

**Summary Minutes of the
U.S. Environmental Protection Agency
Science Advisory Board Scientific and Technological Achievement Awards Committee
Partially Closed Meeting, August 15-16, 2016**

Date and Time: Monday, August 15, 2016, 8:00 A.M. – 6:00 P.M. ET; and Tuesday August 16, 2016, 8:00 A.M. – 3:00 P.M. ET.

Location: Melrose Georgetown Hotel, 2430 Pennsylvania Ave., NW, Washington, DC 20037.

Purpose: The purpose of the open session of the EPA Science Advisory Board (SAB) Scientific and Technological Achievement Awards (STAA) Committee August 15-16, 2016 meeting was to conduct a briefing on suggested changes to the STAA nomination and review process. The purpose of the closed session of the STAA Committee August 15-16, 2016 meeting was to discuss award recommendations for the EPA's 2016 STAA program, and to discuss possible improvements to the process and program.

Participants:

2016-2018 SAB STAA Committee (See Roster, Attachment A):

Dr. Jay R. Turner, Chair	Dr. Timothy V. Larson
Dr. C. Marjorie Aelion	Dr. Cindy M. Lee
Dr. William A. Arnold	Dr. Michael I. Luster
Dr. Adriana C. Bejarano	*Dr. Audrey L. Mayer
*Dr. Linda T.M. Bui	Dr. James R. Mihelcic
Dr. Jerry Campbell	Dr. Eileen A. Murphy
Dr. Judith C. Chow	Dr. Mira S. Olson
Dr. Joseph J. DeGeorge	Dr. Krishna R. Pagilla
*Dr. Sarina J. Ergas	Dr. Thomas F. Parkerton
Dr. G. Frank Gerberick	Dr. Kent E. Pinkerton
Dr. Richard S. Grippo	Dr. Robert W. Puls
Dr. Philip K. Hopke	Dr. Kenneth M. Portier
*Dr. Arpad Horvath	Dr. Alan Stone
Dr. Robert J. Johnston	Dr. Robert L. Tanguay
Dr. Terrence Kavanagh	

*Participated via teleconference

EPA SAB Staff:

Mr. Edward Hanlon, Designated Federal Officer
Mr. Christopher S. Zarba, Director, EPA Science Advisory Board Staff Office

Other Participants (Open Session)

Dr. Leonid Kopylev, EPA Office of Research and Development
Dr. Christian Daughton, EPA Office of Research and Development
Mr. Benjamin Packard, EPA Office of Research and Development

Meeting Summary

The partially closed meeting was announced in the Federal Register¹ and was conducted according to the meeting agenda.² A summary of the meeting follows.

August 15, 2016

Closed Session

Opening Statements and Welcome

Mr. Ed Hanlon, the DFO, opened the meeting, and made a brief opening statement noting that the STAA Committee of the SAB operates under the Federal Advisory Committee Act (FACA). He noted that a portion of the meeting was closed to the public because it was concerned with selecting which employees are deserving of awards, a personnel matter with privacy concerns, which is exempt from public disclosure pursuant to section (c)(6) of the Government in the Sunshine Act. He noted that the SAB Staff Office had assessed whether there were any conflict-of-interest or appearance of a lack of impartiality issues for any of the STAA committee members for this review and whether they were co-authors or contributors for any of the nominated papers. He noted that the SAB Staff Office instructed some members to recuse themselves from the review of certain 2016 STAA nomination packages upon review of the submitted ethics information, due to potential for conflict of interest or appearances of lack of impartiality. Mr. Hanlon also noted that minutes were being taken to summarize discussions and action items in accordance with requirements under FACA. Mr. Chris Zarba also welcomed everyone and thanked them for their attendance and participation. Mr. Hanlon then turned the meeting over to the Chair, Dr. Jay Turner.

Dr. Turner welcomed everyone and noted that scientists and engineers on the SAB STAA Committee have diverse backgrounds. He stated that the Committee's efforts to review the 2016 STAA nomination packages and develop recommendations for award was an advisory effort where the Committee would try to achieve consensus on an SAB report that would be prepared by the Committee, reviewed by the chartered SAB, and sent to the EPA Administrator. He reviewed the charge to the Committee, which included identification of SAB recommendations for Level I, II, and III STAA awards, and recommendation for Honorable Mention. He then discussed the criteria that the SAB would consider associated with recommending each of these categories for STAA recognition.

The Committee discussed each nomination. Each nomination was assigned to two Committee members for review prior to the meeting, and the principal reviewers started the discussion on each nomination followed by full Committee deliberation. The Committee decided whether it agreed on a preliminary final ranking for each nomination. In instances where a strong majority of members did not agree on a single final ranking, Dr. Turner requested members to further deliberate on the nomination, and then vote on the preferred recommendation of the Committee. The Committee's preliminary final rankings for each nomination were recorded.

Committee Review of and Deliberation on Nominations:

EPA’s Office of Research and Development (ORD) submitted a total of 77 nominations comprised of 134 publications in 14 science and technology categories for review by the SAB STAA Committee for the 2016 STAA awards.

The fourteen topical categories and total number of nominations per category that were submitted to the Committee for review were:

2016 STAA Nominations by Topic Category

Topic	Number of Nominations Submitted to SAB
Control Systems and Technology	1
Ecological Research	12
Energy and the Environment	1
Environmental Policy and Decision-making Studies	9
Health Effects Research and Human Health Risk Assessment	15
Homeland Security	1
Industry and the Environment	4
Integrated Risk Assessment	3
Monitoring and Measurement Methods	9
Other Environmental Research	6
Review Articles	2
Risk Management and Ecosystem Restoration	4
Sustainability and Innovation	1
Transport and Fate	9
TOTAL	77

In advance of the meeting, Committee members reviewed the nominations and reported their initial recommendations to the Designated Federal Officer (DFO) who entered this information into a master table.

Committee Briefing on Suggested Changes to the STAA Nomination and Review Process (Open Session)

Opening Statements and Welcome

Mr. Ed Hanlon, the DFO, opened the meeting, and made a brief opening statement noting that the STAA Committee of the SAB operates under FACA, and that during the open session of the meeting the EPA would conduct a briefing of the Committee to present suggested changes to the STAA nomination and review process. Mr. Hanlon also noted that minutes were being taken to summarize discussions and action items in accordance with requirements under FACA. Mr. Chris Zarba also welcomed everyone and thanked them for their attendance and participation. Mr. Hanlon then turned the meeting over to the Chair, Dr. Jay Turner.

Dr. Turner welcomed everyone and noted that the Committee would hear from Dr. Leonid Kopylev and Dr. Christian Daughton of EPA’s Office of Research and Development, who would

present slides on suggested changes to the STAA nomination and review process. He noted that since this was a briefing of the SAB Committee, there were no agency questions to respond to during this portion of the meeting. He stated that if individual members of the Committee would like to make observations during the public briefing that were relevant to the opening remarks and slides that Drs. Kopylev and Daughton were presenting, those observations were encouraged. He also noted that during the briefing the Committee was not seeking to identify points of agreement nor develop individual or consensus oral or written advice that would be provided to the agency. He stated that no members of the public requested to present oral comments during the public briefing. He then introduced Dr. Kopylev, who presented his presentation slides³ entitled “Draft Revisions to EPA’s STAA Program” that were posted onto the SAB meeting website.

Presentation of Slides on Draft Revisions to EPA’s STAA Program, and Committee Member Reactions:

Dr. Kopylev summarized each bullet on each presentation slide, and provided observations on a few presentation slides. On slide 1, Dr. Kopylev noted that the agency received recommendations for improving the STAA program within previous SAB STAA advisory reports. On slide 2, Dr. Kopylev noted that decisions to improve the STAA program would be made by agency management. On slide 11, Dr. Kopylev noted that an extension of the current STAA procedural requirement that nominations must include publications from within the previous three years would make it easier for the SAB STAA Committee to make judgements on the potential impact of individual publications submitted within nominations. Dr. Kopylev then asked if Committee members had any questions.

Committee Member Reactions to Slide 7: “Revise STAA Award Criteria and Nomination ‘Justifications’ to Reflect the Following Factors”

A Committee member stated that it would be difficult to weigh the importance of each of the three factors presented in the slide associated with STAA award criteria, and suggested that the agency provide information on how to weigh the importance of each factor. Two Committee members noted that the importance of how the nomination related to the agency’s mission was a key factor, and that it would be helpful if nomination packages had a specific section noting the relevance of the nomination to the agency’s mission. A Committee member stated that it would be helpful if the nomination provided mission-related information associated with how the publications had impact on an international, national, regional and/or state level. One Committee member stated that if the agency changes the criteria for STAA recognition, the agency should develop specific criteria for a Level I, II, III, and Honorable Mention STAA recognition. Another Committee member asked whether the agency would develop specific criteria describing a Level I, II or III STAA award. A Committee member asked whether future STAA nominations would be required to include justification information indicating how the nomination meets the three new criteria for STAA recognition. Dr. Kopylev responded that the agency may not have specific criteria for each award level, and that ideally nominations would provide information that would satisfy each of the three factors presented in the slide. Dr. Kopylev noted that if the agency decided to change the STAA criteria for award to the three factors presented in the slide, the SAB’s recommendations for STAA recognition could bias towards older publications in certain disciplines since information on how such publications show impact may be more readily available for such publications.

A Committee member asked whether the agency already had a program to recognize agency work that has been internationally recognized. Dr. Kopylev stated that the agency issued medals to agency employees depending on the work that was being recognized. Dr. Daughton noted that in addition to medals, the agency provided science achievement awards and the Pathfinder Innovation Program (PIP) that started in 2011. Dr. Daughton noted that both of these award programs were recognized by external stakeholders.

Another Committee member stated that when Dr. Paul Anastas headed the EPA's Office of Research and Development, Dr. Anastas was a proponent of innovation and sustainability. The Committee member suggested that the agency consider incorporating STAA award criteria on whether and how the agency incorporated sustainability frameworks into research publications submitted for STAA recognition. Another Committee member stated that while Dr. Anastas was at the agency, he instituted a program that provided time to work on certain topics including innovative technologies. The Committee member noted that the agency could consider language used in that program (the Pathfinder Innovation Projects program, PIP) because it provided examples of what is innovative.

Committee Member Reactions to Slide 9: "Extend Time Period of Eligibility"

Several Committee members stated that it would be helpful to extend the window of eligibility from 3 years to a larger number. A Committee member stated that nomination packages over the previous few years had seemed incomplete since they did not include field validation, and noted that an extension of the time period for eligibility would result in more complete, scientifically valid nomination packages.

Four Committee members noted that it would be helpful to extend the window of eligibility from 3 years to 5 or 6 years. Another Committee member stated that an extension to 8 or 10 years would be too long of a window of eligibility. One Committee member stated that an extension to 12 years may be too long of a window of eligibility since it would be difficult to assess whether the research was novel if such a lengthy period of time was allowed for nominated publications. Another Committee member noted that if an extension to 10 years were instituted, a 2 year old publication may not receive STAA recognition since it would likely not be as highly cited as older publications. One Committee member stated that if an extension to 8 or 10 years were developed, nominations with publications older than 5 years should include justification information on how such publications have affected the agency's long-term mission.

One Committee member stated that an extension to 6 or 12 years would be acceptable, since for some types of research (e.g., cancer research) a period of 20 years may even be too short to see an impact. Another Committee member stated that it would be helpful to know whether EPA researchers who helped to develop the agency's original water quality program received recognition for their groundbreaking work. A Committee member stated that the agency should further consider how to encourage scientists to submit nominations for STAA recognition when they publish.

Dr. Kopylev noted that an extension of the window of eligibility from 3 years to a larger number would help to equalize how nominations would be weighed against each other. He noted that the SAB STAA Committee did not have expertise in certain topics that were the primary research focus areas for some nominations. He stated that nominations in these topic areas would

consequently have less chance for STAA recognition, and noted that if the Committee had such expertise the nominations would be weighed more equally against each other.

Committee Member Reactions to Slides 10-11: “Move from Journal-Based Metrics...To Article-Based Metrics”

Two Committee members noted that the presentation’s proposed criteria for assessing metrics may bias STAA recognition towards senior agency scientists who have published many previous publications. These Committee members also noted that consideration of the quality of previous publications may not relate to the quality of the nominated publication. Regarding the second bullet on Slide 11, three Committee members stated it would be difficult for each Committee member to find 20 citations for each nominated article. One Committee member noted that some agency publications are not published in journals, and thus finding citations for nominations that include agency publications would be particularly difficult.

Another Committee member also noted that information on how a publication was being cited year by year would be helpful, since information on how citations build over years is useful when considering impact of that publication. Another Committee member asked how Committee members could gather information on legal or regulatory citations associated with nominated publications. Dr. Kopylev responded that it was easy to use Google-Score to find citations, and that the onus is on the nominator to provide sufficient information for the nomination to be reviewed. One Committee member stated that nominations could be required to provide information on citation counts and other uses of the publications (e.g., citations in legal cases).

A Committee member noted that citation metrics vary widely from field to field, and thus the agency should be careful in developing criteria for how such metrics should be considered when reviewing nominations for STAA recognition. For example, the Committee member noted that while some good journals had citation indices of 2 to 3.5., other good journals have citation indices of 5, 6 or 7. The Committee member noted that the agency should provide information on how to weigh the importance of each of the three factors presented in the slide on article-based metrics, and stated that all of the 3 bullets on the slide were not necessarily equal. The Committee member also noted that since the agency addresses environmental issues over the long term (e.g., 5 to 10 years from now), a nomination should not be down-weighted because it does not have an immediate impact on regulatory function.

A Committee member stated that information on the h-index metric described in slide 11 would improve the quality of information related to impact of the nominations. Another Committee member asked how a longer window of eligibility might affect the results of an h-index metric. Dr. Kopylev responded that the h-index is a metric that focuses on the authors. Another Committee member suggested that while it may be useful to add additional metrics to assess impact, the agency should continue to require or encourage nominees to provide information on an article’s Immediacy Index, Citation $\frac{1}{2}$ Life, and Impact Factor. The Committee member stated that these metrics are also useful to consider and noted that the Committee should not rely on any particular metric to assess impact.

In response to these reactions from individual members of the Committee, Dr. Kopylev stated that there was no perfect metric, and suggested that a relevant question was whether there would be more or less bias when considering metrics on journals vs. authors. Dr. Daughton noted that the scientific community has had a long debate on bibliometric data associated with published

research. He noted that some journals have discontinued providing citation information associated with its published articles due to concerns that have been raised regarding citation indices and metrics. Dr. Daughton stated that the agency's consideration on what criteria should weigh most importantly in the consideration of STAA recognition was very complex. He noted that changes to existing criteria or insertions of new criteria for STAA recognition causes impacts to other criteria for such recognition. He noted that ORD was aware of problems associated with consideration of metrics in the consideration of STAA recognition. He stated that ORD was considering whether to recommend rather than require that applicants for STAA recognition provide information on metrics within the nomination package. Dr. Daughton noted that the justification section within the nomination process would also allow the nominator to explain how the article has been used. A Committee member stated that while metrics information is helpful in considering the merits of a nomination, the nomination procedures should note that metrics are only one factor in the consideration of STAA recognition. The Committee member stated that it would be helpful if nominees indicated the various ways that their publications have been recognized, and noted that requirements to submit and consider metrics information should not be biased towards rewarding senior EPA scientists and engineers.

Committee Member Reactions to Slide 13: "Next Steps"

A Committee member stated it would be helpful to have a reduced number of criteria from which to consider in reviewing nominations for STAA recognition. Another Committee member noted that the agency should be commended for considering revisions to its criteria for STAA recognition, and that the agency should consider the following additional criteria for STAA recognition: demonstration of a technology, and conduct of long term research. A Committee member asked whether the agency should also include a criterion for STAA recognition that recognizes the value and impact of agency collaboration, consensus building, and leveraging of resources with outside entities. One other Committee member stated that if the agency wanted to encourage such collaboration, within the STAA nomination procedures, the agency should include a criterion for STAA recognition that assesses the degree of such collaboration.

A Committee member noted that the agency should provide clear guidance for STAA recognition associated with nominations of critical review articles. Another Committee member stated that the agency should reconsider whether nominations of book chapters should be accepted, since such nominations do not appear to meet requirements described within the STAA nomination procedures and guidelines. One Committee member stated it may be helpful if nominees received specific information on the Committee's review of their nomination, in order to assist those nominated authors in the development of future STAA nomination packages.

Another Committee member asked whether any information could be gathered regarding why the trend of submitted nominations for STAA recognition appeared to be declining over recent years, since only 77 nominations were submitted for FY-16 STAA recognition. Dr. Turner presented the number of nominations submitted for STAA recognition over the past ten years, and noted that the number of submitted nominations was erratic but there does appear to be a trend towards fewer submissions. He stated that an assessment should occur on why nominations for STAA recognition appeared to be declining over recent years. Another Committee member asked whether STAA recognition was having an impact on the number and quality of EPA publications. A Committee member stated that it would be difficult to assess causation on this topic. Another Committee member stated that perhaps the agency could identify which agency staff were producing publications that were not nominated for STAA recognition, and assess

how to motivate agency staff to submit STAA nomination packages for such publications. Dr. Kopylev responded that he did not have access to data on whether STAA recognition was having an impact on the number and quality of EPA publications.

Dr. Kopylev also noted that that for FY-16, Level III STAA recognition would be non-monetary recognition and no longer be recognized with a \$2000 cash award. A Committee member stated that a trend in EPA publications was that larger numbers of agency authors who worked as a team in producing publications and results were producing publications. The Committee member stated that this trend was partly due to the interdisciplinary nature of topics that needed to be addressed through the agency's research. The Committee member stated that if 20 members of the agency developed the research, they would each receive only \$100 for Level III \$2000 STAA award, if monetary recognition were reinstated for Level III recognition. The Committee member also stated there was an increasing trend for more and more information required for development of STAA nomination packages. The Committee member noted that STAA recognition helps agency employees in their performance evaluations, and in receipt of salary raises and promotions.

A Committee member suggested that the agency consider developing a separate process for agency staff to submit nominations of publications for non-cash STAA recognition. The Committee member suggested that such a process could be designed to reduce the effort involved in preparing a nomination, and to provide simpler STAA evaluation criteria for the SAB to consider.

A Committee member asked whether it was time for the agency to request a formal evaluation of the STAA Awards Program. The Committee member stated that with 10 years of performance data, the agency has sufficient "experimentation/intervention record" to determine whether the STAA program is achieving its goals – to encourage solid and impactful science and the publication of this science in premier peer-reviewed journals. The Committee member noted that such formal program evaluations are requested typically at the 5 or 10 year anniversary by the "owner" of such programs (in this case, ORD), and that this evaluation is typically conducted by an "outside agent" and not by the owner or stakeholders. The member stated that program evaluations help to strengthen the program itself and the justification for the program.

Closed Session

The Committee continued discussions to develop recommendations for STAA recognition associated with each nomination in closed session. The Committee's preliminary final rankings for each nomination were recorded. The Committee recessed its discussions at 5:40 pm ET on August 15, 2016.

August 16, 2016

Closed Session

The Committee continued its deliberations in closed session. After the Committee developed preliminary final rankings for all nominations, Dr. Turner asked if all members were satisfied with the deliberations and preliminary rankings on each nomination, and wanted to further discuss any nomination. The Committee then agreed upon the final recommendations for awards.

The Committee then discussed and identified several administrative improvements to certain aspects of the STAA nomination process that would be documented in a separate SAB Report to the EPA Administrator.

Dr. Turner thanked the STAA Committee members for their efforts. With the meeting business concluded, the Designated Federal Officer Ed Hanlon adjourned the meeting at 3:00 pm ET.

Respectfully Submitted:

/Signed/
Mr. Edward Hanlon
Designated Federal Officer

Certified as Accurate:

/Signed/
Dr. Jay R. Turner, Chair
SAB Scientific and Technological
Achievement Award Committee

NOTE AND DISCLAIMER: The minutes of this partially closed meeting reflect diverse ideas and suggestions offered by Committee members during the course of deliberations within the meeting. Such ideas, suggestions and deliberations do not necessarily reflect consensus advice from the Committee members. The reader is cautioned to not rely on the minutes to represent final, approved, consensus advice and recommendations offered to the Agency. Such advice and recommendations may be found in the final advisories, commentaries, letters or reports prepared and transmitted to the EPA Administrator following the meeting.

Attachments

A. 2016-2018 SAB STAA Committee Roster

Materials Cited

The following meeting materials are available on the SAB website: <http://www.epa.gov/sab>, at the following SAB STAA Committee August 15-16, 2016 meeting page: <https://yosemite.epa.gov/sab/sabproduct.nsf/a84bfee16cc358ad85256ccd006b0b4b/6cde5649469c28bc85257fb800595d8b!OpenDocument&Date=2016-08-15>

¹ Federal Register Notice announcing the meeting.

² Meeting agenda.

³ Agency presentation slides entitled “Draft Revisions to EPA’s STAA Program.”

ATTACHMENT A – ROSTER

U.S. Environmental Protection Agency Science Advisory Board SAB 2016-2018 Scientific and Technological Achievement Awards Committee (STAA)

CHAIR

Dr. Jay R. Turner, Associate Professor of Energy, Environmental and Chemical Engineering, and Vice Dean for Education, School of Engineering & Applied Science, Washington University, St. Louis, MO

MEMBERS

Dr. C. Marjorie Aelion, Dean, School of Public Health and Health Sciences, University of Massachusetts – Amherst, Amherst, MA

Dr. William A. Arnold, Joseph T. and Rose S. Ling Professor and Distinguished McKnight University Professor, Department of Civil, Environmental, and Geo- Engineering, University of Minnesota, Minneapolis, MN

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Dr. Linda T.M. Bui, Associate Professor of Economics, Brandeis University, Waltham, MA

Dr. Jerry Campbell, Manager, Ramboll ENVIRON, Research Triangle Park, NC

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Dr. Arpad Horvath, Professor, Department of Civil and Environmental Engineering, University of California, Berkeley, Berkeley, CA

Dr. Robert J. Johnston, Director of the George Perkins Marsh Institute and Professor of Economics at Clark University, Worcester, MA

Dr. Terrance J. Kavanagh, Professor, Toxicology Program, and Director of the UW Interdisciplinary Center of Exposures, Diseases, Genomics and Environment, Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA

Dr. Timothy V. Larson, Professor of Civil and Environmental Engineering and Professor of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA

Dr. Cindy M. Lee, Professor, Department of Environmental Engineering and Earth Sciences, and Chair, Engineering and Science Education Department, Clemson University, Anderson, SC

Dr. Michael I. Luster, Research Professor, School of Public Health, West Virginia University, Morgantown, WV

Dr. Audrey L. Mayer, Associate Professor in Ecology and Environmental Policy, Michigan Technological University, Houghton, MI

Dr. James Mihelcic, Professor of Civil and Environmental Engineering, University of South Florida, Tampa, FL

Dr. Eileen A. Murphy, Senior Director Corporate & Foundation Relations, RBHS Rutgers Biomedical Health Sciences, Rutgers University Foundation, New Brunswick, NJ

Dr. Mira S. Olson, Associate Professor, Department of Civil, Architectural and Environmental Engineering, Drexel University, Philadelphia, PA

Dr. Krishna R. Pagilla, Professor and Environmental Engineering Program Director, University of Nevada, Reno, NV

Dr. Thomas F. Parkerton, Toxicology & Environmental Science Division, ExxonMobil Biomedical Sciences Inc., Houston, TX

Dr. Kent E. Pinkerton, Professor and Director, Center for Health and the Environment, University of California, Davis, CA

Dr. Kenneth M. Portier, Vice President, Statistics & Evaluation Center, Intramural Research, American Cancer Society, Atlanta, GA

Dr. Robert W. Puls, Owner/Principal, Robert Puls Environmental Consulting, LLC, Hilton Head Island, SC

Dr. Alan T. Stone, Professor, Environmental and Aquatic Chemistry, Department of Geography and Environmental Engineering, Johns Hopkins University, Baltimore, MD

Dr. Robert L. Tanguay, Distinguished Professor of Molecular Toxicology, Department of Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR

SCIENCE ADVISORY BOARD STAFF

Mr. Edward Hanlon, Designated Federal Officer, U.S. Environmental Protection Agency, Science Advisory Board Staff, Washington, DC

*Could not participate