

U.S. Environmental Protection Agency (EPA) Board of Scientific Counselors (BOSC)
Homeland Security (HS) Subcommittee
Teleconference Meeting Summary

March 19, 2019

Dates and Times: March 19, 2019, 3:00 p.m. to 5:00 p.m. Eastern Time

Location: Teleconference

Executive Summary

On March 19, 2019, the EPA BOSC HS subcommittee convened via teleconference to finalize the HS subcommittee report. HS program (HSRP) staff members were available during the teleconference to address questions regarding HS Strategic Research Action Plan (StRAP) content and specific areas of input from the BOSC. The meeting format consisted of open dialogue, subcommittee questions, and EPA responses to their questions.

Mr. Tom Tracy, Designated Federal Officer (DFO) for the BOSC HS subcommittee, opened the call and introduced HS subcommittee members, EPA staff, and one public attendee: Johanna Bell from the Association of Idaho Cities. Dr. Gregory Sayles, National Program Director for HSRP, welcomed the subcommittee and announced that Dr. Shawn Ryan would return to the role of Division Director, and Dr. Sang Don Lee would become the Acting Deputy Program Director of HSRP.

Subcommittee Discussion of Homeland Security Subcommittee Report

Dr. Paula Olsiewski, Chair of the HS subcommittee, explained that the objective was to reach consensus on the subcommittee report recommendations. The report should respond to the charge questions and provide concise, actionable recommendations to HSRP. Dr. Olsiewski emphasized that the subcommittee should discuss changes during the call and focus on science, not policy.

Charge Question 1a - Does the research outlined for the 2019–2022 timeframe support the relevant Agency priorities as described in the EPA and ORD strategic plans?

Dr. Murray Cohen raised adding subject matter experts to conduct research and science where there are gaps. The workgroup found a significant problem with the fact that EPA does not share the great things they do. The recommendation addressed applied science that had not been done.

Dr. Olsiewski suggested shortening the strengths directed towards ORD. Dr. Cohen agreed.

The subcommittee was unsure if the StRAP extended into two new areas: oil spill security and cybersecurity. Dr. Cohen noted that the Centers for Disease Control and Prevention (CDC) has biological response for oil spills, but cleanup is EPA's responsibility. He said that the StRAP does not clearly broadcast responsibilities.

Ms. Dana Tulis noted that there are anthrax cleanup procedures. She pushed ORD to publish the acceptable detection value for anthrax, but it was an extensive project. She noted that zero detectible spores are the high mark and explained that EPA was on board with this, but then the

U.S. Department of Health and Human Services did not support it. Dr. Sayles said that the zero detectible spores document is still available. However, it depends on local health agency decisions. Dr. Ryan answered that they could put billions of dollars of research into one strain that could go to waste if another strain comes about.

Dr. Olsiewski asked if the subcommittee has a consensus around the Recommendation 1a to expand communication with the stakeholder groups. The subcommittee agreed.

Ms. Kari Cutting provided background information to the group on the Recommendation 1a. The workgroup agreed that the research is in line with the priorities, but HSRP should apply the goal of cooperative federalism. Ms. Tulis suggested the use of webinars. The subcommittee agreed to shorten Recommendation 1a.

Charge Question 1b - Each ORD research program undertook a rigorous engagement process to provide additional detail on specific EPA program and region, state, and tribal needs, the results of which are summarized in the StRAP objectives and explanations of research topics and areas. How well does the proposed research program respond to these partner-identified needs?

Dr. Robert Scudder suggested revisiting all their recommendations and suggestions to make sure they are relevant to the charge question.

Ms. Tulis suggested mentioning specific materials and expanding beyond anthrax and decontaminating asbestos. She liked the mobile platforms component. Dr. Sayles said mobile apps would be a good recommendation because HSRP wants experts to have tools out in the field.

The subcommittee reached consensus on the recommendations.

Charge Question 1c - Does the StRAP, including the topics, research areas, and proposed outputs, clearly describe the strategic vision of the program? Given the environmental problems and research objectives articulated, please comment on the extent to which the StRAP provides a coherent structure toward making progress on these objectives in the 2019–2022 time frame.

Dr. Olsiewski emphasized that it would be great for HSRP to pursue the suggestions if resources allow.

Ms. Tulis questioned what “realistic provisional advisory levels (PALs)” meant in the first suggestion, because PALs used to be for chemical warfare agents. Dr. Sayles concurred with Ms. Tulis’ question and said that the PALs are developed and ready to use in an emergency.

Dr. Michael Wichman added that his input depended on whether the EPA derived PALs from public or military exposure. Ms. Tulis explained that EPA developed PALs for the public and does not handle military-level processes. Dr. Scudder suggested that HSRP should use the advisory levels on EPA’s consolidated list of chemicals. The subcommittee reached consensus to remove the first suggestion from the report.

Dr. Debra Reinhart questioned the meaning of “further prioritized outputs given.” Dr. Wichman replied that their workgroup based the statement on HSRP’s aggressive timeline, and Dr. Reinhart and Dr. Justin Teeguarden suggested the statement be clarified.

Mr. Edwin Roehl explained that Recommendation 1c.1 should not be limited to chemical contamination and suggested broadening it to any type of contamination. He said he would send drafted text to Dr. Olsiewski.

Dr. Olsiewski asked HSRP whether Recommendation 1c.2 was actionable and scientific.

Dr. Sayles replied that the recommendation is good, but that HSRP wanted to further establish decontamination means to ensure water used in a contamination event does not get pumped to local drinking water. He asked whether the subcommittee meant “premise plumbing systems” and asked for their intent in distinguishing between a water distribution system and a local water system. Dr. Wichman clarified that they meant a distribution system within a community.

Dr. Sayles agreed and liked the idea of being able to purge a contaminated area so that the whole distribution system is not contaminated.

Ms. Tulis asked Dr. Sayles if HSRP makes “chemical unknowns” a priority within the program.

Dr. Sayles said HSRP does not, but they should develop more generalized chemical screening methods that are not chemical-specific to enable quick identification of unknown chemicals.

Dr. Olsiewski suggested the subcommittee change the recommendation to a suggestion.

Dr. Teeguarden said it can be a recommendation, but the subcommittee should clarify whether HSRP should focus on the chemical unknown screening or analysis. Ms. Tulis reinforced that idea and said that is why EPA reviews integrated risk assessments, to make sure they are picking the most relevant chemicals (e.g., anthrax). Dr. Sayles noted that HSRP typically uses specific analytical methods for the highest priority chemicals or adapt their already existing methods. HSRP does have chemical-specific detectors.

Dr. David Klein commented that he has been deeply involved in chemical unknowns with the CDC and EPA. He emphasized that no one has authority over unknown threat powders from environmental sources, such as anthrax. He noted that if an anthrax-laced letter was detected, CDC would lead the biological side and EPA would not. He suggested EPA use time of flight to research unknown unknowns. Dr. Klein further noted that having a list of knowns to pick an unknown from could be done relatively easily.

Dr. Teeguarden said that the effort is cutting-edge science, and he does not believe HSRP has the resources to address it. He noted that the National Institutes of Health (NIH) funded efforts into the field of unknown unknowns. It involves advanced computational methods and creating libraries. He also noted that another complication is that one cannot buy standards for many of the compounds. Dr. Teeguarden suggested moving the recommendation to the suggestions or clarifying to HSRP so they can expand the list of compounds for which they can analyze in water samples. He added that HSRP could collaborate with other offices in EPA and NIH to build capabilities.

Dr. Wichman said chemical unknowns are real problems in laboratories. He explained that researchers could use a screening method to characterize a general class of compounds quickly for easy identification, and then use a more targeted method to identify the exact compound.

Dr. Teeguarden disagreed and said that, in his experience, current screening methods are not “quick and fast” and identifying anything from these methods besides the molecular formula is impossible. He noted that there is not a definition of known chemical space to track that molecular formula into all possible compounds, so it is difficult to determine next steps.

Dr. Teeguarden said the subcommittee should suggest or recommend HSRP partner with Dr. Jon Sobus, EPA, and Dr. David Balshaw, NIH, to stay abreast of the development. Dr. Olsiewski agreed.

Dr. Lucinda Johnson, Vice Chair of the BOSC Executive Committee, also agreed and raised a great opportunity to direct future EPA investments to address unknown unknowns in the future, saving money and addressing challenges HSRP cannot foresee. Dr. Olsiewski agreed but cautioned saying “if we have more money or people.” Dr. Johnson encouraged making all recommendations actionable within the report boundaries, but that HSRP should keep track of what future investments should be.

Dr. Teeguarden asked why the subcommittee selected the two recommendations versus other suggestions. He suggested the subcommittee write a paragraph for how they reached the recommendations. Dr. Olsiewski liked the idea of having a narrative with the recommendations.

Dr. Teeguarden asked which of the strengths or suggestions are responsive to the specific charge question. He is not sure where the charge question says, “If you [HSRP] wants more coherent structure towards progress, here is what you do with the plan,” or, “If you [HSRP] want to clearly represent the plan, you should rewrite it this way.” Dr. Ryan agreed that HSRP could have more focus.

Dr. Olsiewski emphasized the subcommittee wants to recognize all the great science and planning happening in HSRP and provide suggestions to assist. She said that the report should only include several actionable recommendations. Dr. Teeguarden offered the sentence: “We find the StRAP provides a coherent structure towards making progress, and the elements that describe that structure are the following.”

Dr. Cohen noted Recommendation 1a might better fit under Charge Question 1c. The recommendation suggests EPA assemble reference oil samples from worldwide oil samples.

Charge Question 1d - Recognizing ORD’s focus on addressing identified partner research needs, in the presence of reduced scientific staff and resources, are there any other critical emerging environmental needs or fields of expertise and/or new research methods where this program should consider investing resources?

Dr. Teeguarden suggested prioritizing the suggestions to make them easier to read and less overwhelming. He agreed with the one sentence recommendation, but after many great suggestions, he did not understand why there was just one recommendation that seemed small in comparison. Dr. Monica Schoch-Spana agreed and commented that perhaps they need rationale behind the suggestions. She noted that the subcommittee did not prioritize the suggestions during the face-to-face meeting, so she and Dr. Shawn Gibbs tried to organize the suggestions into three major bins.

Ms. Tulis had similar impressions but struggled to relate the ideas to the charge question. She suggested the workgroup revisit the suggestions and promote some of them to recommendations. She also suggested adding a second recommendation concerning leveraging agencies for resources. Mr. Brooks added that he thought the suggestions linked to the one recommendation made. He said that Dr. Schoch-Spana and Dr. Gibbs could use the suggestions to expand on the recommendation.

Ms. Cutting noted that the suggestions were divided into three general “buckets” with detailed language in the form of bulleted lists below them. She said they would simplify the suggestions by including the details in paragraph form and leaving the three main “buckets.” Dr. Schoch-Spana said that she and Dr. Gibbs tried to provide HSRP with many options, knowing they will have to make contextual decisions.

Dr. Cohen and Ms. Tulis suggested adding private industry for leveraging and partnerships. The subcommittee agreed to keep one recommendation with a summary.

Dr. Reinhart added that EPA’s Municipal Solid Waste Decision Support Tool helps EPA manage solid waste management and suggested the subcommittee refer to the tool in the report.

Charge Question 1e - What are some specific ideas for innovation (including prizes/challenges) and market-based approaches that the program could use to advance solutions to existing and emerging environmental problems?

Mr. Roehl commented that HSRP might be doing too much given limited resources. He suggested HSRP employ interns to reduce labor cost. He mentioned that a cooperative research and development agreement (CRADA) is another avenue where HSRP can collaborate with companies to invest their resources into the program. EPA already offers prizes for innovations, and Mr. Roehl commented that HSRP could benefit from that direction. Mr. Roehl continued that HSRP could research leveraging expertise from outside sources. Ms. Tulis noted that there is an overlap among federal agencies in leveraging. She mentioned that the U.S. Coast Guard (USCG), National Oceanic and Atmospheric Administration, and EPA work on joint projects. She noted that USCG is doing their best to connect various agencies to make an investment in oil spill response.

Ms. Tulis explained the need to bring in relevant experts to form an innovation council. She noted that the National Aeronautics and Space Administration has innovation program ideas to allow people to compete and provide clever ideas. She entertained the possibility of making a cross-agency council to pose specific questions and then filter them, allowing the agencies to figure out whom to focus on to obtain answers.

Mr. Roehl was impressed by the wet vac sampling. He noted that there are intelligent engineers that will work for free, or through a CRADA, and suggested HSRP investigate getting employees to spend extra time to strive towards an award or prize.

Dr. Olsiewski noted that Recommendations 1e.2 and 1e.3 were very specific. She asked why it is important to have two specific recommendations, with one around hardware and one around software. Mr. Roehl answered that developing hardware versus software is different, and he separates the two. Mr. Brooks suggested the subcommittee be specific about candidates

competing for those areas and consider including that text in the recommendation. Dr. Olsiewski suggested including rationale below the recommendations, provide examples, and then combine them into one recommendation.

Charge Question 2 - Homeland Security Research is designed to address known threats and vulnerabilities. At the same time, the Nation regularly faces unforeseen challenges in public health and the environment (e.g., Ebola and Zika viruses, opioid misuse). Please comment on the extent to which the Program's design enables use of its scientific contributions in also addressing unforeseen needs of the EPA programs and regions, states, and tribes. How can HSRP improve its applicability to unanticipated urgent threats?

Ms. Cutting thought that expanding Charge Question 2 into other agencies is a good idea. She noted that she and Dr. Cohen discussed, in Charge Question 1a, that other stakeholders could be state emergency response groups. She asked if the subcommittee should add them in Charge Question 2. The subcommittee agreed.

Ms. Cutting asked if fusion centers are state organizations. Mr. Brooks replied that there are fusion centers at the federal, regional, and state levels. Those at the federal level look specifically at weapons of mass destruction threats. Dr. Olsiewski wondered if the suggestion should include making sure HSRP staff has the appropriate security clearance. Dr. Teegarden agreed that it should be included.

Dr. Teegarden explained that the subcommittee should become more analytical in identifying HSRP gaps. Ms. Tulis worried that the discussion is expanding to emerging agents, and the subcommittee should be aware of budget constraints. Dr. Teegarden seconded that point. He noted that he wants HSRP to not expand into new space but grow in existing space.

Dr. Teegarden asked if it was a problem that Recommendation 2.2 enters classified space. Dr. Olsiewski stated EPA is sensitive to classified information. Dr. Teegarden said that he could modify the recommendation to ask for unclassified reports in describing the threats. Dr. Olsiewski wondered if Recommendation 2.2 is too similar to their first suggestion. Dr. Teegarden preferred the text as a recommendation because it is best if HSRP collaborates with groups that address unforeseen agents if they want to have a program to address unforeseen needs. Mr. Brooks agreed. Dr. Sayles agreed that Recommendation 2.2 is fine. HSRP works with other agencies on detection technologies and does it in an unclassified environment, but sometimes the work goes into classified space. He asked if that part was there to clarify the sentence above it. Dr. Teegarden said that it could be dropped. Mr. Brooks agreed that it can be dropped to allow HSRP to focus on the information and identify potential gaps. The subcommittee agreed to remove the sentence and focus on detection technologies.

Conclusions

The combined responses from each workgroup's follow-up recommendations from the teleconference will be compiled into the draft BOSC HS StRAP review. The BOSC EC will convene in June 2019 to review and consider the subcommittees' recommendations and finalize the overall BOSC report, which will include reviews of each of ORD's research programs.

Meeting Charge Questions

The [draft charge](https://www.epa.gov/bosc/homeland-security-subcommittee-december-12-14-2018-rtp-nc) can be accessed at <https://www.epa.gov/bosc/homeland-security-subcommittee-december-12-14-2018-rtp-nc>.

Meeting Participants

BOSC Homeland Security Subcommittee Members:

Paula Olsiewski, *Chair*
Lance Brooks, *Vice Chair*
Charles Barton
Murray Cohen
Kari Cutting
Andrew DeGraca
Shawn Gibbs
Edward Hackney
David Klein
Debra R. Reinhart
Edwin A. Roehl, Jr.
Monica L. Schoch-Spana
Robert Scudder
Justin Teegarden
Dana Tulis
Michael Wichman

EPA Designated Federal Officer (DFO): Tom Tracy, *Office of Research and Development*

Other EPA Attendees:

Sang Don Lee, *Acting Deputy Program Director, Homeland Security Research Program*
Shawn Ryan, *Division Director, Homeland Security Research Program*
Gregory Sayles, *National Program Director, Homeland Security Research Program*

Public Attendees:

Johanna Bell, *Association of Idaho Cities*

Other Participants:

Lucinda Johnson, *Vice Chair, BOSC Executive Committee*

Contractor Support (ICF):

Blake Riley