



Homeland
Security

June 9, 2008

Mr. Kevin Hale
Director of Security
National Academies of Sciences
500 Fifth Street, N.W.
Washington, D.C. 20001

Dear Mr. Hale:

We have completed our security review of the NRC draft report entitled "Department of Homeland Security Bioterrorism Risk Assessment: A Call for Change." Our finding is that this report is **UNCLASSIFIED** with no security restrictions, and may be handled accordingly.

However, in the course of our security review, we observed that the Report included several key recommendations that DHS S&T has strong reservations against. Because of our concerns, we have attached to this letter, our detailed technical review of the Report which finds that several of these key recommendations are based on an incomplete understanding of the 2006 Bioterrorism Risk Assessment (BTRA) analysis, or on scientifically debatable Committee opinions, rather than on supported and demonstrated technical shortcomings of the BTRA analysis. While most of the Committee recommendations contain insightful, actionable, and helpful information that will serve to improve the BTRA, the recommendations mentioned above warrant further discussion. Given the importance of risk assessments to improve and inform the nation's ability to effectively mitigate bioterrorism, DHS S&T looks forward to working with the Academies and the Committee to ensure that an accurate and fair report is published.

In an effort to bring our primary concerns to your attention, we have listed each below and provided justification for our position on each:

1. **The overall conclusion of the NRC Final Report that the BTRA "should not be used for decision making" is not supported by factual information or analysis that support the broad sweeping generality of this recommendation.** An interim report, published in early 2007 by the NRC, found that the 2006 BTRA was "adequate, but incomplete" – an assessment with which DHS agrees. In stark contrast however, the NRC Final Report finds in Recommendation #13 that the 2006 BTRA "...should not be used as a basis for decision making..." and that the BTRA "...should not be used to assess the risk of biological, chemical, or radioactive threats." The Committee cites four Recommendations (#2, #4, #10, and #11) in its Final Report, (see Executive Summary ES-11, lines 21-24) as the key justifications for the new findings.
 - Recommendation #10 questions the medical mitigation model. Upon our review of Chapter 6 of the NRC Final Report however, it is clear that the Committee overlooked the actual 2006 BTRA medical mitigation model and focused on a *proposed* model that was being considered for the 2008 BTRA. The model in question cited in Recommendation #10 was

described in a presentation in February 2007 and clearly noted as a *proposed* model for the 2008 BTRA. The Committee received a copy of the DHS 2006 BTRA report in October, 2006, which contains a detailed description of the medical mitigation model and also received a detailed briefing on the methodology on 28 August 2007.

- Recommendation #4 questions DHS for normalizing risk results as opposed to reporting absolute risk. While the merits of normalizing, or not, are certainly open for debate and review, reversing the normalization is easy to implement, and should certainly not be the entire basis for recommendation #13. In addition, it should be noted that DHS has had information exchanges with Committee members that recommend a method for calculating and communicating normalized relative risk, which is inconsistent with Recommendation #4.
 - Recommendation #11 suggests that the BTRA incorporate direct and indirect economic impacts, as well as agricultural impacts. DHS wholly agrees, but this recommendation is a matter of scope, and not one of technical quality. DHS and White House leadership indicated in 2005 that public health consequences were to be the initial consequence metrics used, with economic impacts to be added in 2008. In fact, detailed economic models have been completed for the 2008 BTRA. The Committee was briefed on this on 28 August 2006. As such, it is unclear to DHS S&T how the absence of these consequence metrics warrants Recommendation #13.
 - Recommendation #2 is factually incorrect in its implication that the 2006 BTRA fails to consider terrorists as intelligent adversaries. The Committee asserts in the Final Report that the use of probabilities and event trees is the “wrong framework” for describing terrorist actions and decisions. The literature in this area shows that there is a significant community of researchers that employ this approach. In the attached technical review, DHS S&T has compiled an overview of this body of work, as well as the results of informal polling of leading risk and decision analysis researchers. This overview clearly illustrates that the use of event trees and probabilities are reasonable and are often used in the field. Future BTRAs will also consider the approaches suggested by the NRC report, but it is not correct to say categorically that an event tree formulation is a “wrong framework” for addressing intelligent adversaries.
2. **The NRC Final Report has inaccuracies and internal inconsistencies in describing the 2006 BTRA.** Throughout the NRC Final Report, references are made to “mathematical and statistical errors” in the 2006 BTRA that corrupt results. Importantly, these assertions are a large part of the justification for Recommendations #2 and #13. Upon detailed reading and analysis of the NRC report, DHS S&T can find only a handful possible errors to which the Committee could be referring in their Final Report; of these few, all but one are not errors at all, but are either misunderstandings of what was done in the BTRA analysis, or are opinions of the Committee that deserve further technical discussion. The only actual error identified by the Committee was shown to have no impact to the risk results in the 2006 BTRA, a fact that had been called to the attention of the Committee almost a year ago.

3. **The review described in the NRC report appears to be incomplete.** With the exception of a few lines in Chapter Five, the Committee appears to have overlooked Chapters Six and Seven of the 2006 BTRA, where the Multi-Attribute Risk Analysis (MARA) and integration methodologies are described. This is troubling because a key theme in the NRC Final Report is that the 2006 BTRA is overly complex and has not been validated; the MARA approach and results are highlighted in the 2006 BTRA Report since they provided an independent validation of 85% of the bioterrorism agent rankings produced by the primary event-tree approach.

For the reasons above, DHS S&T requests to meet with Academies' senior staff and the Committee to discuss and resolve these issues prior to final publication of the NRC Final Report. We look forward to working with the Academies and the Committee to resolve the discrepancies so that the review of the 2006 BTRA is completed as quickly as possible. We greatly appreciate your willingness and understanding in considering our request and your shared desire to see that an accurate and fair Report is released.

Sincerely,



Jay M. Cohen

Under Secretary for Science and Technology

- Attachments:
- (1) DHS S&T Technical Review of NRC Draft Report "*Department of Homeland Security's Biological Risk Analysis: A Call for Change*"
 - (2) Attachments to the DHS S&T Technical Review of NRC Draft Report "*Department of Homeland Security's Biological Risk Analysis: A Call for Change*"