility as an example of the complications involved with decontaminating a facility. The decontamination of that facility took a great deal of time and money; outdoor decontamination has different parameters. Other discussion involved the dual-use of the Bio Watch program to include public diseases as well as terrorist agents.

Subcommittee Reports

Dr. Rich Roca, Chair of the Mission & Operations Subcommittee, briefed the Committee on the Subcommittee's activities since the prior plenary session of May 18-19. On August 18, the Subcommittee met with representatives of other DHS directorates to discuss how they see the S&T Directorate fitting into their technology development needs. Representatives of the U.S. Coast Guard, Information Analysis office of the IAIP Directorate, Transportation Security Administration and U.S. Customs and Border Protection briefed the Subcommittee. Issues discussed with the Committee included the various levels of organizational maturity of the represented directorates, their expectations of the S&T Directorate, and the directorates' capability realization processes used. The represented directorates expect the S&T Directorate to support any of their capability realization efforts in the role of trusted advisor and subject matter expert, assume responsibility for advanced technology realization, address significant technology challenges that cross operational entities, and play some role in setting cross-DHS standards. Furthermore, Dr. Roca noted that each operational entity is concerned about the life-cycle support of any product they receive from others. Dr. Roca then showed the Committee diagrams of a shared model of capability realization and advanced technology realization and discussed how each model fits various other directorates' needs. For the next Subcommittee meeting, members will decide who they wish to engage for further insight into how other directorates view S&T's role.

Dr. Larry Papay, Chair of the Resources & Organization Subcommittee, briefed the Committee on the Subcommittee's meetings and activities since the last plenary. On August 11, the Subcommittee met with representatives of S&T's Technology Transition team as well as with representatives of the Office of Research and Development to discuss the progress of the National Biodefense Analysis and Countermeasures Center and the National Bio and Agro-defense Facility. The Subcommittee also received an update on HSI's progress on its National Lab Assessment. During the discussion, Dr. Papay emphasized the need for S&T to start technology development with an end-user in mind. Dr. Papay was pleased with the progress of the Technology Transition Process Development Team due to their emphasis on requiring a Program Definition Document to require and emphasize early transition.

Dr. Dave Franz, representing the Chair of the Programs Subcommittee, discussed the subcommittee's activity since the last plenary session. Although the Subcommittee was unable to meet prior to this meeting, its members had interacted with senior staff in their official capacity regarding homeland security. Dr. Franz and Dr. Atlas expressed their desire to meet with the Chief Medical Officer in the coming months to discuss what he sees his role being within DHS and how he plans to interact with the S&T Directorate. During the discussion, concerns arose as to how all the programs fit together. General Welch expressed concern about how the National Labs and University Centers of Excellence fit into the overall S&T strategy. Dr. Atlas noted his concern about how organizations outside of DHS link to the strategy. As an example, Dr. Atlas used how the Centers for Disease Control link detection to public health response to an event. In regards to Bio Watch, General Welch stated that the strategy should begin by asking, "What does it take for the warning to create a plan to treat?"

Dr. Russ Bessette, Chair of the Outreach Subcommittee, briefed the Committee on the Subcommittee's activities. Dr. Fischhoff discussed risk assessment and his concerns with the human aspects: the people conducting the analysis, human behavior being incorporated in a model, and communications to citizens about the results. Chief Mitchell explained that he attended a conference for first responders and described the interaction with the National Institute of Standards and Technology.

Following the Subcommittee briefings, the Committee engaged in discussions of standards for cleanup from a biological, chemical or radiological attack; the needs of first responders; the sociological and psychological study completed by the National Academies of Science; the need to insert the human interface factor into diplomacy; and the need for DHS to explain its mission. The Chairman noted that in the future the Committee needs to be more focused on what it wants from the briefers. The Chairman also directed the Subcommittees to focus on their inputs to the annual report and to be prepared to report on their preliminary recommendations at the November 8-9, 2005, plenary session.

The meeting adjourned at 11:50 a.m., August 24, 2005.

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